



March 13, 2017

BY ELECTRONIC SUBMISSION

U.S. Department of Commerce
National Telecommunications & Information Administration
Internet Policy Task Force & Digital Economy Leadership Team
1401 Constitution Ave., N.W., Room 4725
Washington, DC 20230
ATTN: Travis Hall

Re: *Fostering the Advancement of the Internet of Things*, 82 Fed. Reg. 4313

Dear Mr. Hall:

CTIA¹ respectfully submits these comments on the National Telecommunication and Information Administration's ("NTIA") *Fostering the Advancement of the Internet of Things* (the "Green Paper").²

I. Introduction and Overview

We agree with NTIA's prediction that the Internet of Things holds both tremendous promise and significant challenges for multiple sectors of the economy. Likewise, we agree with NTIA that the government should foster private-sector innovation and growth, and promote consumer trust and safety. 5G wireless networks will enable the expansion of the Internet of Things. The speed, reliability and capacity of these networks will drive smart communities'

¹ CTIA-The Wireless Association® (www.ctia.org) represents the U.S. wireless communications industry and the companies throughout the mobile ecosystem that enable Americans to live a 21st century connected life. The association's members include wireless carriers, device manufacturers, suppliers as well as apps and content companies. CTIA vigorously advocates at all levels of government for policies that foster continued wireless innovation and investment. The association also coordinates the industry's voluntary best practices, hosts educational events that promote the wireless industry and co-produces the industry's leading wireless tradeshow. CTIA was founded in 1984 and is based in Washington, D.C.

² See 82 Fed. Reg. 4313 (Jan. 13, 2017).



ecosystems of sensors, analytics and interfaces. They will improve public safety and energy efficiency, and will play a significant role in better delivery of health care services and transportation solutions. As the private sector addresses emerging issues of safety and trust in the Internet of Things, NTIA should encourage industry-led frameworks to identify and resolve security concerns. It should also advocate for globally consistent policies that allow U.S. companies to lead the world in Internet of Things deployments. Finally, increased availability of spectrum and physical infrastructure will be necessary for 5G wireless networks that will enable the Internet of Things to achieve its promise.

II. 5G wireless networks will be a key element in realizing the Internet of Things' promise.

As the Green Paper acknowledges, the Internet of Things' multiple consumer and industrial use cases are primary drivers of rapidly expanding spectrum demand.³ Wireless 5G networks will provide the speed, reliability and capacity necessary for the growth of the Internet of Things. 5G speeds will result in a 10x increase over existing 4G network speeds.⁴ Reliability will reduce latency between the time when a connected device sends a message to when it is received. This will allow for real-time data transfer for key infrastructure like utilities and transportation.⁵ Finally, the robust capacity of 5G wireless networks will address dense usage patterns in urban areas, and will power data-rich applications like high-resolution video and medical imaging, streaming media, and augmented and virtual reality.

A recent report released by Accenture explores how 5G will benefit communities of all sizes as they digitize municipal infrastructure and become "smart."⁶ The move to 5G networks will create three million jobs and boost annual GDP by \$500M, driven by a projected \$275M investment by telecom providers within the

³ See *Green Paper* at 21.

⁴ See *The Next Generation of Wireless: 5G Leadership in the U.S.*, CTIA (Feb. 9, 2016), available at: http://www.ctia.org/docs/default-source/default-document-library/5g_white-paper_web2.pdf.

⁵ A fully-connected 5G car traveling at 60 mph will stop 1 inch after receiving data; by contrast, a 4G car traveling at the same speed would take 4.4 feet to stop. See *id.* at 10.

⁶ See *How 5G Can Help Municipalities Become Vibrant Smart Cities*, Accenture Strategy (Jan. 12, 2017), available at: <http://www.ctia.org/docs/default-source/default-document-library/how-5g-can-help-municipalities-become-vibrant-smart-cities-accenture.pdf>.



next seven years.⁷ Likewise, Deloitte recently analyzed the wireless industry's impact on growth in key industries like energy, health care, public safety and transportation.⁸ The implementation of wireless technologies will lead to smart grid adoption reducing energy usage, health system savings via monitoring chronic conditions, lives saved through improved public safety response times, and reduced traffic congestion through evolution to connected and autonomous vehicles. As described in the Green Paper, NTIA's efforts to enable infrastructure and markets, build coalitions, and promote technological advancement⁹ will help ensure that federal policy enables these benefits.

III. To maintain U.S. leadership in the Internet of Things, NTIA should continue its focus on convening industry around issues of privacy, security and global trade models.

NTIA's multi-stakeholder processes for cross-sector issues like software updates, Bluetooth security, encryption and facial recognition can an effective way to convene impacted industries with relevant policymakers. CTIA and its members participate in these processes to share learnings among multiple sectors addressing issued raised by connected physical devices to the Internet. The continued focus on industry-led processes will increase consumer trust in Internet of Things applications and help ensure a consistent policy approach across agencies. We agree with the Green Paper's description of government as a facilitator and convener of private sector experts¹⁰, and NTIA and the Department are particularly well suited to ensure this approach is applied across sector-specific agencies.

NTIA should ensure that policy prescriptions do not apply to emerging Internet of Things areas prematurely. For example, the Federal Trade Commission's ("FTC") vulnerability disclosure recommendations in the NTIA Safety Working Group¹¹,

⁷ See *id.* at 14.

