BAE SYSTEMS

Implementing Ofcom's decisions on the 57 – 71 GHz band

BAE Systems Applied Intelligence Laboratories (BAE AI-Labs – and previously known as the Advanced Technology Centre) provides research and development, consultancy, specialist manufacturing and technology brokering services in government, and commercial markets across land, maritime, aerospace domains.

We work in collaboration and partnership with academia and innovative organisations identifying, pulling through and integrating technologies and capabilities to deliver discriminating solutions to its customers in a wide variety of civil and government sectors.

For many years BAE AI-Labs had been developing technologies in the 60GHz band for several projects and applications including, flexible data systems, wireless broadcasting (PMSE) and Intelligent Transport Systems. We also see great potential in emerging 5G millimetre-wave technologies

We are therefore pleased to respond to the Ofcom consultation on updated rules associated with the 60GHz band and the emerging 5G band adjacent to it at 66-71 GHz.

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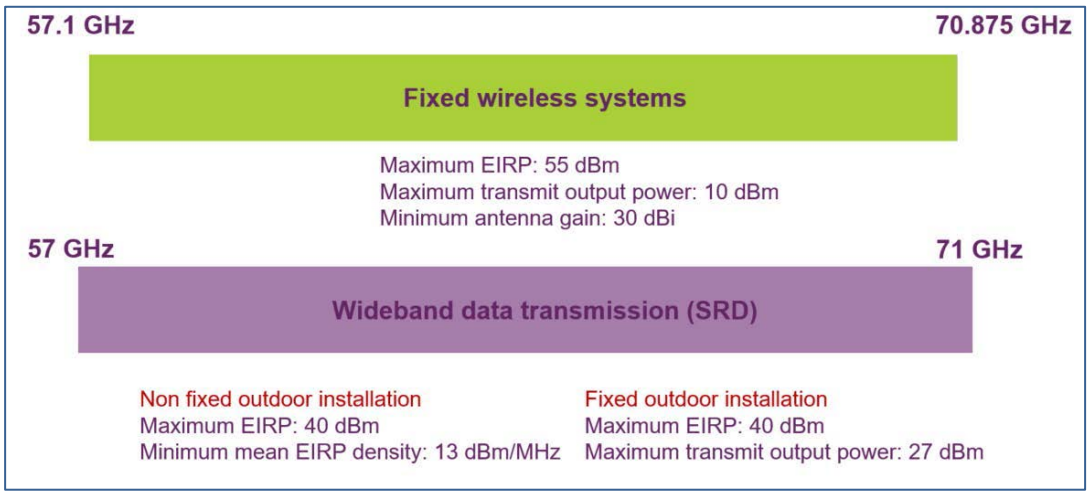
We would be pleased to provide any additional information on request or participate in any future discussions, both with Ofcom or any other stakeholder who has an interest in this topic.

Background

The essence of the Ofcom proposals is illustrated below (copied from the consultation document)



Question

Question: Do you have any comments on the drafting of the Proposed Regulations in Annex A1?

Response

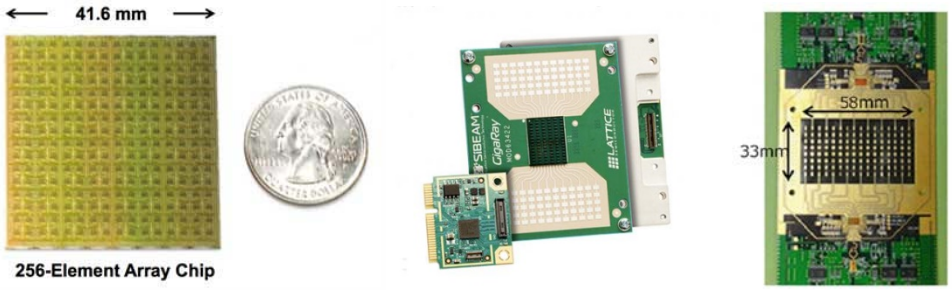
Annex A1 of the Ofcom consultation document refers to an Instrument which refers to updates of:-

- Annex-A2: IR-2030 (Wideband Short Range Devices)
- Annex-A3: IR-2078 (Fixed Wireless Systems).

Whilst we welcome the extended frequency ranges for both SRD and Fixed Wireless systems, our principal concerns are within the detail of those two Interface Regulations.

In IR-2078, the ETSI 302-217 standard that is referenced only covers 57-66 GHz (and 71 GHz+) with a gap for 66-71 GHz and indeed a requirement to suppress emissions in 66-71 GHz. Even as an informative reference, this has the potential for confusion and we believe a degree of clarification would be helpful in the IR2078 update

Secondly, it is not clear if the antenna, gain and power definitions in either of the Interface Regulations cover the use of gimballed or actively steerable array antennas that may have single or multiple beams, which will be an increasingly common feature of the technology used in these bands.



Examples of 60GHz Active Antenna Arrays (from public domain sources)

We also note that, as drafted, the Fixed Systems would entail antenna gains of 30-45 dBi which are very narrow fixed pointing angles. This still reflects quite a traditional approach. Practical implementations using active beam steering not only to facilitate short range data systems – but can also facilitate agile Fixed Point to Multipoint, and beam-steering for automated installation/alignment and dynamic compensation for wind-induced mast movement, or tidal movements (eg ship-quayside 'fixed' links).

We would there for be pleased to discuss this further with Ofcom and/or look forward to seeing appropriate text in the Interface Regulations that offers clarifications and facilitates flexibility to reflect emerging technology and practical implementations in these bands.