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"Repurposing the C-Band to Benefit All Americans"

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HEARING ON
"REPURPOSING THE C-BAND TO BENEFIT ALL AMERICANS"

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Chairman Doyle, Ranking Member Latta, and Members of the Subcommittee, thank you for the opportunity to testify about how to best repurpose the 3.7-4.2 GHz band, otherwise known as the "C-Band." It is critical that Congress and the Federal Communications Commission ensure the public's airwaves are used efficiently, and in ways that best serve the public interest.

I am the Policy Director of Public Knowledge, a non-profit, public interest organization that advocates for free expression and public access to information, affordable communications tools, and creative works. Public Knowledge has a long track record working on spectrum policy issues to promote public access to the public's airwaves; innovative, efficient use of spectrum; and pro-competitive spectrum policies to ensure broadband is affordable and accessible for all. Public Knowledge is a member of the broad-based Public Interest Spectrum Coalition that includes national consumer, civil rights, education, rural broadband, and social justice organizations.

The benefits of any reallocation of the public's airwaves in the C-Band must flow to the public. Repurposing portions of the C-Band for wireless broadband use presents the unique opportunity for policymakers to: 1) unleash hundreds of megahertz of mid-band spectrum for next-generation mobile broadband networks, 2) dramatically upgrade efficient use of the C-Band in ways that spur more widespread availability of high-speed fixed wireless broadband in rural and other unserved and underserved areas, and 3)

recoup tens of billions of dollars for the Treasury that could then be allocated to provide substantial benefits to the public, such as closing the digital divide.

The Commission Should Repurpose Portions of the C-Band Spectrum for Wireless Broadband Services

In July 2018, the Federal Communications Commission issued a Notice of Proposed Rulemaking seeking comment on proposals to allocate the 3.7-4.2 GHz spectrum band for wireless broadband services, promoting more efficient and intensive fixed use of the C-Band on a shared basis, while also protecting incumbent users of the spectrum and their customers.[1] Public Knowledge supports efforts to reallocate portions of the C-Band for wireless use. This reallocation has the potential to efficiently utilize all 500 megahertz of the band, putting it to work for deployment of 5G wireless networks and to help close the digital divide.

Reallocating Lower C-Band Spectrum for Mobile Broadband Will Unleash Mid-Band Spectrum for 5G Networks

Spectrum is the invisible infrastructure that carries wireless communications. Next-generation, 5G mobile broadband networks will rely on a mix of low-, mid-, and high-band spectrum. The C-Band has been globally harmonized for wireless use, and the Commission's ongoing C-Band proceeding seeks to free up a significant swath of airwaves for 5G mobile broadband. Public Knowledge supports the Commission's proposal to reallocate C-Band spectrum for mobile broadband use, and supports holding a public auction for a segment of the lower portion of the band.

[1] *See* Expanding Flexible Use of the 3.7 to 4.2 GHz Band, et al, GN Docket No. 18-122, et al, *Order and Notice of Proposed Rulemaking*, 34 FCC Rcd 6915 (2019).

A public auction will make certain that the allocation of C-Band licenses serves the public interest by providing agency oversight of the auction process to prevent anti-competitive behavior and collusion, and auction rules to enhance competition and ensure that small and diverse bidders have the opportunity to acquire the spectrum they need to bring connectivity to the communities they serve. FCC-led auctions provide transparency, due process, economic opportunity, and fairness to the public and to auction participants. There is no evidence that an untested approach, such as the unique "private auction" proposed by the C-Band Alliance, would achieve the same benefits of the Commission's tried and proven auction framework.

A public auction of a significant portion of C-Band spectrum would not only free up airwaves for 5G mobile broadband, but would also generate substantial revenues that Congress could allocate to address pressing national needs – such as closing the digital divide, investing in Enhanced 9-1-1, and promoting digital equity and inclusion. Commission leadership has long identified closing the digital divide as the central priority of the FCC.

According to the FCC, broadband is not deployed to around 25 million Americans. As Members of this Committee are aware, the true number of those without broadband is likely significantly higher than the FCC's projections. In 2017, the Commission's Office of Strategic Planning and Policy Analysis ("OSPPA") reported that fourteen percent of the approximately 160 million residential and small and mid-sized business locations across the U.S. lack access to the internet at broadband speeds. OSPPA concluded that increasing access to ninety-eight percent of residential and business locations with fiber to the premises would cost $40 billion, and reaching the final two

percent – those locations in the most remote areas and those with the most challenging terrain – would cost an additional $40 billion.[2] Further, earlier this year, Chairman Pallone, Chairman Doyle, and numerous Members of the Energy & Commerce Committee introduced the Leading Infrastructure for Tomorrow's America, or LIFT America Act (H.R. 2741). The LIFT America Act proposed to allocate $40 billion for broadband infrastructure investments to connect unserved and underserved communities.[3] Analysts estimate that an auction of C-Band spectrum licenses could generate upwards of $50 billion. Those revenues are significant, and following a public auction in which those funds are deposited in the U.S. Treasury, they could be used to address priorities such as closing the digital divide.

