



**BROADBAND
WITHOUT
BOUNDARIES**

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July 20, 2022

The Honorable Alan Davidson
Assistant Secretary
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

Re: ***Broadband Equity, Access, and Deployment (“BEAD”) Program***

Dear Mr. Davidson:

On July 7, 2022, representatives of WISPA – Broadband Without Boundaries, including myself, met with NTIA’s senior staff to discuss our request that NTIA revise its Notice of Funding Opportunity (“NOFO”) for the Broadband Equity, Access, and Deployment (“BEAD”) program to include broadband service delivered entirely using unlicensed spectrum in its definition of “reliable broadband service.” The effect of NTIA’s present exclusion of unlicensed spectrum threatens the viability of thousands of businesses that today serve nine million consumers, with speeds of 100/20 Mbps up to a gigabit, by explicitly inviting government-funded overbuilding from operators eager to leverage NTIA’s funding in currently served, rather than truly unserved and underserved, areas.

During that meeting we gained a better understanding of NTIA’s process, including its coordination with the FCC and discussions with President Biden’s domestic policy team and other agencies, and of certain elements of the NTIA’s rationale concerning its present definition of “reliable broadband service.” For our part, we presented the many technical and operational reasons why broadband service delivered over unlicensed spectrum is reliable and sustainable over the long term, and fully capable of meeting increasing consumer demand for faster speeds and interference-free service. These reasons are summarized in the attached document.

As the former Chief Operating Officer of a broadband provider that deployed service over unlicensed spectrum, I can assure you that the NTIA’s concerns are not grounded in marketplace realities. If the intent is to achieve the ambitious goal of universal service assigned by the President and Congress, BEAD funds do not belong in any scenario where overbuilding a served area can occur. By treating unlicensed spectrum as “unserved,” however, NTIA guarantees overbuilding will occur.

My primary concern is the very real threat that our members face – the substantial erosion of their privately funded businesses when forced to compete with BEAD-funded competitors that can subsidize their costs in established service areas. To be blunt, our members fear they will lose their businesses as BEAD funds are secured by operators who could not otherwise sustain operations absent NTIA’s subsidy, to overbuild our members’ long-standing community-based operations while depriving deserving communities of the funding BEAD is intended to connect. Our members are scared for their livelihoods, and those of their employees and their families. While it might be argued that our members could avail themselves of NTIA’s “unserved” designation to compete for BEAD funding to continue to expand their networks, they typically are already doing so with private funds without the need for government subsidies and would greatly prefer to see BEAD deployed to the truly unserved.

Reliable Broadband Service Today and Tomorrow



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This should be of no minor concern to NTIA. Our members have long been the first to push forward to close the digital divide by *serving* truly unserved and underserved areas – precisely those evolving frontiers NTIA now targets with the BEAD program. Our members have deployed fixed wireless service in rural communities that larger providers using wireline technologies avoided altogether, or readily abandoned when profit considerations shifted their priorities. Our equipment manufacturers have developed innovative and remarkable technology advancements that have allowed our members to keep pace with demand. And the FCC has responded by continuing to make more and more unlicensed spectrum available for last-mile operations, including the recent allocation of 850 megahertz in the 6 GHz band that will provide “clean” spectrum throughout rural America – the same areas that the BEAD program risks overbuilding under the NOFO. The FCC does not take away unlicensed spectrum; instead, it consistently makes more available, often as a consequence of the re-allocation of federal spectrum in coordination with NTIA and the Department of Defense. Given the demonstrated, ongoing expansion of available unlicensed spectrum, it is hard to fathom NTIA’s rationale for excluding the leading, available, deployable and resilient asset that has consistently and reliably brought service to the unserved, while at the same time choosing to include last-generation DSL in its definition of “reliable broadband service.”

We respectfully ask NTIA to reconsider its unfortunate and, in our view, ill-reasoned decision. Broadband delivered over unlicensed spectrum is “reliable broadband service,” and our members who use it to serve their customers are reliable broadband operators. We ask NTIA to revise the NOFO to include broadband service delivered entirely over unlicensed spectrum in its definition of “reliable broadband service.” This simple change will help ensure that finite BEAD funds are directed to areas that are truly unserved and underserved, eliminate prospects for overbuilding served communities and imperiling small entrepreneurs, and ensure greater success of the program.

We look forward to further engagement with NTIA on this and other aspects of the BEAD NOFO. Please feel free to contact me at dzumwalt@wispa.org.

