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for everyone

Regulatory Impact Assessment

The Wireless Telegraphy (Exemption and Amendment) (Amendment) (No.2) Regulations 2018

06 November 2018

1. Regulatory Impact Assessment

Introduction

1.1 Ofcom acts in accordance with Government practice that, where a statutory regulation is made, a Regulatory Impact Assessment ("RIA") must be undertaken. We also comply with our duty under section 7 of the Communications Act 2003 (the "2003 Act") to undertake impact assessments.

1.2 The analysis in this document is a regulatory impact assessment relating to the Wireless Telegraphy (Exemption and Amendment) (Amendment) (No.2) Regulations 2018 (the "Regulations"). It is consistent with the Government practice on RIAs and Ofcom's duty under the 2003 Act.

1.3 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the 2003 Act, which imposes a duty on Ofcom to carry out impact assessments where our decisions would be likely to have a significant effect on businesses or the general public, or when there is a major change in our activities.

1.4 As a matter of policy, we are committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on our website: http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf.

1.5 This RIA relates to our decision on the use of licence exempt devices in the 57 - 71 GHz band. The Regulations will make available more spectrum for short range wideband data transmission systems and fixed wireless systems (providing point to point / multipoint wireless connections). These could be used to deploy a range of different fixed and mobile applications including the delivery of 5G services to UK citizens and consumers.

Legislative background

1.6 In the UK, we are responsible for authorising use of the radio spectrum. We permit the use of the radio spectrum either by granting wireless telegraphy licences under the Wireless Telegraphy Act (the "WT Act") or by making regulations exempting users of particular equipment from the requirement to hold such a licence. Under section 8(1) of the WT Act, it is unlawful to establish or use a wireless telegraphy station or install or use wireless telegraphy apparatus without holding a licence granted by us, unless the installation or use of such equipment is exempted. We can exempt the installation or use of wireless telegraphy apparatus by making statutory regulations under section 8(3) of the WT Act. Such exemption may be absolute or subject to such terms, provisions and limitations as may be so specified.

1.7 However, under section 8(4) of the WT Act, we have to make regulations to exempt equipment if its installation or use is not likely to (all must apply):

- involve undue interference with wireless telegraphy;
- have an adverse effect on technical quality of service;
- lead to inefficient use of the part of the electromagnetic spectrum available for wireless telegraphy;
- endanger safety of life;
- prejudice the promotion of social, regional or territorial cohesion; or
- prejudice the promotion of cultural and linguistic diversity and media pluralism.

1.8 In accordance with the requirements of section 8(3B) of the WT Act, the terms, provisions and limitations specified in the regulations must be:

- objectively justifiable in relation to the wireless telegraphy stations or wireless telegraphy apparatus to which they relate;
- not such as to discriminate unduly against particular persons or against a particular description of persons;
- proportionate to what they are intended to achieve; and
- transparent in relation to what they are intended to achieve.

Decision

1.9 The changes introduced by the Regulations follow on from the outcome of our fixed wireless strategy consultation ("FWS consultation")[1], in which we consulted on technical proposals to facilitate new use cases in the 57 - 66 GHz band under a single authorisation approach.

1.10 On 5 July 2018, we published our statement on the review of spectrum used by fixed wireless services ("FWS Statement")[2] setting out our decisions to change the authorisation approach for fixed wireless systems in the 64 - 66 GHz band to licence exempt and to implement common technical conditions across the 57 - 71 GHz band for short range wideband data transmission systems and fixed wireless systems on a licence exempt basis.

1.11 In order to implement the policy decisions in the FWS Statement, we are required to make new Regulations. These Regulations change and extend the existing technical conditions in the 57 - 71 GHz range and amend the current licence exemption authorisation for short range wideband data transmission systems and fixed wireless systems in the as follows:

a) For short range wideband data transmission, the Regulations:

i) extend the licence exemption and technical conditions (from 57 - 66 GHz) up to 71 GHz; and

[1] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/108594/Fixed-Wireless-Spectrum-Strategy.pdf
[2] https://www.ofcom.org.uk/__data/assets/pdf_file/0017/115631/statement-fixed-wireless-spectrum-strategy.pdf

ii) introduce new technical conditions to allow licence exempt use of lower power equipment operation in a fixed outdoor installation in the extended 57 - 71 GHz band.

b) For fixed wireless systems, the Regulations:

i) extend the current licence exemption (from 57.1 GHz - 63.9 GHz) up to 70.875 GHz. The effect of this change requires the current authorisation approach for fixed wireless systems operating in the 64 - 66 GHz band to be changed from licensed self-coordinated[3] to licence exempt; and

ii) extend the current technical conditions (from 57.1 - 63.9 GHz) up to 70.875 GHz.

