**STATEMENT OF**
**CHAIRWOMAN JESSICA ROSENWORCEL**

Re: *Advancing Understanding of Non-Federal Spectrum Usage*, Notice of Inquiry, WT Docket No. 23-232 (August 3, 2023)

Right now there are so many conversations about artificial intelligence in Washington, including right here at the Federal Communications Commission. Just last month we held a joint workshop with the National Science Foundation to consider what AI means for communications networks.

Let me put my cards on the table: I am much more hopeful about AI than pessimistic. A big reason why is that I am an optimist by nature. But that is not all. After all, where you stand has a lot to do with where you sit. From my perch as the head of our Nation's expert agency on communications, I can't help but be an optimist about the future of AI.

That might sound contrarian. So much of the news about AI is dark. How do we rein in this technology? What does it mean for the future of work? What will it mean for democracy and elections? What happens when AI models inherit the prejudices of the systems they are trained on and determine who gets a loan and who gets a job? What does it mean for competition? And does generative AI pose an existential risk to humanity that could lead to our extinction?

These are big questions. So let me get back to what at this agency we know best—communications. What we understand is that the airwaves around us are invisible infrastructure. How we allocate this resource supports—and constrains—what we can do with it.

Right now, so many of our commercial spectrum bands are growing crowded. Hundreds of millions of wireless connections—from smartphones to medical sensors—are using this invisible infrastructure. And that number is growing fast. But congestion can make it harder to make room in our skies for new technologies and new services. Yet we have to find a way, because no one wants innovation to grind to a halt. To do this we need smarter policies, like efforts that facilitate more efficient use of this scarce resource. I think of it as an abundance agenda.

Now enter AI. A large wireless provider's network can generate several million performance measurements every minute. Using those measurements, machine learning can provide insights that help better understand network usage, support greater spectrum efficiency, and improve resiliency by making it possible to heal networks on their own.

Today's inquiry is a way to understand this kind of potential and help ensure it develops here in the United States first. We start by focusing on spectrum utilization. For decades in this country, we have licensed large slices of our airwaves and come up with unlicensed policies for joint use in others. This scheme is not truly dynamic. But with demands on our airwaves growing with the internet of things, we want to better understand spectrum utilization in geography, frequency, and time. This is the kind of data that could help make our policies smarter and more effective. It could also help support new cognitive abilities that could teach our wireless devices to manage transmissions and avoid harmful interference on their own. In other words, smarter radios using AI can work with each other without a central authority dictating the best of use of spectrum in every environment.

If that sounds far off, it's not. Take a look at the work that the Defense Advanced Research Projects Agency and National Science Foundation have been doing for years on this subject. In particular, take a look at DARPA's Colosseum network emulator, designed to support the development of new radio network technologies, and DARPA's Spectrum Collaboration Challenge, which invited innovators to design new wireless networks using AI. The final round of this challenge was held a few years back in Los Angeles. Teams used AI-enabled radios to go head-to-head against each other demonstrating how machine learning can support real-time dynamic spectrum decision-making,

increasing efficiency and decreasing interference. It was held in a dark auditorium in Los Angeles, but it was a bright look at our wireless future—I know, because I was there.

DARPA's Colosseum network emulator is now hosted by Northeastern University in Boston, in partnership with the National Science Foundation. At the FCC, we've supported these efforts by establishing special wireless Innovation Zones in Boston to support continued work with the emulator and in Salt Lake City, where the National Science Foundation has set up outdoor, city-scale wireless test beds. But I believe we can do more to increase our understanding of spectrum utilization and support the development of AI tools in wireless networks. That is what today's inquiry is all about. I look forward to the record that develops because I believe if we do this right, we can help turn spectrum scarcity into abundance.

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