Before the

United States House of Representatives

Subcommittee on Communications & Technology

Hearing on

"A Safe Wireless Future: Securing Our Networks and Supply Chains"

Testimony of

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Chairman Doyle, Ranking Member Latta, and Members of the Subcommittee, my name is Dean Brenner, and I'm here on behalf of Qualcomm, which was founded in a San Diego living room, but is now the world's leading supplier of chips—an entire modem-RF system-- for smartphones, tablets, always connected laptops, cars, Wi-Fi access points, and more, and the world's leading inventor and licensor of new wireless technologies. We are working on 5G at a feverish pace. 5G is rolling out far more rapidly and broadly than any prior wireless technology. There are more than 165 operators providing 5G in over 60 countries, and nearly 1,000 5G devices have been announced, are in development, or for sale using Qualcomm's modem-RF system. Over 80 devices for 5G fixed wireless access use our solution too.

Let me thank this Subcommittee for enacting the Emergency Broadband Benefit, which is providing discounted connectivity and equipment to over 3 million low-income households, and the Emergency Connectivity Fund, which will provide devices and connectivity to millions of K-12 students. COVID has made it clear that everyone must have a device and connectivity. It is essential that we solve the digital divide—a 50-state, urban-suburban-rural problem, especially for students and teachers—once and for all.

Thank you also for years of collaboration over the key input we need for all of our technologies: spectrum. We never just sit back and wait for new spectrum. Rather, our technical and standards work takes place in parallel with our spectrum initiatives so that when new spectrum is allocated, we can put it into chips quickly to get it into the hands of consumers. When the FCC allocated the 6 GHz band as an unlicensed band for Wi-Fi and other technologies last year, we had chips using that band ready to go. Likewise, the FCC auctioned the C band spectrum in February 2021 and when it starts coming into use late this year, we'll have chips supporting the band. Now, we're working on new versions of 5G with many enhancements, but also on spectrum initiatives to enable improved use of Lower 37 GHz, 5.9 GHz, 60 GHz, and other bands too.

American leadership in wireless depends on continuing technological innovation, but also freeing up a steady stream of more low, mid, and high band spectrum. Doing so requires continuing the close collaboration among this Subcommittee, the FCC, NTIA, other policymakers, the wireless industry, and many other stakeholders, and that is what we plan to do.

Let me provide Qualcomm's perspective on three key topics covered by the nine bills before you today. The first topic is 5G security, which has always been a top priority for Qualcomm. Qualcomm works on 5G security internally, with many other companies, and in the 3GPP global standards group which sets 5G standards. In addition, for many years, Qualcomm has been an active participant and leader in CSRIC, the FCC's Communications Security, Reliability & Interoperability Council.

In 2019, the Chairmen and Ranking Members of this Subcommittee and the full Committee asked then-FCC Chairman Pai that CSRIC examine 5G security. Subsequently, one of Qualcomm's engineers, Dr. Farrokh Khatibi, was appointed to lead the CSRIC Working Group on that issue. We look forward to continuing our leadership efforts in the next CSRIC.

The second topic is Open RAN. Qualcomm is a leader in developing Open RAN, which allows a more diverse group of suppliers to provide innovative, reliable, secure, and trusted cellular infrastructure at lower cost. We are actively participating in industry efforts to advance an Open RAN ecosystem through research and development, standardization, testing, and security. We are working closely with operators and infrastructure manufacturers worldwide to help drive Open RAN deployments.

This week, we announced the world's first 3GPP Release 16 5G Open RAN platform for small cells, which supports open and virtualized RAN for sub-6 GHz and millimeter wave bands to facilitate scalable and cost-effective 5G networks spanning all spectrum. Our new platform will help drive Open RAN with flexible and open architectures and power efficiency. We also announced a 5G Distributed Unit Accelerator Card, which will simplify deployments of 5G virtualized networks.

The rapid development of Open RAN goes hand-in-hand with the increasing densification of wireless networks. Densification is sharply accelerating in 5G, especially in millimeter wave bands, which enable multi-gigabit, ultra-low latency, ultra-reliable communication, fulfilling 5G's true potential. That's why 43 companies around the world joined Qualcomm this week to announce their support for 5G millimeter wave.

The last topic is 6G. Even while we continue to work on enhancing 5G, we have begun to work on 6G in an early research and development phase, and to work with NTIA on potential

spectrum bands for testing. One focus will be spectrum in the 7 to 24 GHz range for wide coverage deployments. Identifying and freeing up such bands will be a multi-year effort. We are also participating in industry groups beginning to discuss 6G. I am quite confident that Qualcomm will lead the way on 6G.

Thank you, and I look forward to your questions.