The citizen and/or consumer interest

1.12 Our principal duty under section 3 of the 2003 Act is to further the interests of citizens in relation to communications matters and of consumers in relevant markets, where appropriate by promoting competition. We take account of the impact of our decisions upon both citizen and consumer interests in the markets we regulate.

1.13 Communication services are becoming ever more important to UK people and businesses and they expect to be able to access them everywhere they live, work, or travel. Consumers are increasingly using wireless connections for data-hungry purposes such as watching video. In addition, new services such as augmented and virtual reality are emerging that will require even faster speeds and further enhancements such as more capacity and low latency. Mobile data use per subscriber continues to increase at a very fast rate in the UK with an increase of 48% in June 2017 to the previous year[4]. 5G technology is also being developed and will be rolled out across wireless networks over the next few years. Initially, 5G is likely to deliver an evolutionary improvement of consumers' and businesses' existing wireless services by providing greater capacity, faster speeds and lower latency. In addition to these developments, new technologies within the 57 - 71 GHz band, such as active phased array antenna systems, are opening new opportunities and new use case possibilities; for example, high capacity point to multipoint systems, delivering fixed wireless access (FWA) either to the business / enterprise market or directly to consumer devices. Other use cases include small cell high capacity backhaul connectivity.

1.14 Our changes to extend the authorisation of licence exempt devices in the 57 - 71 GHz band will enable the deployment of new technologies that will be used to support and deliver high capacity multi-gigabit services across the 14 GHz of spectrum being made available. The 66 - 71 GHz band, which is part of the wider band, is also identified as a priority 5G band in Europe[5] and we consider that 5G equipment could emerge relatively early on by

[3] A licensed authorisation approach where the interference assessment and coordination between registered links and new links is the responsibility of the licensees.

[4] https://www.ofcom.org.uk/__data/assets/pdf_file/0016/108511/connected-nations-2017.pdf

[5] https://circabc.europa.eu/sd/a/fe1a3338-b751-43e3-9ed8-a5632f051d1f/RSPG18-005final-2nd_opinion_on_5G.pdf

building on the existing multi-gigabit technology ecosystem and standards in the 57 - 66 GHz band immediately below this.

Ofcom's policy objective

1.15 We must, in particular, have regard to securing the optimal use of spectrum for wireless telegraphy and have regard to the principle under which all regulatory activities should be proportionate, consistent and targeted only at cases in which action is needed. Ofcom's priority for the Regulations is to encourage the efficient use of spectrum and foster innovation. We have considered the wider impact beyond immediate stakeholders in the radiocommunications community.

1.16 Spectrum is a vital component to enable wireless communication and one of Ofcom's main duties is to ensure that radio spectrum is used in the most effective way. Our high-level goal is to ensure that spectrum is not a barrier to making communications work for everyone.

1.17 We expect this demand, particularly from the denser networks anticipated for 5G, will drive much higher capacity requirements. The expectation is that the millimetre bands above 60 GHz would provide the ability to carry the data required, as these bands offer over 10 times the bandwidth available per channel than lower frequency bands offer. We consider that the majority of currently available channel sizes in lower frequency bands do not offer enough spectrum to deliver the multi-gigabit capacities that may be required for the future. In the short to medium term, we therefore expect the 57 - 71 GHz band to play a key role in providing the required capacity increases in wider channels for the different use cases.

1.18 The growing interest to use spectrum around 60 GHz for street level small cells using point to multipoint or mesh architecture with self-organising network (SON) technology has required us to further consider the regulatory framework to enable point to multipoint or mesh deployment. These were not currently enabled under the previous authorisation approaches for the new types of lower gain phased array type antennas, as the existing fixed wireless authorisation approach in the 57 - 66 GHz band was primarily designed for point to point links and not the newer types of point to multipoint or mesh topologies. We therefore decided to make changes in the regulatory framework for the 57 - 66 GHz band that would facilitate this future demand.

