

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

In the Matter of)
)
Wireline Competition Bureau Seeks Comment on)
Emergency Connectivity Fund for Educational) WC Docket No. 21-93
Connections and Devices to Address the)
Homework Gap During the Pandemic)

COMMENTS OF WI-FI ALLIANCE

Wi-Fi Alliance^{1/} submits these comments in response to the Public Notice issued in the above-referenced proceeding initiated to implement Section 7402 of the American Rescue Plan Act of 2021.^{2/} Wi-Fi Alliance applauds the Rescue Plan Act’s appropriate recognition of the critical role that Wi-Fi plays, and will continue to play, in ensuring that students, school staff and library patrons have the connectivity they need during the current pandemic. Wi-Fi technology remains the key to the Internet connectivity and with schools and libraries remaining not fully

^{1/} Wi-Fi Alliance is a global, non-profit industry association of over 850 leading companies from dozens of countries devoted to seamless interoperability. With technology development, market building, and regulatory programs, Wi-Fi Alliance is the organization that enables widespread adoption of Wi-Fi® worldwide by certifying thousands of Wi-Fi products each year. Wi-Fi®, the Wi-Fi logo, the Wi-Fi CERTIFIED logo, Wi-Fi Protected Access® (WPA), WiGig®, the Wi-Fi Protected Setup logo, Wi-Fi Direct®, Wi-Fi Alliance®, WMM®, Miracast®, Wi-Fi CERTIFIED Passpoint®, and Passpoint® are registered trademarks of Wi-Fi Alliance. Wi-Fi CERTIFIED™, Wi-Fi Protected Setup™, Wi-Fi Multimedia™, WPA2™, WPA3™, Wi-Fi CERTIFIED Miracast™, Wi-Fi ZONE™, the Wi-Fi ZONE logo, Wi-Fi Aware™, Wi-Fi CERTIFIED HaLow™, Wi-Fi HaLow™, Wi-Fi CERTIFIED WiGig™, Wi-Fi CERTIFIED Vantage™, Wi-Fi Vantage™, Wi-Fi CERTIFIED TimeSync™, Wi-Fi TimeSync™, Wi-Fi CERTIFIED Location™, Wi-Fi Location™, Wi-Fi CERTIFIED Home Design™, Wi-Fi Home Design™, Wi-Fi CERTIFIED Agile Multiband™, Wi-Fi Agile Multiband™, Wi-Fi CERTIFIED Optimized Connectivity™, Wi-Fi Optimized Connectivity™, Wi-Fi CERTIFIED EasyMesh™, Wi-Fi EasyMesh™, Wi-Fi CERTIFIED Enhanced Open™, Wi-Fi Enhanced Open™, Wi-Fi CERTIFIED Easy Connect™, Wi-Fi Easy Connect™, Wi-Fi CERTIFIED 6™ and the Wi-Fi Alliance logo are trademarks of Wi-Fi Alliance.

^{2/} *Wireline Competition Bureau Seeks Comment on Emergency Connectivity Fund for Educational Connections and Devices to Address the Homework Gap During the Pandemic*, Public Notice, WC Docket No. 21-93, DA 21-317 (rel. Mar. 16, 2021); American Rescue Plan Act of 2021, Pub. L. No. 117-2, Title VII, § 7402 (2021), <https://www.congress.gov/117/bills/hr1319/BILLS-117hr1319enr.pdf> (“Rescue Plan Act”).

open, the Rescue Plan Act will facilitate even more connectivity by those that may not have it today. In order for the funding provided by the Rescue Plan Act to have the greatest impact, the Commission should ensure that the most up to date Wi-Fi devices (*e.g.*, Wi-Fi 6E) are readily available on the market and encourage procurement of Wi-Fi CERTIFIED equipment, which features the most advanced security protocols.^{3/} It should also implement the definition of a “Wi-Fi hotspot” expansively to allow the purchase of the greatest range of equipment.

The Rescue Plan Act appropriates funds for, among other purposes, schools and libraries to purchase Wi-Fi hotspots, defined as a device that “is capable of—(A) receiving advanced telecommunications and information services; and (B) sharing such services with a connected device through the use of Wi-Fi.”^{4/} The Rescue Plan Act further defines Wi-Fi as the “wireless networking protocol based on Institute of Electrical and Electronics Engineers standard 802.11 (or any successor standard).”^{5/} By designating funds to purchase devices using Wi-Fi technology in particular, Congress recognized the ubiquity of Wi-Fi technology and its role in connecting everyone, everywhere. Wi-Fi technology is the primary means by which a broad range of devices – even those that use licensed spectrum – connect with one another. There are 16 billion Wi-Fi devices in use today, with more than 4 billion devices shipping annually.^{6/} In the United States there are projected to be approximately 13 Wi-Fi connected devices per person by 2023.^{7/}

^{3/} Wi-Fi CERTIFIED™ is an internationally-recognized seal of approval for products indicating that they have met industry-agreed standards for interoperability, security, and a range of application specific protocols <https://www.wi-fi.org/certification#:~:text=Wi%2DFi%20CERTIFIED%E2%84%A2%20is,range%20of%20application%20specific%20protocols>.

