Consumer Technology Association™

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The Honorable Alan Davidson
Assistant Secretary of Commerce for Communications and Information and NTIA Administrator
National Telecommunications and Information Administration, U.S. Department of Commerce
1401 Constitution Ave, NW
Washington, D.C. 20230

Re: Advancement of 6G Telecommunications Technology (Docket No. NTIA-2024-0001)

Dear Assistant Secretary Davidson:

Consumer Technology Association (CTA)[1] submits these comments in response to the National Telecommunications and Information Administration's (NTIA's) Request for Comment (RFC) regarding the development and deployment of next generation 6G technology. Access to 6G will empower CTA members to innovate and create increasingly connected consumer products, driving significant industry expansion and competition, which will benefit both the economy and consumers.

6G can be delivered using a variety of technologies, including through mobile networks, satellite (i.e. LEO constellations) and fixed wireless, promises transformative benefits, including ultra-high-speed connectivity, support for a vast number of connected devices, and reliable, secure communication services. Beyond these immediate advantages, 6G will allow the industry to expand into a more forward-thinking and innovative era, enabling new applications and use cases that will profoundly benefit society. CTA urges NTIA to prioritize these non-traditional applications of 6G through a technology neutral approach and further elaborates on these possibilities below.

Further, the relationship between efficient spectrum management and the advancement of wireless technology, as well as its impact on technological innovation and economic growth, requires consideration. CTA's position on the National Spectrum Strategy, as stated in previous comments, underscores the importance of effective spectrum deployment for 6G, which will foster advancements across various sectors.[2]

[1] As North America's largest technology trade association, CTA® is the tech sector. Our members are the world's leading innovators—from startups to global brands—helping support more than 18 million American jobs. CTA owns and produces CES®—the most powerful tech event in the world.

[2] CTA Comments to NTIA on National Spectrum Strategy (January 2024)

Overall, CTA believes that the development, deployment, and regulation of 6G technology should be a collaborative effort and commends NTIA for initiating this RFC. As NTIA considers the optimal strategy for supporting 6G deployment, CTA encourages a focus on key lessons from the 5G era, a clear vision for 6G applications, a flexible and transparent approach to spectrum allocation (that recognizes the importance of licensed, unlicensed and shared use), and significant investments in 6G infrastructure R&D, in collaboration with both public and private entities.

I. Takeaways from 5G

5G introduced high-speed, low-latency connectivity, enabling new applications in industries such as autonomous vehicles, smart manufacturing, and immersive entertainment. The foundation of 5G was rooted in a strategy for balanced spectrum allocation among licensed, unlicensed, and shared uses, allowing for the most efficient usage of the spectrum.[3] CTA emphasizes the importance of a similar structure of spectrum allocation for the implementation of 6G technology.

Additionally, 5G required international collaboration to harmonize frequency bands and standards. CTA urges NTIA, consistent with its recommendation regarding the National Spectrum Strategy in 2023, to collaborate with the International Telecommunication Union (ITU) and other international organizations to ensure a standardized deployment and regulatory strategy.[4] A uniform 6G environment will benefit consumer organizations, allowing them to operate in a consistent manner across the globe and ensuring that consumers have access to advanced technologies worldwide.

II. 6G Vision

As previously stated, CTA encourages NTIA to emphasize non-traditional 6G technology use cases. 6G has the opportunity to expand our technological capabilities to provide considerable benefits for the most important aspects of consumers' daily lives:

- By supporting augmented and virtual realities, consumers could experience immersive, hands-on learning that would make education and training more effective in high-stakes fields such as medicine. Consumers also could experience improved communication and collaboration environments, unique entertainment opportunities, and virtual spaces for realistic prototyping and development.

- Smart cities, supported by 6G technology, offer significant benefits by enhancing the efficiency of urban operations through optimized resource management and reduced environmental impacts. They provide a higher quality of life for residents by

[3] CTA Report on Development and Deployment of 5G Network
[4] CTA Comments to NTIA on National Spectrum Strategy (April 2023)

modernizing transportation, healthcare, and public services. With consistent innovation and improvements, smart cities attract new businesses and a diverse population, thus driving economic growth.

- As telemedicine remains on the rise, 6G would provide increased access to healthcare to patients around the country, especially those in rural or underserved areas. Telemedicine improves convenience and efficiency, enabling patients to receive care without long-waits or unnecessary travel. Additionally, patients could establish a more consistent relationship with their healthcare providers through regular remote check-ins, allowing increased support and comfort for consumers.

Consistent with CTA's comments on the National Spectrum Strategy, CTA urges NTIA to prioritize studying and repurposing the lower 3 GHz band, a mid-band frequency band with propagation characteristics favorable for commercial use. This band holds promise to support many devices and would provide reliable coverage, making it extremely beneficial for 6G applications.[5]

III. Policy Recommendations

When considering the deployment of 6G technology, CTA highlights the importance of spectrum flexibility. CTA advocates for consistent rules that enable dynamic spectrum allocations, reserving the right to reallocate spectrum as necessary in response to technological advancements. The flexible nature of these rules allows for optimized use of spectrum for 6G, promoting innovation and strategic planning in the deployment of wireless technology.

CTA encourages NTIA to consider integrating Open Radio Access Network (Open RAN) into the 6G framework. Open RAN enables greater flexibility, innovation, and competition, which are crucial for the complex and varied applications 6G will support. By establishing regulatory environments that promote clear standards and guidelines supporting the open architecture, interoperable 6G deployments will be possible, ensuring that technologies from varied providers can seamlessly work together.

Further, NTIA should promote a technology neutral approach that includes support for delivery of high-speed connectivity through satellite, fixed wireless, and enables future generations of Wi-Fi. The federal government must continue to identify a wide array of suitable, licensed, unlicensed and shared spectrum for commercial use, while ensuring that federal missions continue to be met.

Additionally, CTA promotes collaboration across agencies and sectors during the strategic planning and deployment phases of 6G technology. CTA recommends that NTIA work in conjunction with the FCC to ensure a consistent set of rules and standards. Simultaneously, NTIA, as it has initiated with this RFC, should continue to receive input from private sector

[5] CTA Comments to NTIA on National Spectrum Strategy (April 2023)

entities who will be majorly impacted by the decisions made during this process. It is important to prioritize this collaboration, especially in the development of standards, as the private sector can provide common, industry-based recommendations that will promote innovation and competition in the market.

IV. Implementation Strategies

CTA urges NTIA to establish a clear and transparent regulatory framework that provides certainty for long-term investments in 6G infrastructure. CTA's member companies have begun planning their most fruitful applications of 6G and would greatly benefit from a clear understanding of the deployment and regulatory strategy that should describe a consistent and fair implementation process.

Finally, NTIA should commit significant resources to R&D for 6G to ensure that we remain at the forefront of technological innovation, which is crucial for economic growth, national security, and global competitiveness. Investing in 6G research, in collaboration with both the public and private sectors, will enable the development of cutting-edge technologies that will benefit the greater community. More, early-stage research will ensure that 6G is created and implemented in a secure and efficient manner.

V. Conclusion

The next generation of innovative technology will rely on the efficient development of 6G. It will also depend on future generations of Wi-Fi, supported by an approach to spectrum policy that prioritizes licensed, unlicensed and shared use. NTIA must prioritize flexible spectrum usage, in line with the National Spectrum Strategy, transparent implementation methods, and international collaboration during this process. Additionally, the government must respect the valuable insight that industry players will provide to this deployment process, and therefore, ensure that industry voices are being heard and implemented into the strategy.

Respectfully submitted,

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