It would be a mistake for Congress or the Commission to introduce unnecessary uncertainty into this process by opting for an untested and illegal "private auction." All stakeholders agree that freeing up a substantial amount of C-Band spectrum is essential for 5G deployments. Relying on an unproven private auction process – one that offers no benefits over the Commission's traditional, proven public auction – introduces the potential for a failed auction, reduced public interest benefits, significant delay, and unnecessary legal risk. These risks are unjustified given the importance of successfully reallocating hundreds of megahertz of C-Band spectrum for 5G mobile broadband.

The C-Band Alliance's proposed private auction of C-Band licenses would violate Section 309(j) of the Communications Act. Section 309(j) requires the Commission to auction licenses when there are multiple applicants for a license. Repurposed C-Band

[2] Federal Communications Commission, Office of Strategic Planning and Policy Analysis, Improving the Nation's Digital Infrastructure 2-3 (2017), *available at* https://docs.fcc.gov/public/attachments/DOC-343135A1.pdf.
[3] Leading Infrastructure for Tomorrow's America Act, H.R. 2741, 116th Cong. (2019).

licenses are certain to attract interest from multiple applicants given the intense demand for mid-band spectrum from national, regional, and rural mobile carriers. Unlike a traditional secondary market spectrum transaction where a license changes hands but the new licensee operates under the existing license rule, in this case the Commission would modify the existing satellite licenses so the spectrum can be repurposed for "flexible use" – most likely use for mobile wireless services. The Commission must also ensure that rules are in place to prevent harmful interference between the different licensed services operating adjacent to one another. This process, which will include the creation of new licenses, requires the Commission allocate these new licenses via a "system of competitive bidding" under Section 309(j)(1). Further, a private auction of new C-Band licenses would run afoul of past precedents where Congress has stepped in to prevent the Commission from proceeding with similar schemes that would enrich a small set of stakeholders at the expense of the public.

A private auction is also likely to distort competition in the mobile wireless market because it would likely exclude small and rural broadband providers – the same providers that are most likely to offer service to consumers in rural communities. Rather than running an auction designed to serve the public interest and promote competition and transparency, the incumbent licensees would have strong incentives to run a private auction designed primarily to maximize profits, while ignoring other important considerations. Further, authorizing a private sale would set a dangerous precedent for the repurposing of future spectrum bands. Inefficient users of valuable airwaves will demand they receive windfall profits to improve their efficiency and free up spectrum. This precedent would encourage hold outs, delaying repurposing of spectrum for new uses,

and diverting revenues that customarily have flowed back to the Treasury to benefit the public.

The fastest, most straightforward, legally sound way to repurpose C-Band spectrum for mobile broadband use is for the Commission to hold a traditional forward auction, repack incumbent satellite users into the upper portion of the band, and require auction winners to reimburse incumbents for eligible and reasonable costs.

Authorizing Point-to-Multipoint Fixed Wireless Service in the C-Band Would Bring High-Speed Broadband to Rural, Tribal, and Other Unserved Areas

Public Knowledge also strongly supports opening unused frequencies in the C-Band for point-to-multipoint ("P2MP") fixed wireless service. Allowing P2MP use of the band would put finite public spectrum resources to more efficient use, and help close the digital divide by allowing fixed wireless broadband providers to extend high-speed broadband to rural and tribal areas, small towns, and other unserved or underserved communities.

The Commission should permit P2MP wireless broadband providers to coordinate shared use across the upper portion of the C-Band, in the frequencies that incumbent satellite operators are repacked into. Additionally, the Commission should authorize opportunistic access of P2MP operations to vacant frequencies in the lower portion of the C-Band until licensees of the repurposed frequencies are ready to commence service. Use of an automated frequency coordination system will permit the Commission to maximize efficient use of the C-Band in a manner similar to the approach adopted for General Authorized Access use of vacant Priority Access License spectrum in the Citizens Broadband Radio Service spectrum (3.550-3.700 GHz). A technical study by Professor

Jeff Reed of Virginia Tech conclusively found that P2MP fixed wireless service can coexist with incumbent satellite users in the C-Band with no harmful interference to the incumbent licensees, and that these P2MP services could deliver high-speed fixed wireless broadband to more than 80 million Americans.

Permitting P2MP fixed wireless service to operate in vacant portions of the lower C-Band on a "use or share" basis and on a shared basis in the upper portions of the band will help deliver high-speed, fixed wireless broadband to rural and Tribal communities and small towns quickly, efficiently, and inexpensively. Fixed wireless service provides a cost-effective method of deploying high-speed broadband to hard-to-serve rural areas. Lower costs improve the economics of deploying to these areas; additionally, those cost savings may be passed on to consumers in the form of lower prices, making broadband more widely available and more affordable.