1.19 We identified the 66 - 71 GHz band as a potential band for 5G licence exempt use in our publication "Enabling 5G in the UK"[6]. This band has also been identified by the Radio Spectrum Policy Group (RSPG)[7], in its second opinion on 5G, as a European priority in terms of studies for second stage millimetre wave 5G bands[8]. The band is also being considered

[6] https://www.ofcom.org.uk/__data/assets/pdf_file/0022/111883/enabling-5g-uk.pdf
[7] The Radio Spectrum Policy Group is a high level advisory group that assists the European Commission in the development of radio spectrum policy and is chaired by one of the Member States
[8] https://circabc.europa.eu/sd/a/fe1a3338-b751-43e3-9ed8-a5632f051d1f/RSPG18-005final-2nd_opinion_on_5G.pdf

under WRC-19 Agenda item 1.13[9] for an IMT identification in the Radio Regulations[10]. Given that most respondents to our FWS consultation agreed that the technical conditions in the 57 - 66 GHz band could be extended to the 66 - 71 GHz band, we therefore decided to include the 66 - 71 GHz band in our regulatory changes and make the band available on a licence exempt basis in line with the technical conditions of the lower 57 - 66 GHz band. These changes allow for a total of 14 GHz of spectrum to be made available in one contiguous licence exempt block.

1.20 We seek, wherever possible, to reduce the regulatory burden upon our stakeholders, in this instance users of the radio spectrum. We can achieve this by to removing the need for spectrum users to apply for an individual wireless telegraphy licence to authorise the use of radio equipment.

1.21 In accordance with the WT Act, we aim to exempt from licensing the use of specified equipment where it is not likely that such use will cause undue interference to other legitimate users of the radio spectrum.

Options considered

1.22 The options open to Ofcom in relation to the implementation of the FWS Statement are as follows:

- to make the Regulations to implement the policy decisions set out in the FWS Statement; or
- to make no change to existing regulations at the current time.

Analysis of the different options

Make the Regulations

Benefits

1.23 The key benefits of making the Regulations now are as follows:

- enabling more use cases and facilitating innovation;
- incentivising innovation by increasing regulatory certainty and streamlining the regulatory approach;
- bringing forward the above benefits as soon as possible.

We provide more detail on these benefits below.

[9] World Radio Conferences (WRCs) revise the Radio Regulations (RRs) of the International Telecommunications Union (ITU). The RRs form an international treaty containing rules and coordination arrangements covering all the different uses of spectrum. For the next WRC to be held in 2019 there is a specific agenda item (agenda item 1.13) that deals with the identification of frequency bands for the future development of International Mobile Telecommunications (IMT).

[10] https://www.itu.int/pub/R-REG

1.24 By making the Regulations, we would implement common technical conditions across the 57 - 71 GHz band for the use of short range wideband data transmission systems and fixed wireless systems on a licence exempt basis. These frequencies could be used to deploy a range of different wideband high capacity fixed and mobile applications. Some of these uses will include 5G applications.

1.25 Generally, licence exemption presents the lowest barrier to entry compared with other forms of authorisation, such as individual licences. Our analysis takes this proposition as a starting point and then assesses concerns over harmful interference or congestion to existing users (if any) or potential new users of the band. Harmful interference or congestion could negate the benefits of any reductions in the regulatory burden gained from exemption. We consider that the technical conditions in the new Regulations achieve the right balance between relaxing existing technical conditions to enable new use cases whilst managing the interference environment for the different outdoor use cases in a simplified and pragmatic way.

1.26 The Regulations will facilitate new outdoor use cases and extend the coverage of wireless broadband applications compared to making no changes to the existing regulations. The provision of 14 GHz of contiguous spectrum made available on a licence exempt basis with the same technical conditions will secure optimal use of the spectrum, facilitate innovation, lower entry barriers across the band and enable UK citizens and consumers to enjoy the benefits provided by wideband multi-gigabit applications and 5G applications as soon as possible. This is because without the new Regulations the whole 14 GHz range would have fragmented authorisation approaches – devices operating between 57 - 64 GHz would be licence exempt, devices operating between 64 - 66 GHz would be subject to a self-coordinated approach and 66 - 71 GHz would remain unauthorised (reducing the incentives for equipment manufacturers to invest in new uses, in particular wideband high capacity uses that seek enough spectrum to utilise the whole 14 GHz range). Making the Regulations will therefore provide greater regulatory certainty to equipment manufacturers to invest in wideband high capacity product development across the wider band; equipment manufacturers will be able to invest in the knowledge that the same technical conditions and licence exempt approach will apply across the whole 57 - 71 GHz band.

