Remarks of Michael O'Rielly, FCC Commissioner
Before the Workshop and Tech Demonstration on Spectrum Frontiers and Technological Developments in the Millimeter Wave Bands
March 10, 2016

I would like to thank the Chairman for being such a great warm up act. I am so used to him getting the last word at Commission meetings that it is nice to have the tables turned for once.

Joking aside, I am pleased to be with you here today to learn from a number of the experts on the frontline of innovation and research for next generation wireless services. I also thank all the panelists for joining us and industry members for participating in the tech demonstration. Events like this can be useful in ensuring that the Commission has a more complete picture as we look toward future networks and opening millimeter wave frequencies for additional uses.

My colleagues and I seem to agree that, for the U.S. to remain the world leader in wireless communications, we must be in the forefront of next generation technologies. As I have stated before, our position is being severely challenged as other nations see the value in replicating our 4G/LTE strategy by trying to be the first to deploy 5G. Any unnecessary delay risks another nation setting the terms of the next 15 years of wireless communications. We all should be committed to ensuring that this doesn't happen.

As I waded through the substantial Spectrum Frontiers, or millimeter wave, docket – and, yes, I have been known to delve into the murky waters of ECFS – there are definitely some recurring themes. It's clear that there is no consensus definition or architecture for 5G. I am hopeful that this morning's panelists will discuss anticipated offerings and applications, predicted technology solutions, and envisioned deployments. These insights are helpful as we open these bands. But we must remain mindful that many of the uses, equipment and standards are likely to change over time, as we proceed to wide scale deployments. This raises an important question: how does the Commission facilitate such a developing technology?

First, to achieve the predicted increases in speed, latency and capacity, we know that spectrum and dense network systems, requiring backhaul and infrastructure, will be needed. Second, as recognized by many commenters, the Commission must permit a certain degree of flexibility in order to promote innovation and investment. Basically, the Commission needs to provide some raw materials and certainty, prevent its requirements from being caustic, and then get out of the way.

On the topic of spectrum, to achieve the promise of next generation networks, additional licensed and, where applicable, unlicensed spectrum will be needed in both traditional low- and mid-band spectrum, along with frequencies above 6 GHz. Today's event is focused on the millimeter wave frequencies and so will my comments.

While the Commission's NPRM from last October was a helpful first step in opening up the 28, 37, 39 and 64-71 GHz band for advanced wireless services, far more needs to be done. And this starts with adopting an order to allow for the flexible use of these initial bands and issuing a further notice in early summer.

In regards to the NPRM, the Commission must move forward on the 28 GHz band despite the disappointing outcome of last November's World Radiocommunication Conference. Further, similar

licensing paradigms should be used for 37 and 39 GHz. These contiguous bands should have similar license areas and terms in order to promote investment, research and development, and deployment. Therefore, the "hybrid" licensing proposal for 37 GHz, as outlined in the Commission's NPRM, should be discarded. This afternoon's regulatory panel will likely provide a lively conversation about regulatory and licensing models, but we must pursue our main goal of successful 5G deployment as opposed to engaging in a science experiment.

Moreover, the Chairman promised last October that the further notice coming this summer will expand the scope of millimeter wave frequencies to be considered. Going forward, the Commission should seek comment on as many spectrum bands as possible within reason, including those mentioned in the Commission's notice, the WRC final report, and any others in which industry has expressed interest. As you know all too well, incumbent services in the same or adjacent bands may present challenges. To have a sufficient pipeline, we must start to identify issues, determine whether clearing is possible or, in the alternative, sharing if necessary, and establish a timeframe in which the spectrum may be available. Some bands will take longer to study and others may be determined to be ill-suited for 5G offerings, but we need to lay the groundwork so we can weigh all of the options. One thing is certain: it is not acceptable to say that a band is just too difficult.

As we consider these millimeter waves, we must be open to spectrum blocks that total less than 500 megahertz. Such bandwidth should not be considered less desirable or automatically off the table, especially since we do not know where technological enhancements will take us. While many are focusing on the ability to download a 4K movie to a television or mobile device in a split second, these networks will also be used to connect the vast Internet of Things. Some applications will not be as bandwidth intensive as video or require the same speeds or latency.

It is also critical that we take into account that spectrum may be needed for backhaul. Fiber is likely to be too expensive to deploy to a dense network of 5G access points. Many stakeholders believe that wireless backhaul may be used to connect multiple small cells to another access point that is connected to the fiber network. Therefore, sufficient spectrum will be needed to deliver content not only to devices, but also to connect access points for backhaul. I hope that participants will discuss other means in which the Commission can facilitate the deployment of needed backhaul to support these networks.

The densification of networks will result in an increase in facilities serving as access points and providing backhaul, which leads me to a topic I discuss often – the need to reduce burdens on infrastructure siting. To realize the promise of 5G, companies will need to expeditiously deploy equipment in a cost-effective manner. To facilitate network deployment, the Commission must fulfill its commitment to expand upon the historic and environmental process relief provided to small cell and DAS installations. But even this action, which will be tremendously helpful, is not a cure-all. I continue to hear complaints about permitting problems, excessive fees and *de facto* moratoria. Site approvals in rights-of-way, which are especially important for small cell systems, appear to be particularly problematic. I hope that panelists will take some time to discuss ways to ease the burdens of facilities siting. Because, even if we were to have infinite spectrum resources, without substantial network deployment, the American people will not benefit from 5G technology and the wireless broadband services it may deliver.

Thank you for listening and being here this morning. Now on to the rest of the workshop.