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Notice of Ofcom's changes to licence exemption for Wireless Telegraphy Devices and consultation on licensing equipment in 57 to 71 GHz

Making more spectrum available for Wi-Fi, Data Networks, Short-Range Devices and proposals to license higher power equipment in the 57 to 71 GHz band.

CONSULTATION:

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1. Overview

Ofcom is responsible for authorising use of the radio spectrum. Spectrum provides the radio waves that support wireless services used every day, including Wi-Fi. We permit the use of the radio spectrum by granting wireless telegraphy licences under the Wireless Telegraphy Act 2006 (the "WT Act") or by making statutory regulations exempting users of particular equipment from the requirement to hold such a licence.

What we are proposing – in brief

We are consulting on draft regulations (the Wireless Telegraphy (Exemption) Regulations 2021 (the "Proposed Regulations"))to allow more spectrum to be used on a licence exempt basis by a number of short-range device ("SRD") applications such as Wi-Fi, smart meters and Internet of Things. The Proposed Regulations would implement our policy decision made earlier this year on extending Wi-Fi to the 6 GHz band. They would also implement changes to align technical conditions for some devices with the European Commission Decision on SRDs.

We are also consulting on proposals to change the authorisation of the use of SRD Data Networks in the 870 to 874.4 MHz band, which if agreed would be implemented by the Proposed Regulations.

Finally, we are proposing to move from a licence-exemption regime to requiring a licence for higher power (above 40 dBm) wideband data transmission systems in the 57 to 71 GHz band.

Wi-Fi & other Radio Local Area Network (RLAN) Technologies: the proposed regulations would implement our decisions to make the lower 6 GHz band (5925 to 6425 MHz) available for Wi-Fi and other RLAN use and remove the Dynamic Frequency Selection (DFS) requirements for channels used by Wi-Fi in the 5.8 GHz band (5725 to 5850 MHz).

EU Decision on SRDs: the proposed regulations would implement changes set out in the European Commission Decision 2019/1345 that harmonised the technical parameters for certain categories of SRD applications across several frequency bands.

SRD Data Networks in 870 to 874.4 MHz: We are proposing changes to the current authorisation of the 870 to 874.4 MHz band to harmonise the technical conditions across the band making available 4.4 MHz of continuous spectrum. These proposals would make the band more useable for data networks (including smart metering, Internet of Things and Machine-to-Machine communications).

Higher Power wideband data transmission systems in the 57 to 71 GHz band: We are proposing to change the authorisation of the use of equipment that transmits above 40 dBm in the band from a licence-exempt to a light licensing approach. This change is to reflect the work Ofcom has undertaken on the compliance regime covering exposure to electromagnetic fields.

Ofcom invites comments on these proposals by 5pm on 29 January 2021.

This overview is a simplified summary only. The proposals we are consulting on and our reasoning are set out in the full document.

2. Introduction

2.1 Every day, most of us use one or more SRDs such as keyless entry fobs/cards, baby monitors, garage door openers and Wi-Fi systems. The importance of SRDs for the economy and the growing range of applications for these devices means that we regularly update their spectrum conditions.

2.2 SRDs are typically mass-market low power devices. Due to their low power, the radio signals do not travel far meaning that risk of interference between users is very low. This negates the need for us to coordinate use between users by issuing a WT Act licence. In these circumstances, the WT Act gives Ofcom powers to make regulations that exempts the need for a device to hold a WT Act licence. The regulations specify the type of equipment and the technical parameters it must meet in order to be exempt.

2.3 This Notice sets out Ofcom's proposals to make the Wireless Telegraphy (Exemption) Regulations 2021 (the "Proposed Regulations"). These would implement our policy decisions made earlier this year on Wi-Fi and other technologies in the 6 GHz band and the European Commission Decision on SRDs. A copy of the Proposed Regulations can be found in Annex 5 of this document.

2.4 In this document we also are consulting on two policy proposals, as follows:

- to align the technical conditions across the 870 to 874.4 MHz band, making 4.4 MHz of spectrum available on a licence exempt basis for SRD Data Networks (see Section 3). The changes required to implement this change are reflected in the Proposed Regulations; and
- to move from a licence-exempt to a licensing approach for higher power wideband data transmission systems in the 57 to 71 GHz band (see Section 4). This change is to reflect the work Ofcom has undertaken on the compliance regime covering exposure to electromagnetic fields.

