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***Strengthening American Leadership in Wireless Technolog***
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**House Energy and Commerce Committee**

**Testimony for Congressional Hearing on U.S. Leadership in Wireless Innovation**

Chairman Hudson, Ranking Member Matsui, and esteemed Members of the Committee, thank you very much for the opportunity to testify on America's leadership in wireless innovation. This hearing and topic are of vital national and economic security importance to the United States, and I welcome the Committee's interest.

Before I begin, I'd like to introduce myself. My name is Diane Rinaldo. I have had the distinct pleasure and opportunity to serve this body, as well as the Executive Branch as the lead cybersecurity and technology staffer on the House Permanent Select Committee on Intelligence, and as acting NTIA administrator. Now in the private sector, I serve as the Executive Director of the Open RAN Policy Coalition (ORPC).

The importance of secure and resilient wireless communications has been and still is central to my career. Wireless technology is vital to our country's economic growth, its national security, and its global leadership – the recognition of its importance, and indeed its complexity, is something I have seen grow firsthand, and have had the privilege of advancing in the public and private sectors, with academia, and beyond.

***About the ORPC***

The ORPC promotes policies to drive the adoption of open and interoperable solutions in Radio Access Networks (RAN). Our coalition represents a diverse group of communication and technology companies unified under a common goal: policies that can help dismantle technological and market barriers to cultivate a competitive, secure, and resilient wireless market. Our members include carriers, vendors, cybersecurity and cloud service providers, innovators, startups, and established technology companies, all committed to the collective health of the competitive and diverse mobile ecosystem. This initiative transcends technological advancement; it represents a strategic shift towards fostering innovation, stimulating competition, and broadening the supply chain for next-generation wireless technologies, including 5G.

The deployment of advanced mobile networks like 5G is at a pivotal moment, not only for technology policy but for economic security and global connectivity. Open RAN is at the heart of this transformation, influencing how we approach economic and security challenges. A robust and diverse supply chain is critical, and international cooperation on wireless technology is now more vital than ever.

Since the launch of ORPC, Open RAN has experienced tremendous growth with more than 100 global deployments. From the world's largest right here in the U.S. with Boost Mobile, to placements in the South Pacific, Open RAN has achieved its initial goal of providing additional vendor choice for mobile operators.

***Wireless Communications & Strategic Competition***

This Congress and the new administration assume office at a pivotal time in the wireless communications space – the next two to four years are critical to ensuring our country's continued leadership and competitiveness in the global contest with the People's Republic of China. Beijing's efforts to dominate the wireless space are simultaneously wide-ranging, prolific, and focused. The PRC aims to control the entire wireless eco-system from hardware and software through to global standard-setting and governance. Through state-sponsored corporate theft and security service intelligence collection efforts, as well as predatory market manipulation accompanied by aggressive and coercive "we have an offer you can't refuse" style "diplomacy," the PRC seeks to supplant the United States as the world leader in wireless innovation and market leadership. This is not about free market competition, but state-sponsored market manipulation and usurpation.

Put simply, the PRC does not want to compete, it wants to rig the game to win.

Throughout my testimony today, I will return to three critical themes, and our recognition of – and progress on – each of them is vital to strategic competition and American prosperity.

1. The pivotal role of the U.S. in pioneering wireless innovation;
2. The necessity of spectrum leadership; and,
3. The importance of public-private partnerships in international development, standards setting, and cybersecurity.

***U.S. Leadership in Wireless Technology Innovation***

The United States has a proud legacy of leadership in wireless technology. From the groundbreaking development of 4G and 5G networks to the creation of the Global Positioning System (GPS) – an innovation that transformed global navigation and timing – our country has consistently been at the forefront of wireless advancements.

These technologies have driven economic growth and job creation, contributing billions of dollars annually to our economy. Industries such as healthcare, transportation, and manufacturing have been revolutionized by wireless innovation, enabling new applications from remote surgery to autonomous vehicles and smart factories. For example, estimates indicate that 5G alone will create millions of jobs and contribute over $1.5 trillion to global GDP by 2035.

