

**Remarks of FCC Commissioner Michael O’Rielly
before the CBRS Alliance, Charlotte, NC
April 30, 2019**

Thank you, Dave, for that very kind introduction and for your incredible leadership of the CBRS Alliance. It is an absolute pleasure to be back before you again, and I promise to leave some time at the end to answer any questions this distinguished audience may have.

Introduction & Thank You

When I last spoke to this group, it was in August 2017 at Qualcomm’s Headquarters in California. At the time, I invoked the great science fiction author and innovator, Arthur C. Clarke, who compared advances in technology to magic. It seemed appropriate, since CBRS was in the initial stages of its development cycle. And, it made sense given the level of unease in the room over the Commission revisiting its CBRS rules, and particularly my work to lead the effort to review the priority access licenses (PALs). Quoting Clarke was my attempt to signal that, while I was planning to tinker with the CBRS rules, I anticipated and respected the “magic” that could occur when this technology comes to fruition. In other words, it was meant to reaffirm that I wouldn’t be careless in my efforts.

Turning to today, we all are in a much different place, both physically-speaking and in terms of technological advancement. For one, we have traded sunny San Diego for sunny Charlotte. And, the Commission has since revised its CBRS rules and the world didn’t stop spinning. More importantly, the technology is closing in on the end of its development cycle and approaching the initial deployment stage. Today, we stand the brink of seeing the returns on all the work that has been poured into getting CBRS up and operational. Consider how the architects and workers must have felt the day before the opening of the Empire State Building or how Philo Farnsworth felt just before as he saw that first transmitted image on his “electronic television.”

Accordingly, it only seems appropriate to set the tone for my presentation today with another quote. Inventor and Granite Stater, Dean Kamen, once said, “Every once in a while, a new technology, an old problem, and a big idea turn into an innovation.” To me, this simple expression perfectly epitomizes CBRS. While there was a great need for more spectrum for advanced wireless systems, finding unencumbered frequencies has always been a long-standing battle. Thankfully, then came along the innovation of the CBRS framework and requisite technology.

Let’s face it: when the process for the band started out, no one was really quite sure what would come of this grand experiment. Termed the “innovation band,” it started with what seemed like a strange sharing concept and everyone hoped that entrepreneurs and innovators, like you, could make something out of it. Today, it features an ecosystem of equipment manufacturers, software developers, and interested wireless providers that range from the largest Fortune 500 companies to smaller WISPs and individual businesses, and everywhere in between.

We are on the precipice of seeing the vision of the CBRS Alliance and its members come into being. And, that vision has gone far in discrediting the band’s naysayers. For instance, even while we were revisiting the 3.5 GHz rules, skeptics would actually tell me that we shouldn’t take 5G offerings into consideration, because they would never come to this band. But those of you in this room had something different to say. Last month’s announcement that you are working on 5G CBRS specifications, called CBRS Alliance Release 3, proved a lot of people wrong. It is expected that these

specifications, which will include coexistence requirements to ensure interoperability between LTE and 5G networks in the 3.5 GHz and other bands, will be completed in the fourth quarter of 2019, enabling 5G in this band in 2020. This will likely be the first U.S. mid-band 5G play.

In fact, much of the progress in this band has been spurred on by the CBRS Alliance members sitting here today. I have met with many of you over the years in my office, at conferences, and during on-site visits, and your dedication is unsurpassed. I still remember the day when Dave Wright and others informed me that you had created a formal alliance. From those six founding members, to 37 members in February 2017, to over 85 in May 2018, to 121 members today, that is growth – not to mention membership diversity – that most trade associations would envy. The CBRS Alliance has gone from infancy to maturity in a nanosecond as measured in FCC time. I feel like I can say that I knew you way back when, though without the embarrassing stories and photos.

And, your accomplishments have been many, not only when it comes to ensuring the technological advancement of the 3.5 GHz band and promoting its many uses, but also in your advocacy before the Commission. While I don't have enough time to mention all that you have done, I would like to acknowledge and congratulate you on some of your achievements. For instance, you launched an entire brand, OnGo, at last year's Annual Members Meeting – happy birthday by the way – and created an accompanying equipment testing and certification program. Additionally, you have formulated technical specifications, built upon existing standards, to ensure the quality, interoperability, and security of OnGo certified products. In fact, you announced further refinements to LTE-based Network and Coexistence specifications earlier this month. As part of this overall process, you have also authorized eleven OnGo test labs and 16 devices have received OnGo certifications. Further, our database shows that 33 authorizations for unique FCC IDs have been approved for CBRS devices and user equipment.

This brings me to your efforts, along with those of your members, to work with the Commission to revisit the 3.5 GHz rules. I want to thank you all for participating in good faith, which enabled the Commission to come to a resolution. While I recognize that there are divergent views within this room, I considered each of your viewpoints, including constructive criticism, and we came up with a compromise for PALs and technical rule changes that worked for the majority of interested parties. I have repeatedly thanked the Chairman for the opportunity to lead this project, but I would like to take this opportunity to publicly thank the hardworking staff of the Commission's Wireless Telecommunications Bureau and Office of Engineering and Technology for their past and continuing efforts to make this band a success. I know that they communicate with the CBRS Alliance regularly, and this constant communication helps us spot issues and problems early on and allows us to follow up with our federal agency partners to reduce delays.

CBRS Status Update

Left on the Commission's plate to get CBRS fully operational is concluding the review and approval of the Spectrum Access Systems, or SAS, and Environmental Sensing Capability systems, commonly referred to as the ESC. As many of you know, I have been working with the leadership of the CBRS Alliance to help make sure this process stays on track. While some steps experienced unfortunate delays and this process has taken far longer than anyone would have liked, it appears to be nearing the end.