Respectfully,

A handwritten signature in dark ink, appearing to read "David M. Zumwalt", written in a cursive style.

David M. Zumwalt, President & CEO

Enclosure

cc: Nicholas Alexander
Evan Feinman
Naeema Hasan
Doug Kinkoph
Sarah Morris
Phil Murphy

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The Notice of Funding Opportunity (NOFO) for the Broadband Equity, Access, and Deployment (BEAD) Program adopted three criteria for determining when broadband service meets the definition of “Reliable Broadband Service.” “Reliable Broadband Service must be (1) a fixed broadband service that (2) is available with a high degree of certainty, (3) both at present and for the foreseeable future.” The NOFO determined that the following broadband technologies meet those three criteria: (i) fiber-optic technology; (ii) Cable Modem/Hybrid fiber-coaxial technology; (iii) digital subscriber line (DSL) technology; or (iv) terrestrial fixed wireless technology utilizing entirely licensed spectrum or using a hybrid of licensed and unlicensed spectrum.” The NOFO further states that “services using entirely unlicensed spectrum . . . do not meet the criteria for Reliable Broadband Service and so will be considered ‘unserved.’” There is no explanation in the NOFO why broadband service accessible via licensed spectrum can be considered reliable but broadband service using entirely unlicensed spectrum should not be considered reliable.

NTIA’s definition places fixed wireless access (FWA) providers, who currently provide broadband service to approximately **nine million** Americans, businesses, anchor institutions and first responders, at substantial risk of being overbuilt by BEAD grants, even if they are providing speeds of 100/20 Mbps or better, have not received or caused harmful interference, and enjoy low churn rates over a long period of time. Moreover, deeming service provided over unlicensed spectrum as unreliable contravenes years of FCC precedent and industry best practices to provide the widest possible set of technologies to achieve Congressional objectives of deploying broadband service to unserved and underserved areas. For the reasons we explain below, broadband service provided over entirely unlicensed spectrum meets the three criteria the NOFO adopted for “reliable broadband service.” NTIA should issue a revision to the NOFO to make clear that locations that can access broadband service using entirely unlicensed spectrum meet the criteria for Reliable Broadband Service and thus will *not* be considered “unserved.”

Unlicensed spectrum is now and will in the future be available with a high degree certainty

- Fixed wireless technology, and unlicensed spectrum in particular, has always kept pace with consumer demand (i.e., “adaptability to changing end-user requirements”)
 - Low churn
 - Increasingly faster speeds
 - Technological innovation
- 850 megahertz of standard power unlicensed spectrum in the 6 GHz band will operate under the control of automated frequency coordination (AFC) that will inform users of the presence of other users such that they can avoid using certain spectrum segments when and where they are in use
- Many WISPs are able to provide Gigabit download and 500 Mbps upload speeds using entirely unlicensed spectrum in the 57-71 GHz band (14,000 megahertz of spectrum), and some have successfully achieved Gigabit speeds in 6 GHz trials¹
- Potential for more unlicensed spectrum to be made available in 3.1-3.45 GHz band

Unlicensed spectrum can be more reliable than licensed spectrum

- The fact that the FCC has allocated a license to a provider does not mean that the provider will have unfettered and continuous access to the spectrum band during the license term that is usually 12 years or less
 - Section 316 of the Communications Act gives the FCC statutory authority to modify any license if the agency finds it would serve the “public interest, convenience, and necessity”
 - The FCC has used that authority to modify licenses in several instances. Between 2020 to 2021, the FCC used this statutory authority to modify existing licenses such that they are no longer authorized to operate in the 3.3-3.55 GHz band
 - The FCC also used this authority to modify existing fixed satellite service licenses and market access authorizations held by space station operators in the C-Band (3.7-4.0 GHz band)
 - The FCC also used this statutory authority to modify wireless licenses in the 1.9 GHz and 2.3 GHz bands, and 700 MHz bands

¹ *Gigabit 6 GHz Fixed Wireless is a Reality* (May 23, 2022), available at <https://nextlinkinternet.com/gigabit-6-ghz-fixed-wireless-is-a-reality/> (“Utilizing an FCC experimental license, and Cambium Networks fixed wireless access points and subscriber modules utilizing Qualcomm® Networking Pro Series Platforms, Nextlink achieved actual throughput of over 1 Gbps download and 500 Mbps upload to each subscriber module under full load, utilizing a 160 MHz channel at 2 miles.”); *Resound Networks and Airspan Networks Successfully Test 1 Gigabit Per Second Fixed Wireless Access (FWA) Services using 6 GHz Spectrum* (June 1, 2022), available at <https://www.airspan.com/news/resound-networks-and-airspan-networks-successfully-test-1-gigabit-per-second-fixed-wireless-access-fwa-services-using-6-ghz-spectrum/> (announcing “successful results of gigabit-tier fixed wireless services using experimental 6 GHz spectrum at a distance of over 3 miles in real-world testing.”).

