

KEYNOTE SPEECH OF COMMISSIONER NATHAN SIMINGTON TO OCTOBER 2021 CTIA GSMA MOBILE WORLD CONGRESS

Good afternoon. I'm delighted to speak with you today to discuss a very important topic: access to commercial spectrum. As we race to deploy 5G and other advanced technologies, and as America works to remain a global wireless technology leader, the U.S. must ensure that well-intentioned government policies do not chill investment or place the U.S. commercial wireless sector at a disadvantage in the global marketplace.

The full promise of 5G will not be realized until we have robust, low-latency, high-bandwidth, high-power, high-reliability 5G networks everywhere. While 4G provided new consumer capabilities and fostered a new world of sophisticated applications, 5G offers far greater promise in expanding industrial, public safety, agricultural, health care, and logistics capacities. Whenever anyone talks about AI or machine learning, I mentally append ", enabled by 5G." Powerful 5G networks are the force multiplier that will let software break free from isolated, individual machines and shine in the real world. In 1987, Nobelist Robert Solow commented that computers were everywhere except in the productivity numbers. 5G, and the technologies it enables, will bring our advances in the world of bits into the world of atoms at long, long last.

I don't need to tell you, however, that this revolution risks being stillborn. We face a looming spectrum crunch, particularly for valuable mid-band spectrum. This is not, as some would have it, merely an inconvenience to certain narrow business interests. The spectrum crunch threatens to derail the advance of our communications infrastructure just when we need it most. It would be a tragedy if we were to squander this historic opportunity over lack of vision regarding midband spectrum.

The FCC, NTIA and other agencies should continue to work closely and urgently to identify, and bring to market, spectrum bands for commercialization. We must make as much licensed mid-band spectrum available as possible. This will only happen if we have better coordination among federal agencies with a stake in future spectrum allocation decisions. Better coordination, and stronger relationships among federal agencies, will ensure that agency efforts to identify mid-band spectrum for commercial use are harmoniously aligned and urgently pursued—not conflicted and half-hearted.

The success of the C-Band auction shows how important it is to industry that mid-band spectrum be licensed for exclusive use; operators want to engineer at high power and for exclusive use, and manufacturers want to build equipment to operate likewise. Furthermore, the large sums needed to relocate incumbent federal users cannot be obtained by allocating mid-band spectrum for unlicensed use. And even shared use, which theoretically dispenses with the need to relocate incumbents, often requires a complicated regulatory regime that only partially accommodates both incumbents and newcomers. Sharing often requires partial relocation or

equipment upgrades for incumbents, while preventing new licensees from exploiting the full capacity of the spectrum necessary to deploy 5G. This isn't to say that sharing is a bad idea in principle, and there are services that should be reviewed for potential sharing and consolidation. I can easily imagine a future in which sharing is the default. But 5G midband today is the wrong category, at the wrong time, for exploring the sharing model. An exclusive use model provides licensees with the certainty they need to deploy critical 5G technologies and services that may not be operable under sharing or unlicensed regulatory regimes. And the exclusive-use model is the dominant model for midband worldwide.

Beyond domestically identifying new commercial spectrum, the FCC should take the lead on coordination with ITU, and other global organizations and agencies, to ensure we achieve holistic, international, harmonization of mid-band spectrum wherever possible. This is critical to America's 5G competitiveness. We can't win 5G on our own; we need to win it together with our friends and allies by creating the best technology for the world market. The time has passed in which America could look inward. Today, there is a vast global middle class. Industrialists in middle-income nations need cutting-edge technology to stay competitive in world markets. We cannot ask allied nations looking to their own 5G transitions to join us on a technological island. It is not feasible to build for the American market alone, however vast it is.

Harmonization is therefore the foundation for the economics of the emerging 5G ecosystem, as it drives costs of devices and infrastructure. For example, according to an Ericsson Mobility report, advanced 5G services provide significantly higher peak data rates and capacity at very high quality, requiring spectrum resources to be allocated in very wide bandwidths, which requires access to spectrum resources in both the mid- and low bands. No wonder, then, that industry so strongly values licensed, exclusive use of these bands for 5G.) If these are not consistent between countries, design compatibility is compromised, costs are increased, and America risks becoming an outlier, or forcing ugly choices on those who come with us.

I'm preaching to the choir a bit here—but as G.S.M.A. noted earlier this year, the full speed and capabilities of 5G depend on access to mid-band spectrum, while the world seems to be falling short because of incomplete harmonization. By way of example, 6 GHz is a prime candidate for deployment of 5G. However, given diverging approaches among governments, it will be hard to achieve harmonization in the band and to provide the necessary scale for a robust equipment ecosystem. China plans to use the entire 1200 MHz in the 6 GHz band for 5G. Europe has split the band, with the upper part considered for 5G, but a new 500 MHz tranche available for Wi-Fi. Africa and parts of the Middle East are taking a similar approach. However, the US and much of Latin America have not made the 6 GHz band available for 5G, but rather for Wi-Fi and other unlicensed technologies. These outcomes lead to a fractured use of prime spectrum. This is why harmonization must become a top priority: to sustain, and hopefully increase, U.S. wireless sector global competitiveness.

And lastly, it would be off-brand if I failed to mention my own increasingly familiar refrain for achieving spectral efficiency, even if it's a bit outside the box. In addition to the strategies I've mentioned so far, industry should explore improving spectral efficiency by embracing receiver standards. Such standards would allow for more efficient use of spectrum in bands where there is a need to protect or coordinate against in-band interference with incumbents, or in bands where there is currently a large guard band in place to protect adjacent bands. Receiver standards would make spectrum use more efficient without repurposing current band uses and without relocating incumbents. There are already de facto receiver standards in the mobility industry because of the whip and spur of consumer demand and the limited availability of mobility spectrum. In services without these constraints, receivers vary widely in quality. Depending on the band and application, some are massively spectrally inefficient. The FCC should recognize that receiver performance is already an implicit factor in spectrum policy. It doesn't make sense for the FCC to, effectively, give special treatment to services where the industry standards permit poorly designed receivers just because those services have a long history of inefficiency.

This is surely a custom more honored in the breach than in the observance. But it would also be unfair for the FCC to suddenly impose new standards without regard to established practices and large installed bases. It's time for us, then, to work with industry to foreground this issue, helping us make sure that it doesn't hold us back as we move into a more spectrally dense future. The way forward is through an industry-wide conversation. It's a tough topic, but one that we can no longer afford to avoid discussing. I don't want this to be a confrontation with clear winners and losers. That's a recipe for protracted controversy and wasteful, destabilizing litigation. Instead, industry should collectively chart a path forward to superior overall receiver performance. I have every confidence that industry, trade associations, and standards bodies are up to addressing this challenge more nimbly and thoughtfully than any heavy-handed regulation could. Why talk about it, then? Because, if we're proactive, we will get out in front of the problem and better serve the public interest. Planning densification together will leave every sector better off, and the FCC is positioned to be the honest broker and neutral arbiter that can give the wireless industry as a whole the confidence to work together to reach a better future.

And with that, I'll conclude and thank you for asking me to speak with you today, and to participate in this very important discussion.