

WifiForward

INDUSTRY RESPONSE TO ECONOMIC VALUE OF UNLICENSED SPECTRUM REPORT

Arris/Ruckus

“ARRIS is very grateful to Dr. Katz for the thoughtful and thorough analysis he has done on the value of unlicensed spectrum. This analysis will be extremely helpful to policymakers as they consider the careful balancing of licensed, unlicensed, and shared spectrum requirements needed to support our increasingly wireless world. We are not surprised to learn that the value of unlicensed spectrum continues to increase rapidly and is now being driven by technologies such as IoT and unlicensed LTE in addition to Wi-Fi, however the bottom line valuation of \$834 Billion annually by 2020 is truly staggering – clearly reflecting the American economy’s reliance upon this vital resource.” - **Dan Rabinovitsj, President of Ruckus Networks, on behalf of ARRIS, and its Enterprise Networking arm, Ruckus Networks**

Boingo

“Unlicensed spectrum has significantly broadened the wireless ecosystem, fueling connectivity in nearly every aspect of our lives. Looking ahead, Wi-Fi will continue to have substantial impact as it will be critical for realizing future converged networks that are necessary in a 5G world. New technologies like 802.11ax and the rollout of hyper-dense network designs will transform the connected experience and drive further economic value.” - **Derek Peterson, Ph.D., Chief Technology Officer, Boingo Wireless**

Broadcom

“Unlicensed spectrum policy charted by the FCC nearly two decades ago, which has enabled the development of Wi-Fi, has been an astounding boost to the U.S. economy. In less than 20 years Wi-Fi has become the preferred way for Americans to access the Internet, it has enabled the video revolution, and it has made dumb homes smart - it is connecting everything. However, the unlicensed spectrum designations that have enabled Wi-Fi have not kept pace with its demand. The FCC is considering proposals to allow Wi-Fi to expand into portions of the 5 GHz and 6 GHz bands, which will provide the large contiguous channels that will pave the way for the next decade in innovation that will see smart homes become genius through technologies such as advanced robotics and artificial intelligence.” - **Chris Szymanski, Director of Product Marketing and Government Affairs, Broadcom**

Carlson Wireless

“At Carlson Wireless, we are proud to be an industry-leader in rural connectivity, which is why we are such strong supporters of unlicensed spectrum. Unlicensed spectrum-based technologies are critical to improving connections across rural America, and its impact on

Americans lives cannot be overstated. It is important to consider that the findings of Wi-Fi Now shows that by 2020, unlicensed spectrum will have an economic value of \$834.48 billion.

We're thrilled to see evidence that it has the same impact on the economy, and look forward to continuing to advocate for common-sense spectrum policy, including increased allocation of spectrum for unlicensed use." - **James Carlson, CEO, Carlson Wireless**

Computer and Communications Industry Association (CCIA)

"Connectivity is crucial for our economy, and this study estimates that the economic contribution of unlicensed applications could reach \$834.48 billion by 2020. To stay competitive in the global race for 5G, we need more spectrum of all types to support new use cases like artificial intelligence (AI) and Internet of Things (IoT) devices. Unlicensed spectrum plays a unique role because it is available for use by anyone, so it facilitates innovation. CCIA welcomes this study from Dr. Katz on the value of unlicensed spectrum and hopes that it will be a resource informing spectrum policy and advancing the ability of the United States to compete in the global race to 5G." - **Computer and Communications Industry Association**

Consortium for School Networking (CoSN)

"Wi-Fi's growing economic importance is no surprise to ed tech leaders. The technology is expanding students' learning opportunities and driving innovation. Unlicensed spectrum's incredible value to education, as with the broader economy, shouldn't be overlooked by policymakers." - **Keith Krueger, CEO, CoSN – Consortium for School Networking**

Consumer Technology Association (CTA)

"CTA commends WifiForward and Dr. Katz for releasing today's report. Unlicensed spectrum is a critical engine for connectivity. One visit to CES® – the global stage for innovation – and it's clear that unlicensed spectrum is driving innovation. Let's continue to work together with our legislators, regulators and technologists to free spectrum for unlicensed use." **Julie Kearney, Vice President, Regulatory Affairs, Consumer Technology Association**

Dynamic Spectrum Alliance (DSA)

"The study by Dr. Raul Katz highlights the critical importance of unlicensed spectrum for enabling economic growth and for creating opportunities for rapid, market driven innovation. The study also underscores the need to ensure that sufficient new unlicensed spectrum is available to allow full utilization of the high-speed, gigabit fiber networks that are currently being deployed. The Dynamic Spectrum Alliance (DSA) congratulates the great work done by Dr. Katz. The DSA strongly supports the need for more unlicensed spectrum, in low-, mid- and high-bands and hopes that U.S. telecom and spectrum policymakers act rapidly to ensure that sufficient unlicensed spectrum is available to drive America's economic growth and global leadership in tomorrow's technology innovations." - **Kalpak Gude, President, Dynamic Spectrum Alliance**

Engine

"Unlicensed spectrum is an invaluable asset for the thriving startup ecosystem in the U.S. Those open airwaves—and the networks and devices that run on them—add hundreds of billions of dollars to the U.S. economy and have helped create an open, level playing field for startups.

