



November 17, 2021

*Notice of Ex Parte Communication*

Marlene H. Dortch, Secretary  
Federal Communications Commission  
45 L Street NE  
Washington, DC 20510

Re: Promoting the Deployment of 5G Open Radio Access Networks,  
GN Docket No. 21-63.

Dear Ms. Dortch:

On Monday, November 15, 2021, Mike Murphy, CTO, Ericsson North America, Barbara Baffer, Vice President, Government and Industry Relations, and Jared Carlson, Vice President, Government Affairs and Public Policy, met via video conference with Patrick Sun, Cher Li, Mark Montano, Patrick DeGraba, Paul Lafontaine, and Sean Yun, of the Federal Communications Commission's Office of Economic Analysis, Justin Park and Kambiz Rahnarady of the Wireless Telecommunications Bureau, and Martin Doczkat and Sean Yun of the Office of Engineering and Technology. Mr. Murphy used the attached presentation to guide the conversation.

Mr. Murphy described the history of the development of Open RAN specifications, beginning with the inception of the O-RAN Alliance. He stated that the O-RAN Alliance—which began as the consolidation of the xRAN Forum, a U.S.-based group, and the C-RAN Alliance which was founded in China—is the only credible organization driving Open RAN specifications today. He noted that Ericsson is a prime driver in the O-RAN Alliance and was the top standards contributor in 2020 and a major contributor in 2021.

He discussed some concerns about the operations of the O-RAN Alliance. For example, an August report of the European Commission could not determine whether the O-RAN Alliance was complying with various WTO criteria, including transparency and open procedures, and also noted a concern that any one of the five founding members could effectively veto any proposed specification.<sup>1</sup>

Mr. Murphy provided a high-level view of Open RAN network architecture as envisioned by the O-RAN Alliance. The main two divisions of Open RAN are the management functions and radio

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<sup>1</sup> See 5G SUPPLY MARKET TRENDS, *Final Report*, European Commission Directorate-General for Communications Networks, Content and Technology, at 76 (July 2021).



functions. The primary area for innovation lies in the management piece of the network which introduces programmability and multi-vendor management through rApps and xApps.

Mr. Murphy also highlighted that in terms of the radio, O-RAN simply enables the replacement of like-for-like technology, albeit with open network interfaces. The bulk of the discussion about Open RAN hinges on the availability of one particular interface—the front-haul interface. Opening that interface does not create any new opportunities for innovation, it simply supports the development of a wider ecosystem.

Delving deeper into the readiness of Open RAN specifications, Mr. Murphy described the present state of development of the various interfaces which the O-RAN Alliance is addressing. Ericsson has dedicated a number of resources to making O-RAN Alliance specifications successful, delivering about 1000 of 7000 total specifications. Indeed, without Ericsson's contributions to the O-RAN Alliance, the timeline for more fully developed standards would likely be even further out in the future.

O-RAN Alliance specifications are progressing but are not complete yet. Some specifications—such as open front-haul—are reasonably mature. Other areas are progressing well but still need work. One reason why O-RAN Alliance specifications are proceeding slowly can be explained simply by the resources devoted to the group. For example, O-RAN front-haul meetings (a more mature O-RAN specification) sees about 60 members attending, with only about ten members actively contributing. In contrast, in a typical 3GPP RAN Plenary, one sees approximately 600 members delivering 1000 contributions per *quarter*.

The lack of completed standards *does not* mean that O-RAN technologies cannot be deployed today. But it does mean that any such deployments require individual vendors to come to mutual agreements—a far cry from the “plug-and-play” vision of a complete set of Open RAN network interface standards.

Speaking to the costs and benefits of Open RAN, Mr. Murphy noted that Ericsson, and other integrated RAN providers, create purpose-built silicon to optimize performance, power consumption, and security. While it is true that companies that make the computational power necessary for Open RAN are innovating and seeding faster chips every year, so too is Ericsson continuing to innovate on purpose-built chips. This is a significant undertaking, and literally thousands of experts are involved in creating the highest performance silicon in the industry today. Mr. Murphy noted that Apple has decided to move to making its own chips rather than continuing to rely on off-the-shelf silicon. Similar to the Open RAN debate, it found that it can make its own purpose-built chips that can greatly outperform off-the-shelf silicon in terms of performance and power use.

Commission staff asked about estimates of Open RAN being 40% less expensive than traditional RAN. Mr. Murphy responded that if that were, in fact, the case, Ericsson itself would be the first to have adopted Open RAN. The reality is that the performance of Open RAN does not compare to integrated RAN. Even if the cost saving estimates were true on a per-unit cost basis, the two



pieces of equipment are not delivering the same level of performance. Ericsson's own estimates have indicated that Open RAN is *more* expensive than integrated RAN given the need for more equipment to accomplish what purpose-built solutions can deliver *and* increased systems integration costs.

In terms of security, Mr. Murphy noted that, again, Ericsson has an interest in seeing the success of the O-RAN Alliance, and is in the top three contributors to the security working group. Today, there are no security specifications from the O-RAN Alliance security group—there is only a set of requirements.

He stated that the security of a system requires more than simply an analysis of the security of the interfaces. For example, how hardware and software are managed in a company, the reliance on security labs, testing, and governance for reporting and correcting issues, all play a role in network security.

Mr. Murphy concluded that the Commission and the U.S. government more generally should continue to “keep their eyes on the prize.” Notably, ensuring that the U.S. continues to smooth the way for 5G deployments will continue to pay dividends for the U.S. economy, with over \$500 Billion added to the U.S. economy from 5G-enabled business, is the critical job of the day. The key step the Commission can take is to continue to foster the deployment of 5G.

The U.S. has clearly demonstrated that open and intense competition, not government mandates, is the most effective way to mobilize the telecom industry to enable unprecedented innovation and value creation. The U.S. led the world in 4G and the “app economy” *not* by insisting on any particular network standard, but by creating an open, predictable and attractive investment climate for all industry stakeholders and allowing operators to select the best technology based on their needs.

As the global leader in 5G technology, Ericsson appreciates this opportunity to continue to engage with Commission staff as they analyze the evolution of open network technologies.

Sincerely yours,

/s/ Jared M. Carlson

Jared M. Carlson

Vice President, Government Affairs and Public Policy

Ericsson