

September 13, 2021

***Ex Parte***

Marlene H. Dortch, Secretary  
Federal Communications Commission  
45 L Street NE  
Washington, DC 20554

Re: *Ex Parte Letter*, Expanding Flexible Use of the 3.7-4.2 GHz Band, GN Docket  
No. 18-122

Dear Ms. Dortch,

On September 9, 2021, representatives of Ericsson met via teleconference with members of the Office of Engineering and Technology, Wireless Telecommunications Bureau and the International Bureau to discuss the use of Adaptive Antenna Systems (AAS) in the 3.7-4.2 GHz band.

During the meeting, Ericsson discussed that ITU WP5D in its 38th meeting agreed on the IMT characteristics for sharing and compatibility studies towards WRC-23, which included a sub-array model for AAS base stations below 4990 MHz. This is considered representative of base stations in this band comprising of a 12 X 8 configuration with 3 elements combined in the vertical dimension to form a sub-array. Ericsson's antennas, representative of many other phased array products in the market, are designed with subarrays of suitable size for the number of antennas used. For example, the number 32 in a 32T32R antenna specifies the number of antenna subarrays (considering one subarray per polarization), each array composed of several antenna elements with a fixed phase center coincident with the subarray centroid. The choice of spacing between antenna elements is therefore only a precursor to the actual spacing between subarray centroids, that spacing being the key determinant of antenna pattern. The antenna coverage shape and steering range will depend on the deployment scenario. For typical Macro deployments, the steering range is up to 10° below the horizon as described in Annex 4.4 to the Working Party 5D Chairman's Report<sup>1</sup>.

The electronic sub-array tilt is used to focus the beam towards the coverage area and reduce the impact of grating lobes. Both the single-element and the sub-array model generate grating lobes, but the grating lobe angles will differ. AAS products normally have the ability to allow operators to set parameters to control digital down-tilt angles. Mechanical tilt is implemented during network deployment.

Ericsson explained that the level of emissions into the 4.2 to 4.4 GHz band from base stations in the 3.7-3.98 GHz band complies with 3GPP and ERC Rec 74-01<sup>2</sup> specifications,

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<sup>1</sup> Characteristics of terrestrial component of IMT for sharing and compatibility studies in preparation for WRC-23, Annex 4.4 to WP5D Chairman's Report, [Doc 5D/716](#), June 29 2021. (ITU ties account required)

<sup>2</sup> ERC Recommendation 74-01, Unwanted emissions in the spurious domain, 29 May 2019, <https://docdb.cept.org/download/3af8bcd43ae/ERCREC7401.pdf>



which is -30 dBm/MHz OOB (equivalent to Category B limits in the 3GPP specifications). Moreover, Ericsson AAS products in the 3.7-3.98 GHz band have actual levels of emissions that are better than the 3GPP and ERC specifications.

Respectfully submitted,

/s/ Mark Racek  
Mark Racek  
Sr. Director Spectrum Policy  
Ericsson

cc:

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## **Attachment A: Attendees**

### **Ericsson**

Albert Lu Yong  
Billy Hogan  
Mark Racek  
Noman Alam  
Robert Dalgleish  
Roland Smith  
Sathya Venkatasubramanian  
Svante Bergman  
Torbjörn Elfström

### **Federal Communications Commission**

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