Proposed changes to regulations

2.5 The Proposed Regulations would therefore make the following changes:

- implement our earlier policy decision to expand the amount of spectrum available for Wi-Fi by making the 5925 to 6425 MHz band available for this use and relax some of the technical parameters in the 5725 to 5850 MHz band;
- implement the European Commission Implementing Decision 2019/1345/EU of 2 August 2019 (the "SRD Decision")[1];
- if agreed through this consultation, align the use of 870 to 874.4 MHz with CEPT Recommendation 70-03 for SRD Data Networks (set out in more detail in Section 3); and

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.212.01.0053.01.ENG&toc=OJ:L:2019:212:TOC

- revoke the Wireless Telegraphy (Exemption and Amendment) Regulations 2010 (SI 2010/2512) (the "2010 Regulations") and subsequent amendment regulations.

2.6 The changes for higher power wideband data transmission systems in 57 to 71 GHz, are not reflected in the Proposed Regulations. Instead, these will be implemented by Ofcom making available licences. In order to remove the exemption for current devices will be implementing this by making separate regulations which we will consult on by the summer of 2021. We plan to provide a six month transition period during which the current exemption will remain in place alongside the new licence. This is to allow time for existing users operating under the licence exemption regime to apply for and obtain a licence.

5 and 6 GHz Wi-Fi

2.7 Wi-Fi use is growing, driven by greater availability and adoption of faster broadband and the rising number and variety of connected devices and innovative applications. On 24 July 2020, we published our statement "Improving spectrum access for Wi-Fi"[2] which set out our decision to make more spectrum available for Wi-Fi and other RLAN use as well as easing some of the technical restrictions relating to the 5725 to 5850 MHz band.

2.8 We decided to make the lower 6 GHz band (5925 to 6425 MHz) available for Wi-Fi and other RLAN devices on a licence-exempt basis, enabling indoor and very low power outdoor use. Coupled with the development of new standards, we anticipate that this could provide user benefits by enabling new technologies and improvements in equipment performance.

2.9 In addition, we also decided to remove Dynamic Frequency Selection (DFS) requirements for indoor use (up to 200mW) from the 5.8 GHz band (5725 to 5850 MHz). We expect this to make the 5.8 GHz band more useable for Wi-Fi services and reduce congestion in other channels.

2.10 Regulation 4 of the Proposed Regulations will implement these changes by substituting the reference to the UK Interface Requirement 2030 (IR 2030)[5] , which sets out the technical conditions for the use of Wi-Fi equipment and currently appears in regulation 5 of the Wireless Telegraphy (Exemption and Amendment) Regulations 2010, with a reference to the updated the version of the IR2030 which will reflect the new technical requirements for the use of SRD equipment. The proposed amendments to IR 2030 are shown in Annex A6.[3]

The SRD Decision

2.11 Ofcom works closely with other European countries via the European Conference of Postal and Telecommunications Administrations (CEPT) to develop harmonised conditions for

[2] https://www.ofcom.org.uk/__data/assets/pdf_file/0036/198927/6ghz-statement.pdf
[3] Interface requirements typically specify transmit power and field strength or power density limits, as well as additional parameters and usage restrictions by frequency band and category of SRD, based on underlying compatibility studies.

equipment. CEPT's technical work forms the basis for many of the European Commission's harmonisation decisions, including the SRD Decision.

2.12 The SRD Decision updates some of the harmonised technical conditions that apply currently to SRDs in various frequency bands and introduces harmonised technical conditions for some new categories of SRDs. Minor editorial changes and updates to some entries also form part of the SRD Decision.

2.13 Regulation 4 of the Proposed Regulations, together with our proposed update of IR 2030, are intended to give effect to the SRD Decision[4] that harmonises the frequencies and technical parameters for certain SRDs across Europe. These are binding on all Member States and we are therefore legally required to implement them during the transition period. We believe that the Proposed Regulations will have positive benefits for UK citizens and consumers.

2.14 SRDs are typically mass-market, portable products which can be transported easily and used across borders. Our aim is to maintain a regulatory environment that encourages the development of new SRD uses to benefit both businesses and consumers, and to facilitate access to spectrum where innovation may take place. Where possible, we seek to harmonise these conditions with other countries for manufacturers to have economies of scale which would then lead to lower prices for UK citizens and consumers. The harmonisation of devices also reduces the risk of devices causing undue interference to other systems that may be already operating in the band.

2.15 Table 1 describes the new medical and safety related applications, non-safety related intelligent transport systems (ITS) and Transport and Traffic Telematics devices being implemented through the SRD Decision.

Table 1 – Harmonised SRD uses to be implemented because of the SRD Decision [5]

EU Band no	Frequency band	Category of short-range device	Remarks
85	442.2 to 450.0 kHz	Non-specific short-range devices	The band is only for the use of personal detection and collision devices with a magnetic field strength of 7 dBµA/m at 10 m per channel. Channel spacing for this use should be ≥ 150 Hz. Typical uses in the band will be personal detection, personal safety alarms and collision avoidance systems.

