

**STATEMENT OF  
COMMISSIONER JESSICA ROSENWORCEL**

Re: *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, GN Docket No. 14- 177; Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands, IB Docket No. 15-256; Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band, RM-11664; Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 to Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services, WT Docket No. 10-112; Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations, IB Docket No. 97-95.*

Today, the United States leads the world in the deployment of the current generation of wireless technology—known as 4G. While we are home to less than five percent of the globe’s population, we have one-third of all 4G subscriptions worldwide.

So far, so good. But if we want our wireless future to be bold, we need to do more than rest on our 4G laurels. We need to focus on what’s next. 5G services are poised to provide speeds more than 10 times faster than today’s 4G networks. The increased speeds of 5G service will change the way we communicate, multiplying the ways we use video—as images increasingly replace what is done today by text. The reduced latency of 5G service will clear the way for augmented and virtual reality—creating new teaching tools and entertainment experiences. And the lower energy demands of 5G service will lay the groundwork for new efficiency gains from the Internet of Things.

The race to 5G is on. The world’s wireless economies are busy planning for 5G. South Korea and Japan have plans to deploy 5G services by the time they hold the Olympics in 2018 and 2020, respectively. To meet this goal, carriers in these countries are already conducting field trials. Earlier this year, the European Commission announced work on a 5G Action Plan in addition to work they are doing with China, where three of the nation’s ministries have jointly established a group to promote the development of 5G services.

So even though standardization is still underway and commercialization may not occur until the end of the decade—work is being done worldwide. I saw some of this myself, in our own backyard, when I spent time at the National Institute of Standards and Technology last week. We have cutting edge millimeter wave research that is taking place with assistance from both academia and industry. We are making progress.

But for 5G technology to takeoff, for the United States to win this race, we need spectrum—and lots of it. So I am pleased to support our efforts today to authorize mobile use in the 28, 37, and 39 GHz bands. Collectively, this represents over 3 gigahertz of spectrum that will become available for licensed use. We also have a cut for unlicensed, or what I call the Wi-Fi dividend, in the 64-71 GHz band. These airwaves can be combined with a swath of unlicensed spectrum that is nearby—meaning new and exciting possibilities for Wi-Gig innovation. We also seek comment on opportunities in spectrum above 95 GHz.

At the same time, we take steps to protect incumbent satellite operations that rely on this high-band spectrum. We allow for their continued growth and commit to carefully monitoring the impact of terrestrial use on their operations. This is important.

However, we need to remember airwaves alone are not enough. In wireless policy, spectrum gets all the glory—but if we want to be bold with 5G service, we need to focus our efforts on the ground as well as the skies.

Here's why: Today, the bulk of our 4G wireless networks are built on spectrum frequencies from 600 MHz to 3 GHz. But our 5G future is going to look different—very different. That's because today we are busting through this old 3 GHz ceiling and developing opportunities in much higher-band airwaves. This spectrum is way, way up there. These are the airwaves that will take us to infinity and beyond. But with these stratospheric frequencies we have propagation challenges. While these super-high signals carry a significant amount of data, they do not go far. But we can turn this limitation into a strength by combining these frequencies with small cells packed close together, densifying networks at lower cost.

This all works—if we come up with policies and practices that facilitate small cell deployment. In other words, with 5G networks small cells are a big thing. So we need to think beyond traditional tower siting. Already, we have taken steps to streamline our historic preservation and environmental review process for small cells. We also have adopted rules to implement the parts of the Middle Class Tax Relief and Job Creation Act that tighten the local review process for facilities that do not substantially change the dimensions of existing structures. This is good—but more work is necessary.

By law and tradition, we honor local control in this country. At the same time we should reward communities that take steps to put in place the infrastructure we need for our 5G future.

For outdoor deployments, we should work with communities across the country and help develop model practices. We could also hold a contest—and reward the cities that put 5G infrastructure in place as part of the broader Smart Cities Initiative that was kicked-off last year.

In addition, we need to look at the in-building equation. I think the time has come for the broadband and wireless equivalent of LEED certification. Because the market should reward buildings that have dense networks of small cells and fiber backhaul needed for 5G service. New York City already has a similar program in place thanks to the efforts of Mayor Michael Bloomberg—who started a program to identify buildings with truly high-speed broadband. We need to build on this idea and extend it to communities across the country. Because as we all know about the Big Apple, if you can make it there, you can make it anywhere.

There are a lot of challenges ahead. But we are on the cusp of cars that drive themselves, streets that can be safer, emergency services that are more effective, healthcare that is more personalized, and more capability across the board because we are more connected.

Because while 4G technology brought the smartphone to pockets and purses everywhere, the benefits of 5G technology are bigger, bolder—and more diffuse. They will be felt throughout the economy.

How? We are just getting started. But there are possibilities everywhere.

Imagine if we rewarded the city that cut commute times the most. It would take sensors in streetlights, roadside architecture, and cars to see where traffic patterns could be more efficient, and public transportation more effective. 5G technology can make it happen.

Imagine if we introduced cameras in the helmets of firefighters. They could relay video back to colleagues outside who could direct a team of firefighters in real time, enhancing safety for first responders and those they rescue. 5G technology can make it happen.

Imagine if we monitored urban trees with sensors to help assess air quality and develop strategies for dealing with drought. Los Angeles is already looking at this in a project called the Internet of Trees. And 5G technology can make it happen.

That's what the wireless future looks like. It is so much more than the devices in our palms today. To get there we need to do more than rest on our 4G laurels—and with our efforts here with millimeter wave spectrum—we do that today. Because the race to 5G is on—and the future belongs to the connected.