



a business unit of
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Mr. Alberto Fernandes
Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Re: Statement on improving spectrum access for consumers in the 5 GHz band and Notice of proposal to make Wireless Telegraphy Exemption Regulations 2017

Dear Mr. Fernandes,

Ruckus Wireless would like to submit the following response to the consultation on improving access to the 5 GHz band and the specific proposed technical rule changes to the 5.8 GHz band.

About Ruckus Wireless

Beginning operations in June 2004, Ruckus Wireless, Inc. is one of the world's fastest growing wireless technology companies. Ruckus offers a broad range of advanced indoor and outdoor "Smart Wi-Fi" systems for service providers and enterprises. The company is credited with developing the first adaptive antenna (Smart Wi-Fi) technology that improves the reliability, performance and capacity of Wi-Fi networks. Ruckus recently announced its line of "OpenG" LTE products, which bring the simplicity and economics of Wi-Fi to the market for in-building cellular services.

According to Dell'Oro's Q3 2015 report, Ruckus is #1 in the Service Provider Wi-Fi market with 38% marketshare and #3 in the Enterprise Wireless LAN market. With approximately 61,000 end customers and more than 10,000 channel partners worldwide, Ruckus sells its Wi-Fi systems directly to broadband providers and indirectly to enterprise customers through a global network of value-added partners.

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Responses to the Consultation

Q1: Do you have any comments on the drafting of the Proposed Regulations?

Ruckus welcomes and applauds Ofcom's broader efforts related to *Improving spectrum access for consumers in the 5 GHz band*. As such, while we comment here on the specific proposals for the 5725-5850 MHz range (the 5.8 GHz band), we encourage Ofcom to continue with its other efforts over the Medium term and Longer term. We agree with Ofcom's conclusion that the 5.8 GHz band represents the best near term opportunity for additional license exempt spectrum to meet the growing needs of citizens and consumers throughout the United Kingdom.

A February 2017 report from Quotient Associates¹ studied the need for additional license exempt spectrum (especially in the mid-band) to meet the growing demand for Wi-Fi services and the anticipated traffic demand. Overall, for Europe and Japan, the report forecasts a gap of between 593 and 753 MHz of license exempt spectrum by 2020, and a gap of between 913 and 1713 MHz by 2025.

Therefore, we also strongly encourage Ofcom to support the ECC CEPT and ETSI ERM work items (CEPT FM-52 and related ETSI SRDoc) related to opening the 5925-6425 MHz range for license exempt operations. This is one of the few frequency ranges in the mid-band that provides the large, contiguous portions of spectrum that will be needed to fill the gaps noted in the Quotient report. Additionally, the characteristics of incumbent usage and proximity to other license exempt designations in the 5 GHz band make the 5925-6425 MHz range a particularly good candidate for license exempt operation.

Q2: Do you have any comments on the proposed technical parameters?

With respect to the proposed 5.8 GHz WAS/RLAN technical parameters: 200 mW max EIRP, prohibition on fixed outdoor use, normal WAS/RLAN channel access and occupation rules, and DFS requirements, we provide the following comments:

- **200 mW max EIRP** – While we understand the benefits of aligning the operational power in the 5.8 GHz band with the power limits applicable in other portions of the broader 5 GHz band, Ruckus recommends that Ofcom consider a reasonable increase to the maximum EIRP in order that wider Wi-Fi channels could be utilized without having to significantly lower the power to meet the overall power density requirements. We note that there is a proposal for a harmonized standard for Wireless Industrial Automation in the 5725-5875 MHz range (EN 303 258) that would provide for a maximum EIRP of up to 400 mW. A slightly higher power limit for WAS/RLAN operations would make the band more useful for current and future generations of Wi-Fi technology (the 802.11ac and 802.11ax specifications) and should be considered.
- **Normal WAS/RLAN channel access and occupation rules** – No comments are offered as to the proposed rules in this area.

¹ <http://www.wi-fi.org/news-events/newsroom/additional-unlicensed-spectrum-needed-to-deliver-future-wi-fi-connectivity>

- **DFS requirements** – With the ban on fixed outdoor usage (including outdoor Access Point to client communications), the low power requirement, and the noted lack of UK radar use in this band; the requirement to detect and avoid radars per EN 301 893 and EN 302 502 should be reconsidered as soon as practical.

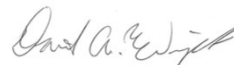
We understand that other European regulatory authorities have a sensitivity around this issue, and we would therefore recommend that field measurements be undertaken after license exempt operations are authorized to quantify the resulting outdoor signal levels to more fully ascertain whether interference to radar systems would result. If the measured signal levels prove not strong enough to interfere with radar operations, we recommend Ofcom amend the rules to eliminate the DFS requirements.

It is commonly believed within the Wi-Fi industry that channels requiring DFS are not utilized to the same degree as channels without the DFS requirement. There are a number of suspected reasons for this perceived underutilization, and various industry organizations including the Wi-Fi Alliance and the Wireless Broadband Alliance have efforts underway to ascertain if DFS spectrum is less well utilized, and if so, to identify the underlying causes. Ruckus is actively participating in these industry efforts.

Ruckus' recommendation would be to remove the DFS requirement as soon as practical in order to make the best, and fullest, use of the band.

Thank you for the opportunity to provide our comments and recommendations on these matters. Please contact me if you have any questions regarding this response.

Sincerely,



David A. Wright