^{4/} *Rescue Plan* at § 7402(d)(11)(A)-(B).

^{5/} *Rescue Plan* at § 7402(d)(10).

^{6/} *Discover Wi-Fi*, WI-FI ALLIANCE, <https://www.wi-fi.org/discover-wi-fi> (last visited Apr. 5, 2021).

^{7/} *Cisco Annual Internet Report (2018–2023) White Paper*, CISCO (Mar. 9, 2020), <https://www.cisco.com/c/en/us/solutions/collateral/executive-perspectives/annual-internet-report/white->

These numbers are only likely to keep growing, with some estimates projecting as many as 500 billion internet-enabled devices by 2030.^{8/}

While Wi-Fi technology is the principal means by which billions of devices connect in general, the Rescue Plan Act recognizes the essential role it plays in providing access to the Internet in particular. In fact, over fifty-percent of all internet traffic is over a Wi-Fi connection in the United States^{9/} with Wi-Fi accounting for 63% of mobile offload traffic in 2020.^{10/} And, as learning and other activities became remote during the pandemic, the use of Wi-Fi to support the connectivity needed has skyrocketed. During the pandemic, “[t]he amount of time spent at home [] yielded a dramatic increase in home Wi-Fi activity For example, in the United States the percent of time spent by a smartphone user on Wi-Fi jumped from 54.3 percent to 59.9 percent.”^{11/} Much of the increased use during the pandemic was for educational purposes as schools shifted to remote online learning, displaying how critical Wi-Fi access is for students and

paper-c11-741490.html; *IoT Has Quietly and Quickly Changed Our Lives*, NCTA (Feb. 1, 2019), <https://www.ncta.com/whats-new/iot-has-quietly-and-quickly-changed-our-lives>.

^{8/} *The Future of Wi-Fi*, Spectrum & Wi-Fi, NCTA, <https://www.ncta.com/positions/spectrum-wifi> (last visited Apr. 5, 2021). That is why it is not surprising that Wi-Fi is also a significant economic driver. In 2021, the global economic value provided by Wi-Fi is projected to reach \$3 trillion dollars and increase to \$5 trillion by 2025. *Global Economic Value of Wi-Fi to Reach \$5 Trillion in 2025 Highlights*, WI-FI ALLIANCE, 1, https://www.wi-fi.org/download.php?file=/sites/default/files/private/Economic_Value_of_Wi-Fi_Highlights_202102_0.pdf (last visited Apr. 5, 2021) (“*Wi-Fi Study Highlights*”). In the United States alone Wi-Fi adds almost \$1 trillion dollars in economic value to the economy, increasing by over another half trillion by 2025. *Id.* Moreover, this contribution to GDP will alone generate over half a millions jobs in 2021. Raúl Katz, et al., *The Economic Value of Wi-Fi: A Global View (2021-2025)*, TELECOM ADVISORY SERVICES, 31 (Feb. 2021), https://www.wi-fi.org/download.php?file=/sites/default/files/private/The_Economic_Value_of_Wi-Fi-A_Global_View_2021-2025.pdf.

^{9/} *The Future of Wi-Fi*, Spectrum & Wi-Fi, NCTA, <https://www.ncta.com/positions/spectrum-wifi> (last visted Apr. 5, 2021).

^{10/} *Wi-Fi Study Highlights* at 2.

^{11/} Raúl Katz, et al., *Covid-19 and the Economic Value of Wi-Fi*, TELECOM ADVISORY SERVICES, 8 (Dec. 2020), https://www.wi-fi.org/download.php?file=/sites/default/files/private/COVID-19_Economic_Value_Wi-Fi_202012.pdf (“*Covid Wi-Fi Report*”).

educators.^{12/} The Rescue Plan Act recognizes that some students, school staff and library patrons – who formerly may have accessed the Internet at schools and libraries – may be without that access if they cannot use the buildings where Wi-Fi devices are located. That is why the Rescue Plan Act provides funding for them to acquire those devices.^{13/}

