

**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*

With wireless networks there is something about the power of ten. Every ten years a new technology changes everything. In the 1980's the very first generation of cellular systems made inroads around the world. The second generation of mobile systems emerged a decade later, dominated by the GSM standard in Europe. Then at the turn of the millennium, the third generation—both voice and data service—made its debut in Japan before anywhere else. But the start of this decade brought the United States to the forefront—because we led the world with the introduction of fourth generation wireless technology. We made smartphones ubiquitous and helped put unprecedented computing power in our palms, pockets, and purses.

Laurels, however, are not good resting places. Because like clockwork, in a few short years, we expect fifth generation—5G—networks to arrive. Already there is consensus they will feature three things. First, they should be capable of Gigabit speed. Second, they should have latency reduced to under a millisecond. Third, they should be more energy efficient than their predecessors.

As a result, there is now real momentum for 5G service. But going forward the leadership of the United States is not guaranteed. Already South Korea and Japan are pursuing early 5G deployment in time for the Olympics in 2018 and 2020, respectively. They are willing to do this now, even if it means upgrading their networks later to comply with global standards as they emerge. At the same time, earlier this year all 28 European Union member states signed a flagship agreement for a common foundation for a future 5G network. China is also on course to be a world leader, with early work on global 5G standards underway and a commitment to invest more than \$400 billion in 5G infrastructure between 2020 and 2030.

It's time for the United States to really get going. To be clear, we can take pride in our work here, making an additional 1700 megahertz of millimeter wave spectrum available for flexible use in the 24 and 47 GHz bands. We also expand opportunities for unlicensed use fostering new possibilities for Wi-Gig innovation. At the same time, we maintain 4 gigahertz of spectrum as core satellite bands and allow greater satellite flexibility in other millimeter wave bands, especially in rural areas. I am pleased to support these efforts.

But we are simply not moving fast enough. We risk ceding our current leadership in the world. We risk losing our innovative edge. We risk having the United States becoming a follower in the next generation of mobile technology. We need to do more than just what we are doing here today.

So what does more look like? Here are five ideas for 5G.

First, leadership in a technology cycle requires more than rulemakings and reconsiderations. It requires action.

To date we have authorized millimeter wave spectrum for mobile use in the 28, 37, and 39 GHz bands as well as the 24 and 47 GHz bands. We also have teed up spectrum for mobile use in the 32, 42, and 50 GHz bands. But what we need now is more than a blitz of spectrum opportunities. We need something simple—a calendar. Let's commit to deadlines for the bands we have under consideration—and focus every actor in the wireless ecosystem on getting something done.

We can start with the 28 GHz band. Right now, South Korea is working toward an auction of these airwaves by October 2018. So here's my big idea: Let's go first. Let's hold our auction before our counterparts in Asia. Let's be the first in the world. I hope my colleagues will agree to this course.

Second, while we continue to look high for new spectrum, we cannot forget that we also need to look low. We know that commercializing millimeter wave bands will not be easy, given the challenging propagation characteristics. Simply putting your hand in front of a transmitter can result in degradation of service. We can get there, but it will take some work.

In the meantime, we need to move expeditiously with our review of mid-band spectrum to bridge the gap to the high-frequency bands we discuss here. At the same time, we need to correct course and move fast on the innovative ideas in the original 3.5 GHz band proposal, which the FCC mistakenly reopened for rulemaking last month.

Third, it is essential that we move past the traditional binary choice between licensed and unlicensed airwaves. We need more creative spectrum access strategies in the future. We do that here by affirming our continued commitment to unlicensed use in the 64-71 GHz band. But we should do more to clarify opportunities for dynamic use of unlicensed spectrum in the 37 GHz band by dismissing outstanding petitions seeking a framework built only on exclusive use.

Fourth, to build a bigger wireless future, we need to focus as much on the ground as on the skies. Airwaves alone are not enough—no amount of spectrum will lead to better wireless service without good infrastructure. So if we want a bold future for our airwaves, we need policies that support our efforts on the ground.

To do this, we need to take a comprehensive look at tower siting practices and make them more consistent across the country. I think there's widespread agreement that this would help accelerate the deployment of 5G. After all, 5G requires us to think beyond traditional tower siting. Millimeter wave spectrum puts a new premium on small cells. And figuring out how to get these microcells in place—and fiber facilities nearby—is a big (really big) infrastructure effort.

But making our local practices more consistent is hard. We have a tradition of local control in this country that makes uniform, one-shot, preemptive legislative policies a rough way to go. Still, there are other ways to do this. Right now work is underway on a model code for small cell and 5G deployment. If we produce something good, we need to share this model far and wide. Then we need to look at every aspect of our laws—from FCC policy to federal and state grant programs for basic infrastructure—and build in incentives for everyone to use it. We need to remember that carrots can often be swifter tools for change than sticks.

Fifth, and finally, we need to support the new experimental licensing system the FCC put in place only a few months ago to support wireless research labs, health care facilities, and more. This system

provides an early and upfront way to innovate and create. It provides a safe place to play with power levels, explore frequencies, and develop new services.

One of these new experimental licenses is designed for innovation zones. This is like a virtual wireless sandbox. It allows communities to experiment with new mobile solutions. It is tailor-made for smart city initiatives. And it is ideal for exploring the possibilities of 5G and millimeter wave service in a variety of settings. The FCC needs to fully support and encourage the use of these experimental tools.

I think these five tasks are essential if the United States wants to lead in the next generation of wireless service. The possibilities are exciting—if we seize them. After all, 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. What we do here today is a small part of making that happen. But for us to truly succeed, we will need to get going before other countries lead the way.