Public Knowledge Supports the C-Band Act

Last week, Chairman Doyle, Congressman Johnson, Congresswoman Matsui, and Congressman Gianforte introduced common sense, bipartisan legislation that would ensure speedy access to the C-Band spectrum for deployment of next-generation wireless networks, as well as ensuring that the proceeds from the sale of the public's airwaves benefit the American public. H.R. 4855, the Clearing Broad Airwaves for New Deployment Act, presents the fastest, most legally sound way for the FCC to repurpose a significant portion of C-Band spectrum for 5G deployments, while also returning tens of billions of dollars of estimated auction proceeds to the Department of the Treasury.[4] Congress could then allocate those funds to address pressing national priorities, such as

[4] Clearing Broad Airwaves for New Deployment Act, H.R. 4855, 116th Cong. (2019).

closing the digital divide. Public Knowledge supports this legislation and hopes to see it move forward.

5G Mobile Broadband is Unlikely to Benefit Rural Areas and Tribal Lands Without Addressing the Lack of Fixed Broadband Infrastructure in those Communities

While there is considerable excitement and anticipation regarding the eventual deployment of next-generation 5G wireless networks and making new spectrum allocations available for 5G use, communities that currently find themselves on the wrong side of the digital divide are unlikely to benefit from these networks – at least for the foreseeable future. In fact, the prospect of greater consolidation in the mobile wireless market (e.g., the proposed merger between T-Mobile and Sprint) is likely to exacerbate the divide between rural and urban areas; creating stronger incentives for the remaining firms to invest even more heavily in densely populated and wealthy areas, further delaying deployment of 5G networks in exurban areas, small towns, and rural communities.

There is every reason to be skeptical that nationwide wireless carriers will prioritize deployment of 5G technologies to rural communities. These areas have low population density and high per-consumer costs, and therefore have historically lacked the economies of scale needed to attract strong investment from Sprint, T-Mobile, Verizon, and AT&T. Mobile 5G service will likely be a modest, incremental improvement over LTE speeds, particularly in areas where the cost of network densification is prohibitive.

Even if mobile 5G is ultimately deployed on a widespread basis, the simple fact is that the spectrum frequencies that promise to deliver speeds and latency comparable to

fixed networks are unlikely to be able to penetrate buildings in a manner that makes 5G wireless services competitive with fixed broadband. Indeed, mobile 5G networks will rely heavily on fixed broadband networks for backhaul support to quickly deliver vast amounts of data, similar to current mobile wireless technology. An estimated 60 percent of mobile data traffic is currently offloaded onto fixed networks, and that number is increasing annually.[5] However, wireless companies touting the benefits of 5G have typically failed to explain where they will find this fixed backhaul support in rural, less densely-populated areas. Mobile 5G networks will need more than wireless systems to function, since the gigabit capacity over mobile wireless that has been promised requires proximity to fixed-line backhaul that can itself support gigabit speeds. These are the very high-capacity wired networks that are in short supply in lower-income and less densely-populated areas, and areas with challenging terrain.

Further, based on the history of prior mobile wireless technology upgrades and the technical characteristics of mid-band and millimeter wave spectrum, mobile 5G deployments will likely focus on the nation's most urban, affluent areas and do little for rural America. In all likelihood, the nation's largest wireless carriers will continue to focus on the same markets they do today, with true 5G networks utilizing low-, mid-, and high-band spectrum limited to an even smaller subset of wealthy and densely populated areas that already have sufficient fixed infrastructure. To bring high-speed broadband to unserved and underserved areas, as well as make it more realistic that small towns have access to 5G wireless services, the proceeds from a public auction of repurposed C-Band

[5] See Cisco, Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2016–2021(2017), https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networkingindex-vni/mobile-white-paper-c11-520862.pdf

licenses should be reallocated by Congress to deploy future-proof fixed broadband infrastructure in communities that do not have access to the high-speed broadband infrastructure that can provide fixed backhaul for next-generation wireless networks.

Conclusion

Repurposing C-Band spectrum for mobile broadband use via a public auction and authorizing fixed P2MP use of the band provides an elegant, win-win-win solution that addresses the need to free up additional mid-band spectrum for 5G deployments and helps close the digital divide in rural and Tribal areas. First, modifying and repurposing spectrum in the lower C-Band and publicly auctioning that spectrum would ensure spectrum is allocated for 5G mobile broadband use quickly and efficiently.

Second, a public auction would ensure transparency, prevent anti-competitive conduct, reduce risk of a failed auction, and make certain the auction serves the public interest. Revenues generated from the auction of the C-Band licenses would be returned to the Treasury. Congress should then allocate those revenues for the deployment of future-proof, high-speed, fixed broadband infrastructure in unserved and underserved communities, along with funding digital inclusion and digital literacy initiatives like those in the Digital Equity Act (H.R. 4486 and S. 1167). The fixed broadband infrastructure funded by revenues generated from the C-Band public auction would provide substantial economic benefits to the residents of those communities. Permitting P2MP fixed wireless use of the C-Band would deliver high-speed fixed wireless broadband to millions of unserved and underserved households, helping to close the digital divide. Third, the existence of high-speed fixed broadband infrastructure would make it more likely that 5G and future generations of wireless networks are deployed

more quickly to these previously unserved areas, leading to even greater potential economic benefits for those communities.

Again, thank you for the opportunity to testify today on how to best repurpose the C-Band to benefit all Americans. I am prepared to answer any questions you may have.