Originally, I expressed grave concerns that the ESC review process was falling behind. I must admit that I never expected it to leapfrog ahead of the SAS testing and development process. But, the three “first wave” ESC applicants completed the laboratory testing, and just yesterday, after reviewing the lab reports, the Commission staff approved these systems. These operators are basically good to go once they get their specific deployments approved through the established registration system, which the Commission is committed to completing quickly, and as soon as there is an operational SAS.

Unfortunately, the SAS testing is still in progress. In fact, tranche 3 testing is expected to be completed today at some point. Hopefully, the representative from NTIA, your next speaker, has some good news for us. As soon as tranche 3 testing is complete, it is my understanding that the SAS applicants will get a preliminary report in five days and the final test report in 30 days. Once the Commission gets the reports and sends them to DOD and NTIA, we will need to approve them quickly so that the initial commercial deployment phase can proceed very soon, hopefully within a few weeks of today. I will continue to push to make sure the FCC does its part. Frankly, all parties have been working closely together throughout this process, so the FCC and federal agencies should be able to expedite final review.

While I am on the topic, people have been contemplating how these various systems designed to facilitate the 3.5 GHz sharing model and protect Navy radar incumbents would be financed and maintained. We got an indication, last month, when one SAS operator announced a monthly \$2.25 charge per household for fixed wireless services, which covers the fixed wireless tower and the consumer’s receiver. Other offerings, such as private networks or Internet of Things, may have a different pricing model. While other SAS providers have not gone on the record, \$2.25 per month seems quite profitable, which is not a bad thing per se. In fact, I happily will defend American capitalism and a firm generating profits against any critics. However, one must expect that competition among SAS operators will alter this threshold somewhat. With six existing “first wave” SAS applicants and four “second wave” applications still to be processed, it wouldn’t be surprising to me to see prices significantly decline over time. Having the agencies start considering the second wave SAS and two additional ESC systems seems all the more appropriate.

In sum, the CBRS industry is doing what it needs to do to bring these frequencies into use. You have the business plans, the standards and specifications, the equipment, and clearly the drive to get this all done. You are even pushing ahead with 5G and ensuring compatibility with the LTE systems that will be first to market. Besides the work to be completed on the sharing systems, the U.S. government still has more work to do on our end.

Scheduling Auctions & Freeing New Spectrum Bands

High on our agenda must be auctioning the PALs. We know that the big 37/39/47 GHz millimeter wave auction was delayed until December 10, 2019, which will effectively push back the 3.5 GHz auction. I frankly don’t see a way it could happen before second quarter 2020. That is just not soon enough. We seem to be stuck in the abyss of auction software development and technical-sounding excuses. Procrastination must end, and the auction must be scheduled. Blame for this cannot be laid on the Chairman but represents a larger problem needing substantial work.

Further, the Commission also needs to tee-up more mid bands for review. While everyone now appears to be jumping on the C-Band wagon now that it’s just the resolution of some of the specific details remaining, which I won’t go into today, there is a great need also to free up the spectrum immediately

below the CBRS band. I recognize that this will cause concern with existing federal government users, but federal agencies happen to be sitting on prime 5G spectrum. We need to take the necessary steps to reallocate as much of this spectrum as possible to meet this nation's demand for more commercial spectrum.

Specifically, NTIA and DOD must immediately make a cleared 3.45 to 3.55 GHz band available for commercial use. This 100-megahertz block is needed so that, combined with CBRS and C-Band spectrum, the large channel sizes needed to optimize 5G services can be created. The original schedule dictated that this spectrum would be made available for commercial use quickly, but NTIA and DOD erroneously shifted course and opted for a feasibility study. Such a study signifies that DoD no longer intends to relocate or retune the radar systems residing in that portion of the band. But, this backtracking is incredibly troublesome and puts American wireless competitiveness in jeopardy. Let's get this unnecessary study concluded as soon as possible, and then reallocate these frequencies for commercial use before DoD parks more equipment in the band.

But that shouldn't be the last of our activities in the 3 GHz band. To ensure that we have the necessary mid-band resources to realize the true benefits of 5G, additional spectrum needs to be reallocated from the 3.1 to 3.45 GHz band. On point, the federal agencies must immediately initiate the needed feasibility studies for these frequencies. While we generally know that this spectrum is used for "shipborne, land-based, and aeronautical mobile radar systems," the existing information regarding exactly how, where, and what amount of spectrum is being used at any time is outdated, incomplete, and ultimately unhelpful. Perhaps the entire band may not be suitable for commercial use, but studies should be initiated, in this instance, to ensure that this spectrum is being used efficiently and to determine whether some, or all, of the 350 megahertz can support commercial use.

These bands are desperately needed for 5G networks and the federal agencies should clear this spectrum to the greatest extent possible. Operations can be moved to other bands or repacked within any narrow, remaining federal 3.1 to 3.45 GHz band. As I have said all along, CBRS is a spectrum-sharing experiment, but it in no way replaces our long-standing spectrum policy of clearing frequencies for exclusive-use licenses.

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I will end my remarks there, so I can hear what the CBRS members are thinking and answer any questions you may have. Finally, I continue to maintain an open-door policy. As we go forward, do not hesitate to reach out to me and my staff if you have any thoughts or concerns about the Commission's role in the development of the CBRS band or the establishment of 5G in mid-band spectrum.