1.27 A licence exempt approach across the full 57 - 71 GHz band will enable a single streamlined regulatory approach, making it easier and more cost effective for users to deploy high capacity wireless connectivity infrastructure and access applications. Under a licence exempt approach, no coordination with third party systems will be required (as the interference risk is considered minimal) and businesses will not face the administration costs of applying for a licence and paying licence fees. Businesses would also gain access to an additional 5 GHz of spectrum in the 66 - 71 GHz band leading to 14 GHz of contiguous spectrum in total being made available. This additional contiguous spectrum will also allow for a greater number of high capacity channels to be used within the overall band and assist when technologies such as dynamic frequency selection are deployed to self-manage the interference environment. The additional 66 - 71 GHz spectrum also forms part of the

wider 5G initiative and opens up opportunities for further innovation using a variety of different network topologies, such as point to point, point to multipoint and mesh configurations.

1.28 Our technical proposals have been designed to ensure consistency with the current findings of the CEPT[11] studies regarding the 57 - 66 GHz band. Although these have yet to be formally adopted we expect a decision to be made shortly. Our approach would enable UK citizens and consumers to benefit from accessing these technologies and allow equipment manufacturers to use current equipment already available and to develop new equipment for the market at the earliest possible opportunity. As harmonisation is agreed, we expect that equipment manufacturers, stakeholders, citizens and consumers will benefit from economies of scale provided by a harmonised availability of spectrum across the wider European and international markets. For operation at higher power (i.e. above 40dBm EIRP), in our FWS Statement we decided to retain the current technical conditions contained in IR 2078, and extend these across the wider 66 - 71 GHz band as an interim measure, and we plan to review these once the CEPT work has completed.

Costs to business

1.29 Whether businesses take advantage of a licence exemption is entirely voluntary. Businesses do not need to apply to Ofcom for a licence exemption or pay any fees in order to benefit from the exemption. As a result, making the Regulations will not result in any direct costs for businesses. As licence exemption represents the least cost regulatory approach to authorisation for the use of spectrum, costs to business are also likely to be lower under a licence exemption approach than the requirement for users to obtain individual licences. For example, the previous authorisation approach for fixed wireless systems in the 64 - 66 GHz band required businesses to obtain and pay for a licence and register each link they had deployed thereby incurring administrative and licence fee costs.

1.30 Regarding the costs to existing users in the 64 - 66 GHz self-coordinated licensed band, we consider that there will only be minimal costs incurred, if any, for example, if existing links require a slight modification to the existing technical parameters to align with the new licence exemption conditions. In any event, there are only a limited number of existing links currently registered in this band (5 links as of October 2018). Should operators intend to deploy links in the 64 - 66 GHz band in the future, they could do so, in accordance with the Regulations, without the need to register and pay £50 per year for each registered link, thereby removing costs and administrative burden for future access to the band. Existing links will either automatically be covered by the new Regulations or in the exceptional case may require a slight modification to the existing technical parameters to align with the new licence exemption conditions. From an interference management perspective, the technical conditions for licence exempt devices operating between 57 - 71 GHz have been developed to minimise the potential for interference. We therefore consider that the

[11] The European Conference of Postal and Telecommunications Administrations (CEPT) is an organisation where policy makers and regulators from 48 countries across Europe collaborate to harmonise telecommunication, radio spectrum, and postal regulations to improve efficiency and co-ordination for the benefit of European society.

licence variation to the self-coordinated licence, which is planned to take place following the Regulations coming into force, to be an administrative change which is unlikely to impact on existing licensees' ability to access the 64 - 66 GHz band in the future.

1.31 There is no absolute guarantee of interference free operation in a licence exempt environment (i.e. where terminals are not individually coordinated). Therefore, there may be some increased costs for businesses when planning and deploying their networks in order to mitigate any interference problems should these occur. As with all cases of licence exemption this could result in 'tragedy of the commons'[12]. However, we consider that the technical parameters we have developed, along with new technology designs (which are expected to incorporate self-organising and interference mitigation techniques as part of the radio design) would mean that this is unlikely. This is further assisted by the availability of multiple channels and the high atmospheric attenuation across the majority of the band.