The Rescue Plan Act’s funding for purchase of Wi-Fi devices comes at a pivotal time for Wi-Fi technology. The Commission recently made the band 5925-7125 MHz (the “6 GHz band”) available for unlicensed devices, including Wi-Fi.^{14/} Devices that include the 6 GHz band will offer gigabit speeds, extremely low latency and high capacity. So that Rescue Plan Act funds can be used to purchase Wi-Fi equipment with the highest utility for students, school staff and library patrons, the Commission should ensure that there is no delay in approving the use of

^{12/} See *Covid Wi-Fi Report* at 11 (explaining that even as merely *complementary* to in person education Wi-Fi was critical for success, but since, pandemic conditions have proven how important Wi-Fi is, as it has served as one of the only links between student and teacher); see also Lauren Camera, *Disconnected and Disadvantaged: Schools Race to Give Students Access*, U.S. NEWS AND WORLD REPORT (Apr. 1, 2020), <https://www.usnews.com/news/education-news/articles/2020-04-01/schools-rush-to-get-students-internet-access-during-coronavirus-pandemic> (highlighting the need for students to get online for school, and the critical nature of internet devices); *65% of Households with Children Report the Use of Online Learning During Pandemic*, USA FACTS (Dec. 10, 2020), <https://usafacts.org/articles/65-of-childrens-education-has-moved-online-during-covid-19/> (noting that 65% of households with children participated in some form of online learning during the pandemic highlighting the increased use of the internet for educational purposes).

^{13/} While pandemic trends are favorable, many school systems and public libraries remain closed, or are offering very limited service, meaning the use of funds is still needed. See e.g. Shawn Hubler, *Los Angeles Schools Remain Closed and Families Wonder: How Much Longer?*, N.Y. TIMES (Mar. 12, 2021), <https://www.nytimes.com/2021/03/08/us/los-angeles-schools-reopening.html>; *NYPL Updates: Coronavirus (COVID-19) Information*, NEW YORK PUBLIC LIBRARY, <https://www.nypl.org/about/coronavirus#:~:text=As%20part%20of%20New%20York,for%20holds%20pickups%20and%20returns> (updating patrons that a phased re-opening is commencing but in-person service will be limited to pick-ups and returns); *Returning to the Library*, DC PUBLIC LIBRARY, <https://www.dclibrary.org/reopen> (updating patrons that the library is open but only for services limited to those that do not require use of a public computer or substantial in-person time). Moreover, any equipment purchased during the COVID-19 Emergency Period (as that term is defined in the Rescue Act) may continue to be deployed usefully by schools and libraries for the remaining useful life of the device.

^{14/} *Unlicensed Use of the 6 GHz Band and Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd 3852 (2020) (“6 GHz Order”).

devices that use the 6 GHz band. Wi-Fi 6E is the Wi-Fi Alliance certification program that extends the latest Wi-Fi 6 certification protocols to the 6 GHz band.^{15/} Those certification protocols, whether for 6 GHz or otherwise, are designed to ensure that devices meet industry-agreed standards for interoperability, security and a range of application-specific protocols. The Commission should therefore encourage Rescue Plan Act funding recipients to choose Wi-Fi CERTIFIED devices – which implement the latest generation of Wi-Fi Protected Access (WPA3) security protocols^{16/} – in general, and where appropriate, Wi-Fi 6E certified devices – that offer the most advanced connectivity features – in particular.

The Wireline Competition Bureau (the “Bureau”) seeks input on how it should define the term “eligible equipment,” which includes, among others “Wi-Fi hotspots.” While “Wi-Fi Hotspot” is itself defined in the Rescue Plan Act, Wi-Fi Alliance encourages the Bureau to adopt a broad reading of that definition to achieve the maximum impact of the funds available through the Rescue Plan Act. Many Wi-Fi-enabled devices are capable of sharing advanced telecommunications and information services with other devices through Wi-Fi, and they should all be considered Wi-Fi hotspots. While familiar access points that connect to the Internet via wire or wirelessly certainly fall within that definition, any device that permits wireless tethering should also be considered a hotspot, whether or not it also meets the definition of a “connected device” under the Rescue Plan Act (*e.g.*, phones, virtual assistant devices, etc.).

Respectfully submitted,

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^{15/} *Wi-Fi CERTIFIED 6*, Discover Wi-Fi, WI-FI ALLIANCE, <https://www.wi-fi.org/discover-wi-fi/wi-fi-certified-6> (last visited Apr. 5, 2021).

^{16/} *Security*, Discover Wi-Fi WI-FI ALLIANCE, <https://www.wi-fi.org/discover-wi-fi/security> (last visited Apr. 5, 2021) (noting specifically the WPA3 Certification).

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