Unlike licensed spectrum, which comes at a high cost and is typically only held by the large incumbents that can afford to pay for it, unlicensed spectrum has a much lower barrier to entry, making it particularly useful for new and small startups. It also fuels the WiFi networks and short-range wireless connectivity that everyone from online video streaming platforms, to file-sharing apps, to connected device manufacturers, depend on." - **Evan Engstrom, Executive Director, Engine**

Hewlett Packard Enterprise (HPE)

"In today's hyper-connected, wireless world, the amount of data we consume is growing at an exponential rate, one we could have barely imagined a decade ago. Our ability to reach critical public policy goals, conduct business, drive innovation, and grow the GDP are all dependent upon this connectivity and data and that requires having an adequate amount of spectrum available to support unlicensed devices," said Chuck Lukaszewski, Vice President of Wireless Strategy and Standards for HPE. "However, while the demand on unlicensed wireless technologies continues to soar, there has been no new unlicensed spectrum allocated in the key mid-bands since 2003. We must address this now – as the European Union is doing – in order to maintain U.S. spectrum leadership around the world. Not only will the additional unlicensed allocation in the 6 GHz band help to address congestion on existing networks, it is critical to the deployment of a robust 5G network." - **Chuck Lukaszewski, Vice President of Wireless Strategy & Standards, Hewlett Packard Enterprise**

NCTA - The Internet and Television Association

"In our era of constant connectivity, Wi-Fi has become an essential part of our lives and the primary way that cable broadband customers experience the Internet. The availability of unlicensed spectrum is critical to providing a robust connected experience in and out of the home. The report by Telecom Advisory Services underscores the tremendous value of unlicensed spectrum bands to the U.S. economy and the importance of new unlicensed designations to continue growing this important sector that benefits nearly every American."

NCTA - The Internet & Television Association

Public Knowledge

"Today's report confirms once again the critical role access to unlicensed spectrum plays in our digital economy. As wireless technology continues to evolve, so does the value of, and demand for, more unlicensed spectrum access. Unlicensed spectrum makes new innovations like connected cars and home network hubs like Alexa possible, even while still supporting hundreds of millions of existing devices and applications.

“Each day, we hear about the importance of 5G. As this report shows, any successful national 5G strategy must include significant new allocations of spectrum for unlicensed use. As the Administration prepares to announce its new 5G spectrum policy framework in June, finding enough unlicensed spectrum to support this continually growing component of our economy must be a top priority.” - **Harold Feld, Senior Vice President, Public Knowledge**

R Street Institute

"While licensing has proven to be an effective way to ensure that spectrum is put to productive use, it is not the only method of managing access to spectrum. Technologies like Wi-Fi and Bluetooth have shown how technical specifications can often resolve interference concerns even without exclusive licenses, benefiting consumers and innovators alike. Additionally, new sharing arrangements, such as those proposed for the 3.5 GHz CBRS band, promise ways of realizing the benefits of both exclusively-licensed and unlicensed spectrum." **Joe Kane, Technology Policy Associate, R Street Institute**

Schools, Health & Libraries Broadband (SHLB) Coalition

"This updated study highlights the untapped potential of unlicensed spectrum to promote innovation and foster competition. It will be a vital resource for schools, libraries, health providers, and other anchors to take advantage of digital learning, telemedicine, and 5G technologies." - **John Windhausen, Jr., Executive Director, Schools, Health & Libraries Broadband (SHLB) Coalition**

Wi-Fi Alliance

"Wi-Fi® is one of the greatest technology success stories of our time, and for nearly 20 years it has been an engine for social and economic benefit. Wi-Fi is synonymous with Internet connectivity, yet its broader role in essential business operations around the world is often understated. Unlicensed spectrum is a crucial ingredient in Wi-Fi's ability to deliver applications and even create entirely new business models which enhance daily productivity and innovation, while bringing substantial economic contributions to our society." - **Edgar Figueroa, President and CEO, Wi-Fi Alliance**

The Wireless Internet Service Provider Association (WISPA)

"Unlicensed spectrum is critical infrastructure for the fixed wireless broadband industry. WISPA members are using unlicensed and "lightly licensed" spectrum to deliver affordable, fast broadband services to more than 4 million customers across the United States. The economic benefits to the nation are immense.

Of special note, experts agree that fixed wireless is the most cost-effective solution for bringing broadband-enabled services to rural and underserved areas, because the networks can be built and upgraded faster, at a fraction of the cost of wireline or cellular solutions. Unlicensed spectrum is a critical component of these networks, and necessary for maintaining a cost-effective business model.

If policymakers want to see more rural broadband service and choices -- and more competition and innovation in all areas -- the most important thing they can do is support more flexible, shared, and lightly licensed use of under-utilized bands, and a continuing, expanding role for unlicensed spectrum." - **Claude Aiken, President, WISPA**