[4] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.212.01.0053.01.ENG&toc=OJ:L:2019:212:TOC
[5] Extracted from the published decision https://circabc.europa.eu/sd/a/e3ea717a-87cf-4810-929d-35b9b9a2c543/RSCOM19-6rev1_SRD_draft_seventh_update.pdf

86	430 to 440 MHZ	Ultra-low power wireless medical capsule endoscopy (ULP-WMCE)	The band is only for the use of ULP-WMCE applications operating at -50dBm/100kHz ERP but not exceeding a total power of -40dBm/10MHz (measured outside of the patient's body). Typical use in the band will be: • medical imaging capsules which acquire high resolution optical internal images of human digestive tract for non-invasive diagnosis and treatment of gastrointestinal diseases; and • wearable patient data recorders which receive and store the imaging data transmitted by the capsule camera.
87	862 to 863 MHz	Non-specific short-range devices	The band is for the use of non-specific short-range devices with 25mW ERP and maximum duty cycle of 0.1% and a maximum bandwidth of 350 kHz. Typical uses in the band will be home automation, metering, industrial and non-specific IoT/M2M applications.
62 **88 & 89**	5795 to 5815 MHz 5855 to 5865 MHz 5865 to 5875 MHz	Transport and Traffic Telematics devices	2W e.i.r.p. This set of usage conditions applies only to road tolling applications and smart tachograph, weight and dimension applications. 33dBm e.i.r.p., 23dBm/MHz density and a Transmit Power Control (TPC) range of 30dB. This set of usage conditions is only available to vehicle-to-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems. Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to the essential requirements of Directive 2014/53/EU shall be used.
75	57 to 71 GHz	Wideband data transmission systems	40dBm e.i.r.p. and 23dBm/MHz e.i.r.p. density. Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to the essential requirements of Directive 2014/53/EU shall be used.
77	63.72 to 65.88 GHz	Transport and Traffic Telematics devices	40dBm e.i.r.p. This set of usage conditions is only available to vehicle-to-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems.

			TTT devices placed on the market before the 1 January 2020 are 'grandfathered', i.e. they are continuously permitted to be used in line with the provisions set out in EC Decision 2017/1483/EU band no 77 (63 to 64 GHz).
79a	76 to 77 GHz	Transport and Traffic Telematics devices	55dBm peak e.i.r.p. with 50dBm mean e.i.r.p. or 23.5dBm mean e.i.r.p. for pulse radars. This set of usage conditions is only available to ground-based vehicle and infrastructure systems. Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to the essential requirements of Directive 2014/53/EU shall be used.

2.16 The Proposed Regulations will implement these changes by including the technical provisions in the updated IR 2030 shown in Annex 6.

2.17 The SRD Decision also sets out provisions for the use of higher power wideband data transmission systems in the 57 to 71 GHz band operating at 55dBm (EU Band 75b). Our proposed authorisation approach for this equipment is set out in Section 4 of this document.

Consolidation of existing regulations

2.18 Rather than amending the 2010 Regulations for an eighth time, we consider it appropriate to consolidate the legislation into a single set of regulations. We believe that the proposed revocation and replacement of the 2010 Regulations and its subsequent amendments would simplify the legislation, make it easier for stakeholders to understand the rules and reduce the regulatory burden. These regulations currently exempt (amongst other things) SRDs, fixed wireless systems, high density fixed satellite service systems, personal locator beacons, earth stations on mobile platforms, and citizen band radio equipment.[6] All these existing exemptions will be remade in the Proposed Regulations.[7]

2.19 Regulation 3 of the Proposed Regulations would therefore revoke and replace the following Statutory Instruments:

- Wireless Telegraphy (Exemption and Amendment) Regulations 2010 (2010/2512);
- Wireless Telegraphy (Exemption and Amendment) (Amendment) Regulations 2011 (2011/3035);

[6] http://www.legislation.gov.uk/uksi/2010/2512/contents/made.

[7] Devices and equipment will continue to be exempt where they comply with the technical conditions set out in the UK Interface Requirements (IRs) IR 2030, IR 2078, IR 2066, IR 2084, IR 2093 and IR 2072.2. All interface requirements are available at https://www.ofcom.org.uk/spectrum/information.

- Wireless Telegraphy (Exemption and Amendment) (Amendment) Regulations 2013 (2013/1253);
- Wireless Telegraphy (Exemption and Amendment) (Amendment) Regulations 2014 (2014/1484);
- Wireless Telegraphy (Exemption and Amendment) (Amendment) Regulations 2017 (2017/746);
- Wireless Telegraphy (Exemption and Amendment) (Amendment) Regulations 2018 (2018/263);
- Wireless Telegraphy (Exemption and Amendment) (Amendment)(No.2) Regulations 2018 (2018/1140); and
- Wireless Telegraphy (Exemption and Amendment) (Amendment) Regulations 2020 (2020/549).