- Frequency agility across a large amount of spectrum enables providers to find “clean” channels; not possible with licensed channels that have more limited channel sizes bounded by specified upper and lower frequency edges
- If there is clutter, terrain, environmental or other noise issues, licensed service cannot freely move to other frequencies
- Many of the mitigation techniques discussed below have not been incorporated into licensed bands.
- Licensed and unlicensed equipment often use the same Software Defined Radio
 - Broadband service using entirely unlicensed spectrum has flexibility to move to other channels/frequencies, whereas broadband service using licensed spectrum has very little flexibility
 - If there is clutter, terrain, environmental or other noise issues, licensed service cannot freely move to “clean” frequencies

Reliability is a function of network design, not whether spectrum is licensed or unlicensed

- Nine million Americans obtain broadband service over FWA
- Low churn rates in FWA networks illustrate reliability, and is a key performance indicator for the unprecedented amount of private capital that has fueled FWA expansion in the last two years
- Rural areas are less “noisy” and thus less susceptible to harmful interference
- The FCC has made, and will continue to make, unlicensed spectrum available for fixed wireless service, creating more “clean” spectrum to meet present and future demand
- Interference to and from unlicensed networks is much more navigable and there is a toolbox of solutions for management including:
 - Frequency agility across a large amount of spectrum enables providers to find “clean” open channels; not possible with licensed channels that have more limited channels bounded by specified upper and lower frequency edges
 - Network densification, in which the provider uses all or almost all of the unlicensed spectrum in a given market, is common among providers of FWA service to create de facto geographic exclusivity much like a spectrum license
 - Antenna use and directionality
 - Directional antennas are commonly used and enable the signal to focus the beam in a particular direction on specific frequencies
 - Beamforming (electronically guided) antennas can further mitigate interference potential by steering the beam to its intended destination
 - Antenna arrays provide a greater surface area that allows for more efficiency in transmit and receive antennas and can reduce interference
 - Timing techniques
 - Locational GPS with timing allows automated coordination at the transmit antenna (i.e., alternate transmit/receive based on local environment and activity)
 - Timing schemes (e.g., near and far TDD)
 - Duty cycle compatibility

- Listen-before-talk
- Frequency re-use and channel agility
 - Channel re-use enables more “clean” channels for interference avoidance
 - Channel agility and diversity enables provider to simply re-tune the equipment so it operates on “clean” channels that will not cause or suffer harmful interference
- Noise cancellation technologies in new generation of equipment
- FWA providers voluntarily coordinate operations using a variety of different mitigation techniques
- Effective network planning and management; and coexistence planning techniques
- Service outages often caused by external events
 - Natural disasters (though the FCC has determined that FWA (licensed or unlicensed) is more reliable than aerial fiber on wood poles)
 - Fiber cuts upstream

The FCC has determined that unlicensed spectrum provides Reliable Broadband Service

- In both the CAF Phase II and RDOF Phase I Auction Procedures Public Notices, the FCC allowed support recipients to apply for and deploy broadband service entirely over unlicensed spectrum to meet their performance obligations
 - The FCC stated in its RDOF Auction Procedures Public Notice: “Moreover, concerns about congestion and interference may further be alleviated by the fact that many of the areas that are eligible for Auction 904 are rural and unserved”
 - The FCC adopted case-by-case review for fixed wireless proposals for the Gigabit Tier (1 Gbps/500 Mbps), but established no such condition for proposals at lower speed tiers, including the 100/20 Mbps minimum speeds required for BEAD
- The FCC rejected arguments that broadband networks using entirely unlicensed spectrum could not apply to bid in the Gigabit Tier

Conclusion

WISPA wants to see the BEAD program truly succeed.

WISPA asks NTIA to examine the technical factors we presented during our call on July 7 and in this document demonstrating that broadband networks using entirely unlicensed spectrum are reliable when appropriately engineered, deployed and operated. In addition, WISPA looks forward to participating in future discussions with NTIA in order to provide input and direction to achieve the goals and objectives of reliable and sustainable broadband deployments, especially with hybrid solutions and appropriate use of proven unlicensed bands.