Looking ahead, the opportunities are boundless. Emerging technologies like 6G, artificial intelligence (AI)-driven network management, and the Internet of Things (IoT) promise to redefine connectivity and unlock new industries. However, achieving these advancements depends on one critical factor: secure and efficient access to spectrum.

That position of leadership is, however, under threat. The PRC is no longer merely a factory for the world but is becoming a larger and increasingly dominant player in the field of wireless communications. From companies like Huawei and ZTE – both of which were demonstrated to be national security threats by the House Permanent Select Committee on Intelligence during my

time there – to the proliferation of the app economy, the PRC is looking to capture increasing market share for its company and the interests of Beijing. While Congress has taken action to control the flow of advanced semiconductors and limit the flow of Americans' data to the PRC, the United States is playing on an uneven field, one that Beijing is aggressively tilting through market manipulation and non-market means toward its favor.

***The Importance of a Coordinated Long-Term Plan for Spectrum Allocation***

The PRC's ascendancy is by no means destined for success. The strengths of America remain and have the potential to grow, provided they are carefully stewarded, encouraged, and indeed unleashed. The innovation economy which birthed wireless communications and GPS, remains strong, well-invested, and globally sought-after. It is Silicon Valley, not Shenzhen, to which innovators and industry leaders flock.

How can Congress and the federal government help maintain this edge? By fostering and environment conducive to innovation, removing roadblocks to growth, and aligning policies to facilitate expansion. One fundamental element underpins all our aims: spectrum leadership. Spectrum is the lifeblood of wireless communication, driving innovation, economic growth, and national security. Maintaining leadership in this critical area is not optional; it is essential for ensuring that America continues to set the pace for technological progress and global standards.

An effective spectrum management plan requires collaboration among federal agencies and private industry. Historically, fragmented approaches to spectrum allocation have resulted in inefficiencies and missed opportunities. For example, delays in freeing up spectrum for commercial use can hinder investments in innovation, thereby giving our global competitors an edge. Similarly, for federal users, such delays can disrupt acquisition timelines, causing further setbacks and inefficiencies. A clear, unified strategy to optimize spectrum allocation and use in both commercial and government settings can mitigate these risks and ensure that spectrum resources are allocated to maximize economic and national security benefits.

Equally important is the need for spectrum-sharing frameworks that balance the requirements of federal and commercial stakeholders. Investments in advanced technologies, such as dynamic spectrum sharing, could enable more efficient use of existing resources while fostering innovation. The U.S. government should prioritize working with federal and private users alike to develop pilot use cases that may provide breakthroughs in dynamic spectrum sharing.

Moreover, a long-term plan must prioritize investments in research and development to explore new ways of utilizing spectrum, such as millimeter-wave and terahertz bands, which are critical for future applications. It should also address resiliency concerns, including the protection of critical infrastructure like GPS, which remains vulnerable to interference and disruption.

Finally, a coordinated plan ensures the U.S. remains competitive in global forums. By aligning domestic policies with international standards development processes, we can lead the development of global spectrum frameworks and counter the influence of nations like the PRC that seek to undermine fair and transparent practices.

A robust, forward-thinking spectrum allocation strategy is essential to preserving America's leadership in wireless innovation. By prioritizing efficiency, collaboration, and resiliency, we can maintain our position at the forefront of technological advancement. Indeed, in many ways we are our own worst enemy – fragmented, though well-intentioned, approaches across competing agencies introduce friction into the system. This friction slows decision-making and innovation and allows space for the PRC to expand.

***The Role of Standards Bodies in Sustaining U.S. Leadership***

International standards bodies, such as 3GPP, and the ITU's , World Radiocommunication Conference (WRC), play a decisive role in shaping the global wireless technology landscape. The U.S. has historically been a leader in these forums, ensuring that our technological innovations set the benchmarks for global standards. However, competition has intensified, particularly from the PRC, which seeks to dominate these arenas to advance its geopolitical, security, and economic interests.

To safeguard our leadership, it is imperative that we enhance coordination among federal agencies and the private sector to ensure robust representation in standards bodies. Streamlined policies to support participation in these forums are essential. We must also prioritize a unified national strategy to counter foreign influence and promote fair, transparent standards that reflect U.S. values and technological leadership.