⁸ See *Wireless Connectivity Fuels Industry Growth and Innovation in Energy, Health, Public Safety, and Transportation*, Deloitte (Jan. 2017), available at: http://www.ctia.org/docs/default-source/default-document-library/deloitte_20170119.pdf .

⁹ See Green Paper at 3.

¹⁰ See *Green Paper* at 48.

¹¹ See FTC Public Comment on NTIA Safety Working Group's Coordinated Vulnerability Disclosure "Early Stage" Template," available at:



which suggest an expansion from safety-critical industries to all “companies that provide Internet-connected products,” could stifle ingenious software updates in nascent areas of connected devices. For situations in which reliance on industry or multistakeholder processes is insufficient to avoid regulatory overlap, the Administration should establish a strong interagency coordination process to ensure consistency across agencies.

The wireless industry works with expert agencies like the FTC and Department of Homeland Security to address security in the Internet of Things. CTIA is preparing an assessment of managed and unmanaged network environments against industry best practices and standards. Our Cybersecurity Working Group will analyze a global model for the Internet of Things, while looking to advance cybersecurity for the U.S., and in coordination with other sectors. Along with the FTC’s jurisdiction over broadband privacy and data security, which the Federal Communications Commission (“FCC”) has recognized in recent statements¹², these kinds of industry efforts will increase trust in the Internet of Things across the sectors it impacts.

NTIA and the Department should promote a global model of Internet of Things deployment that allows U.S. companies to participate in solutions worldwide, thereby maintaining our economic and technological leadership in this transformative sector.¹³ We applaud NTIA’s commitment to advocate against government-mandated, technology-specific “solutions” to standardization needs.¹⁴

IV. Robust wireless networks that power the Internet of Things require spectrum and efficient deployment of infrastructure.

https://www.ftc.gov/system/files/documents/advocacy_documents/ftc-staff-comment-national-telecommunications-information-administration-regarding-safety-working/170215ntiacomment.pdf.

¹² See Joint Statement of Acting FTC Chairperson Maureen K. Ohlhausen and FCC Chairman Ajit Pail on Protecting Americans’ Online Privacy, March 1, 2017, available at: <https://www.ftc.gov/news-events/press-releases/2017/03/joint-statement-acting-ftc-chairman-maureen-k-ohlhausen-fcc> .

¹³ See CTIA Comments to NTIA Internet of Things Request for Comment at 19 *et seq.*, June 2, 2016.

¹⁴ See *Green Paper* at 17.



The recently concluded spectrum action, resulting in \$19.6B in proceeds, was the second-largest spectrum auction in history. It provides a path for low-band spectrum resources critical for Internet of Things applications.¹⁵ The FCC, NTIA and the Administration should complete the spectrum allocation initiatives underway while also jumpstarting efforts to identify new bands for future mobile broadband use.¹⁶ As cited by the Green Paper, our industry needs access to low-band, mid-band and high-band spectrum for the delivery of Internet of Things connectivity across various sectors. Additionally, research efforts like NTIA's Institute for Telecommunications Services provide a test bed to improve understand the Internet of Things' performance, and to ensure that proliferating uses of spectrum can co-exist.¹⁷

Finally, deployment of wireless broadband infrastructure requires more efficient zoning and siting procedures, especially for multiple "small cells" placed on existing structures.¹⁸ Unreasonable limitations to access, delays in local land use decisions, and excessive application fees inhibit the potential economic benefits of 5G network investment. The continued efforts of NTIA's Broadband Opportunities Council to coordinate siting efforts across agencies is an important element of ensuring these procedures are implemented, particularly in rights-of-way and on federal lands.¹⁹

¹⁵ See CTIA Blog Post re: 600 MHz Auction, Feb. 2017, available at: <http://www.ctia.org/industry-data/blog-details/blog-posts/americans-win-with-successful-600-mhz-auction> .

¹⁶ See *Licensed Spectrum: The Key to Continuing America's Wireless Leadership and Growing Our Economy*, CTIA (Feb. 2017), available at: <http://www.ctia.org/docs/default-source/default-document-library/ctia-white-paper-licensed-spectrum.pdf> . See also Comments of CTIA, Mobilitee, LLC Petition for Declaratory Ruling, WT Docket No. 16-421 (March 8, 2017), available at: <https://ecfsapi.fcc.gov/file/10308312021681/170308%20-%20FILED%20CTIA%20Infrastructure%20Public%20Notice%20Comments.pdf> .

¹⁷ See *Green Paper* at 21.

¹⁸ See *Fostering 21st Century Wireless Connectivity: Key Spectrum and Infrastructure Issues for Policymakers*, CTIA (Jan. 2017), available at: <http://www.ctia.org/docs/default-source/default-document-library/ctia-white-paper-infrastructure.pdf> . See also, [CTIA comments to Mobilitee Petition, March 8, 2017]

¹⁹ See NTIA Broadband Opportunities Council Agencies' Progress Report at 28 (Jan. 13, 2017), available at: https://www.ntia.doc.gov/files/ntia/publications/broadband_opportunity_council_agencies_progress_report_jan2017.pdf .



CTIA
March 13, 2017
Page 6

The Green Paper establishes NTIA's vision for an Internet of Things with vast potential to improve our quality of life and deliver services more safely and efficiently. As NTIA embarks on its mission to foster innovation and trust, CTIA looks forward to opportunities to participate in NTIA's efforts to realize that vision.

Respectfully submitted,

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