

Office of Engineering and Technology Presentation to Commissioners
January 2021 Open Meeting
Ron Rapasi, Acting Chief

Good morning Mr. Chairman and Commissioners. On behalf of the outstanding staff in the Office of Engineering and Technology, I am pleased to present this report that highlights many of OET's activities and accomplishments over the past four years.

I also want to acknowledge the work of the other bureaus and offices. OET's work cuts across the Commission and many of the major rulemakings and initiatives we have worked on would not have been successful without the collaboration of our colleagues.

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OET's core mission is to manage the radio spectrum and provide technical leadership to create new opportunities for innovation and economic growth. As the pace of innovation has quickened, resolving the challenging spectrum and engineering issues we face is even more crucial to meeting the FCC's strategic objectives. I'm happy to report some of the amazing things our Office has accomplished over the past four years.

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One of our most important objectives is to make spectrum available for new technology, and nowhere has that been more evident than under the 5G FAST plan. OET has been instrumental in modifying spectrum allocations, undertaking thorough analyses, and reviewing technical studies.

In the 600 MHz band, OET helped to ensure that flexible-use service authorized in a portion of this band could successfully co-exist with other services. OET also provided expert technical analysis in permitting terrestrial access in the L-band spectrum to support industrial Internet of Things and 5G applications.

On high-band spectrum, OET developed technical rules for new 5G systems to share with incumbent users (both federal and non-federal) in a multitude of millimeter wave allocations.

And in the critical mid-band, OET worked to enable 5G use of the C-Band and CBRS. OET has been involved in CBRS development and deployment from conception of the novel dynamic spectrum sharing approach to approving Spectrum Access Systems and Environmental Sensing Capabilities.

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OET has helped unleash an unprecedented amount of spectrum for unlicensed use in the 6 GHz band, the 5.9 GHz band, White Spaces, and Spectrum Horizons.

1,200 megahertz of 6 GHz mid-band spectrum were made available for unlicensed use to usher in the next generation of Wi-Fi. This action increased the amount of mid-band spectrum available for Wi-Fi by nearly a factor of five and will offer better performance for American consumers.

An additional 45 megahertz of mid-band spectrum that have largely been unused for decades were also made available in the 5.9 GHz band. It is adjacent to an existing Wi-Fi band, and when combined, another 160-megahertz wideband channel is now available for Wi-Fi.

In the low-band spectrum, White Space Device rules were expanded to help the delivery of broadband services in rural and under-served communities and to provide flexibility for new narrowband Internet of Things applications while protecting from harmful interference broadcast television stations.

And in the high-band spectrum, 21.2 *gigahertz* of spectrum were made available for data-intensive, high-bandwidth unlicensed applications. The Spectrum Horizons rules also create a new category of experimental use to help ensure that the United States stays at the forefront of wireless innovation.

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OET released a new speed test app to gather performance data for mobile networks as part of the Measuring Broadband America program. OET also oversees wireline ISP measurements to monitor broadband performance across the U.S. And OET supports independent researchers using the Measuring Broadband America platform to gather their own data for analyses.

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OET works to promote innovation in many ways, and two key pillars of that work are the Experimental Licensing and Equipment Authorization programs. We have modernized both of these programs recently.

We have seen 33% more experimental license applications processed per year than four years prior. We created two real-world innovation zones in New York City and Salt Lake City to empower advanced wireless technology and 5G-ready network experimentation. And experimental licenses are used today to support development of emerging technologies such as commercial space launches and unmanned aerial systems.

The Equipment Authorization program has also been streamlined to promote efficiency. OET developed new self-certification and e-labeling provisions. Today, more than 25,000 device models are Certified each year. OET's Lab also supports our Enforcement Bureau colleagues to ensure that devices of all types comply with the Commission's technical rules.

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Another key to innovation is enabling novel use of the spectrum. We carefully evaluate and, when warranted, grant waiver requests from innovators to meet public interest demands while avoiding harmful interference to authorized services. OET has granted waivers for devices used in the agricultural, industrial, medical, transportation, and security industries, as well as for innovative productivity and lifestyle devices.

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OET continually reviews and updates our rules to accommodate new technologies. Some recent examples of this are vehicular radar systems, remote wireless charging, and wireless microphones. Importantly, we have also streamlined our RF exposure regulations to promote innovation while protecting the public.

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OET has helped meet the challenges of responding to COVID-19 in multiple ways. We granted a limited waiver of our rules to allow one company to expedite the importation of new medical devices and another to introduce contact-tracing technology. We have also helped keep Americans connected by coordinating with our federal partners to allow wireless Internet Service Providers to operate at higher power levels to boost their rural coverage and service.

Also, OET promoted the development of innovative and non-invasive security scanning portals. Several companies were granted authorization to develop high-speed devices that can screen nearly 60 people a minute to detect firearms and other dangerous items.

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Just as technology continues to evolve, OET has kept pace through significant actions to modernize our operations and programs.

I'm especially proud of OET's role in launching the FCC's Honors Engineering program to seek new engineering talent to work on cutting-edge issues in communications and technology. The program is off and running. To date, we have hired five Honors Engineers who are working with senior engineers on some of the most exciting technology issues. It's also noteworthy that our OET-developed training program was so well received that we expanded it more broadly to all Commission employees.

OET has also invested in its equipment and facilities to ensure that we keep pace with industry. The newest and biggest development – quite literally – is the new 5G anechoic chamber that we recently installed at our Lab. This state-of-the-art chamber and equipment will provide our engineers the necessary tools to test all manner of 5G devices and novel equipment.

Finally, in the past four years we have witnessed some fond farewells but we also welcomed new people to OET. Our success can only be attributed to the incredibly dedicated and talented people that make up the Office. We have a solid and successful legacy to build upon and we look forward to meeting the challenges ahead. Thank you.