We must be unafraid to call out the PRC's behavior and use of lawfare to manipulate these global fora. The PRC's coercive diplomacy and bravado is not always linear, aimed at achieving a specific outcome, but seeks to bully nation-states to accede to their demands and create frameworks that favor Beijing – not the rules-based international order.

***Strengthening the Innovation Ecosystem and Partnerships***

Our leadership in wireless innovation hinges on fostering a robust ecosystem of collaboration between public and private sectors. There is and remains a long history of cooperation between and amongst the government and industry, but it is now more important than ever. The PRC is actively engaged in supporting companies overtly and covertly, giving preferential loans, market access, and using the authority of the state to advantage Chinese companies over its American competitors. This is not 'industrial policy' – this is wholesale market manipulation. The United States does not need to act in a similar manner; in fact, it would be counterproductive. What Washington can and should do is use the power of the purse to encourage smart cooperation, to use the authority of Congress to craft smart legislation and use the executive branch to encourage smart competition.

Federal investment in research and development is critical to sustaining U.S. innovation. Targeted investment from the federal government can help bring technologies through the 'valley of death' and to market. This is not about picking winners or losers, but creating additional competition, from which the government and country benefit. By streamlining regulatory frameworks, we can empower the private sector to continue leading in this domain.

***Cybersecurity as a Pillar of U.S. Wireless Leadership***

As we advance our wireless capabilities, cybersecurity must remain a cornerstone of our strategy. The increasing sophistication of adversarial threats to wireless networks and spectrum assets demands a proactive approach. The revelations of PRC penetration of America's communication infrastructure through advanced persistent threats like "Salt Typhoon" are frightening reminders of the intention and capabilities of our central adversary.

The GPS system, a quintessential example of American ingenuity, remains a critical asset but faces vulnerabilities due to its lack of resiliency. As Russia's GPS jamming, spoofing, and denial over Ukraine and Eastern Europe demonstrate, a resilient PNT system is vital. Ensuring its security and reliability is paramount to maintaining our leadership and global trust in U.S. technologies.

Additionally, the Cybersecurity Information Sharing Act of 2015, while an important step forward, requires reauthorization and strengthening to fulfill its original intent of facilitating effective information sharing between the government and private industry. Improved collaboration in this area will bolster our collective ability to address evolving cyber threats.

***Conclusion***

The telecommunications market is undeniably cyclical, with its periods of high peaks and low troughs. In recent years, the U.S. has faced significant challenges exacerbated by the expiration of spectrum auction authority, a critical tool for efficient spectrum management. Without the ability to hold auctions, uncertainty grows among private and federal stakeholders, threatening innovation and slowing the deployment of critical technologies.

Were market-based and regulatory challenges the only issue facing American leadership and innovation in the wireless space, progress would remain vital, but decidedly less urgent. Strategic competition with the PRC is taking a 3G problem to 6G speeds, and Washington must act with similar alacrity. We are witnessing an aggressive ramp-up by Beijing in advancing its "Digital Silk Road" initiative, its subsidization of state-owned and state-backed companies, and use of the tools of state diplomatically and beyond to distort the market in its favor. The PRC is not and will not play on a level field now or in the future. This strategy not only aims to expand its influence globally but also seeks to dominate telecommunications infrastructure, standards bodies, and markets in developing nations. The PRC's efforts to recruit allies and dominate critical technology ecosystems pose a direct challenge to U.S. leadership in wireless innovation.

To navigate these challenges, the U.S. must reassert its leadership by restoring spectrum auction authority, strengthening collaboration across sectors, and advancing a clear, coordinated national strategy for telecommunications with competition and cybersecurity at its heart.

In closing, the United States stands at a pivotal moment. We are the world's leader in wireless innovation, but maintaining this position requires sustained effort, investment, and collaboration. By prioritizing superiority in optimizing spectrum, strengthening partnerships, and enhancing our

participation in standards bodies, we can ensure that American innovation continues to define the future of connectivity.

I urge Congress to act decisively to support these priorities and safeguard our technological leadership. Thank you for the opportunity to testify today, and I look forward to answering your questions.