



**FILED VIA ECFS**

March 26, 2018

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20510

Jeffrey A. Marks  
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Re: *Notice of Ex Parte Presentation*, GN Docket Nos. 15-319, 17-183, 17-258

Dear Ms. Dortch:

On March 22, 2018, Nokia had a series of meetings at the Commission to showcase Nokia as the only company developing an end-to-end solution for the Citizens Broadband Radio Service (CBRS) band that includes a fully virtualized, cloud-based, scalable Spectrum Access System (SAS), a Domain Proxy (DP), an Environmental Sensing Capability (ESC) and Citizens Broadband Radio Service Devices (CBSDs).

Nokia was represented by Milind Buddhikot, who led the technology demonstrations, Kutlay Erman, Mohammad Khawer, Prakash Moorut, Vikram Sharda, Sebastian Yandun and the undersigned. Throughout the day, Nokia met with the Commission personnel listed below, including from the offices of Commissioners Clyburn, O'Rielly, Carr, and Rosenworcel, the Wireless Telecommunications Bureau and the Office of Engineering and Technology. Nokia was also pleased to conduct demonstrations for personnel from the National Telecommunications and Information Administration.

Nokia highlighted its advanced product development by demonstrating over-the-air live transmissions from CBSD small cells authorized by the Nokia SAS and the ease with which End User Devices (EUDs) could connect to the Nokia network and seamlessly access rich video content. Among other things, Nokia also demonstrated how its SAS would dynamically reassign spectrum to registered CBSDs when the ESC detects incumbent Navy Radar, and move the CBSDs back to their preferred spectrum assignment when the incumbent is no longer detected. Meeting attendees also experienced the Nokia SAS's easy-to-use software interface and diagnostic tools. As part of that, Nokia showed how its SAS technology and user-interface facilitates a frictionless subleasing market, empowering prospective users to request from licensees CBRS spectrum in highly-customizable geographic areas to meet their needs.

Nokia's advanced product development of an end-to-end CBRS solution shows concrete progress towards supporting CBRS deployment *this year*. To ensure deployment in 2018, the Commission should expedite lab testing and certification of CBRS equipment and approve proposals by Nokia and others to serve as SAS Administrators.

Nokia also discussed the need for the Commission to develop a more robust record for the 3.7-4.2 GHz band, to determine the most expeditious way to clear that band for terrestrial 5G services. The goal for the 3.7 GHz band should be to free 80 to 100 MHz of spectrum *per operator, nationwide*, not the current proposal by Intel/Intelsat (and now SES) to reallocate 100 MHz in total, to be *divided among all operators*, and only in select geographic areas. Therefore, Nokia is studying additional options to present to the Commission. With sufficient bandwidth (far more spectrum than in the current Intel/Intelsat proposal), the 3.7 GHz band will be the major driver for nationwide deployment of 5G.

Please contact the undersigned with any questions in connection with this submission.

Respectfully submitted,

/s/ Jeffrey A. Marks

Jeffrey A. Marks

cc: Commission Attendees

**Office of Commissioner Mignon Clyburn**

Louis Peraertz

**Office of Commissioner Mike O'Rielly**

Commissioner O'Rielly

Brooke Ericson

Erin McGrath

**Office of Commissioner Brendan Carr**

Will Adams

**Office of Commissioner Jessica Rosenworcel**

Travis Litman

**Wireless Telecommunications Bureau**

Donald Stockdale

Dana Shaffer

Matthew Pearl

Jessica Greffenius

Paul Powell

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**Office of Engineering and Technology**

Julius Kapp

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