Costs to Ofcom

1.32 There are one-off administrative costs associated with making Regulations. We considered that the implementation costs to be low, both in absolute terms and in comparison to the previous licensing regime that required the maintenance of an annually renewable licence on a first come first served basis. Moreover, the costs such as they are will also be offset by the benefits to business and consumer outlined above.

Make no change to existing regulations at the current time

1.33 By doing nothing, we would not implement the policy decisions that we had previously consulted on in the FWS consultation and that had considerable support from stakeholders.

Cost to business

1.34 Doing nothing would not place any immediate additional burdens on businesses or users of fixed wireless systems in the 57 - 66 GHz band, including the 64 - 66 GHz band, which would remain under the current first come first served authorisation regime. Although the 64-66 GHz band currently has low use, given the interest in the band for the deployment of new applications and multi-gigabit point to multipoint and mesh services including 5G, we expect demand for access to this band to increase given the opportunity that the wider band provides. However, if we do nothing, operators wishing to deploy services would be required to continue to pay a licence fee of £50 per link. This would impose costs on operators both directly through the fee that they must pay plus the associated administrative costs of managing an application and licence maintenance.

1.35 Doing nothing would also continue to place a burden on existing businesses that want to utilise the whole 57-71 GHz band for new uses but are currently restricted to the 57 - 66 GHz band, thus depriving UK citizens and consumers of the benefits of new high-speed

[12] The 'tragedy of the commons' refers to when a shared-resource is used in a sub-optimal way by individual users acting independently according to their own self-interest and contrary to the common good of all users.

wireless applications afforded by technology and market innovation already happening in the 57-71 GHz band, where it is available in other markets. Doing nothing also means the investment incentives of equipment manufacturers and stakeholders in the 57 - 66 GHz band may continue to be affected by the fragmented licensing approach explained in paragraph 1.26 above.

1.36 Ultimately, doing nothing would result in regulatory uncertainty for business investment and would discourage further equipment innovation, at least until the UK implements any decision formally adopted by CEPT / the European Commission that relaxes the licensing requirements in the 57 - 71 GHz band.

Cost to Ofcom

1.37 No additional costs would be incurred by Ofcom – we would still incur the administrative costs of preparing our decision and this regulatory impact assessment. Furthermore, if Ofcom were to reverse the decisions we made in the FWS Statement at this stage, it would create regulatory uncertainty given the considerable support for Ofcom's policy decision.

The preferred option

1.38 Taking into account the different costs and benefits for each of the options, we consider that the most appropriate way forward is to change the authorisation approach and to make the Regulations. This would enable the 64 - 66 GHz band to be aligned with the lower adjacent band along with a single set of technical conditions across the wider 57 - 71 GHz band. We considered that the risk of interference can be sufficiently mitigated by a single set of minimal technical conditions.

1.39 Making available the entire 57 - 71 GHz band on a licence exempt basis will also provide a single technical condition for outdoor installations consistent with the study underway in CEPT as part of a wider harmonisation initiative.

1.40 We consider that making the Regulations is likely to generate a net benefit for UK businesses, citizens and consumers and at worst would have a neutral outcome (to the extent that benefits may depend on the uptake of the new opportunities afforded by the Regulations). We consider that making the Regulations is overall unlikely to impose costs on other users. Therefore, the effect of making the regulations would be likely to be positive overall.

Equality Impact Assessment

1.41 Following an initial assessment of our policy proposal, we considered that it is reasonable to assume that any impacts on consumers and citizens arising from the Regulations would not differ significantly between groups or classes of UK consumers and citizens, all of whom would have access to these services, potentially at end-user prices reflective of all general input costs, including opportunity costs of spectrum used.

1.42 We do not consider that there is evidence to suggest that the decision to make the Regulations would have a significantly greater direct financial impact on groups including based on gender, race or disability or for consumers in Northern Ireland relative to consumers in general.

1.43 We have not carried out a full Equality Impact Assessment in relation to race equality or equality schemes under the Northern Ireland and disability equality schemes at this stage. This is because we are not aware that the Regulations are intended to (or would, in practice) have a significant differential impact on different gender or racial groups, on consumers in Northern Ireland or on disabled consumers compared to consumers in general.

Declaration

I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.

Signed

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