3. SRD data networks in 870 to 874.4 MHz to align with CEPT Recommendation 70-03

3.1 We are proposing changes to streamline the 870 to 874.4 MHz band to make it more usable by SRD data networks, including smart metering, the Internet of Things (IOT) and Machine-to-Machine (M2M) communications. Figure 1 sets out the current authorisations in the 870 to 874.4 MHz band.

3.2 On 17 June 2020, we implemented[8] European Commission Decision 2018/1538[9] (the "870/915 MHz Decision"), a decision that mandated that the 400 kHz between 874 to 874.4 MHz be designated for use by SRD in data networks in the European Union. This allowed network access points (formerly called network relay points) to operate at up to 500mW with a duty cycle up to 10% and all other network devices to operate at up to 2.5 % duty cycle.

3.3 In response to the notice on making these regulations, we received a number of representations from stakeholders asking Ofcom to also implement the Rec 70-03[10] changes that covered 870 to 874.4 MHz. Due to the need to protect national military use in some Member States[11] of the European Union these changes were not included in the SRD Decision. In our response to these representations, we advised that we would consider these changes in a future update to the regulations.[12]

3.4 The use of the wider band of 4.4 MHz between 870 to 874.4 MHz has been considered by Electronic Communications Committee (ECC) through technical sharing studies (see, ECC report 200[13]) and is included in Rec 70-03. It was based on this work that Ofcom had previously authorised the use in the 870 to 873 MHz band in 2014.[14]

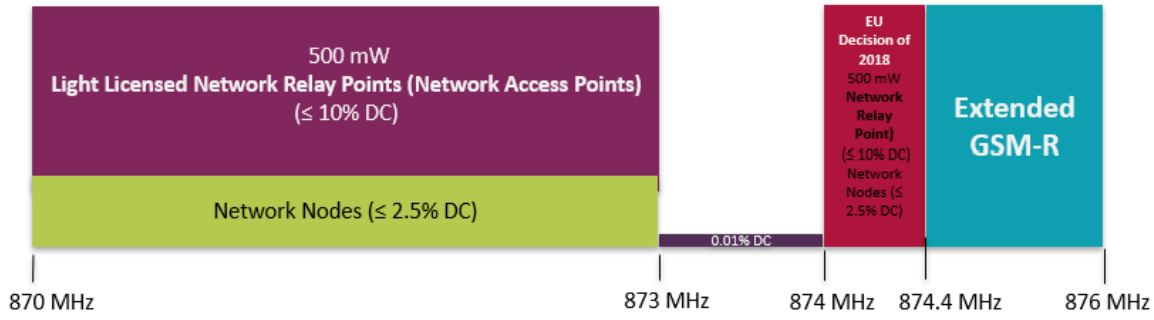
3.5 The use of network relay points in 870 to 873 MHz with duty cycles up to 10% are authorised via a High Duty Cycle Network Relay Point licence. All other network devices that operate up to a duty cycle of 2.5% are already included in IR 2030 and are therefore licence-exempt.

3.6 In the 873 to 876 MHz band, due to the uncertainties for the deployment of future rail communications systems, we took a precautionary approach in 2014 and only allowed the use of network devices with a very low duty cycle of 0.01% to be licence-exempt. However, the 870/915 MHz Decision removed this uncertainty by allowing the 874 to 874.4 MHz to be used for SRDs and for 874.4 to 876 GHz to be used for GSM-R systems.

[8] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/196245/statement-870-and-rlc-radar.pdf
[9] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018D1538&from=EN
[10] Provision C2 of Rec 70-03 https://docdb.cept.org/download/25c41779-cd6e/Rec7003e.pdf
[11] These military systems are not deployed in the UK.
[12] Paragraph 3.8 https://www.ofcom.org.uk/__data/assets/pdf_file/0027/196245/statement-870-and-rlc-radar.pdf
[13] ECC Report 200 https://docdb.cept.org/document/307
[14] https://www.ofcom.org.uk/consultations-and-statements/category-2/network-relay-points

3.7 The use of 874.4 to 876 MHz has been reserved for future rollout of the GSM-R system for railway communications and our proposed changes will not impact this.

Figure 1: Existing authorisation of data networks in the 870 to 874.4 MHz band in the UK



3.8 After considering the implications of the 870/915 MHz Decision and Rec 70-03 on our current authorisation approach, we are proposing to harmonise the technical parameters across the band from 870 to 874.4 MHz, to do this we would like to make the following changes:

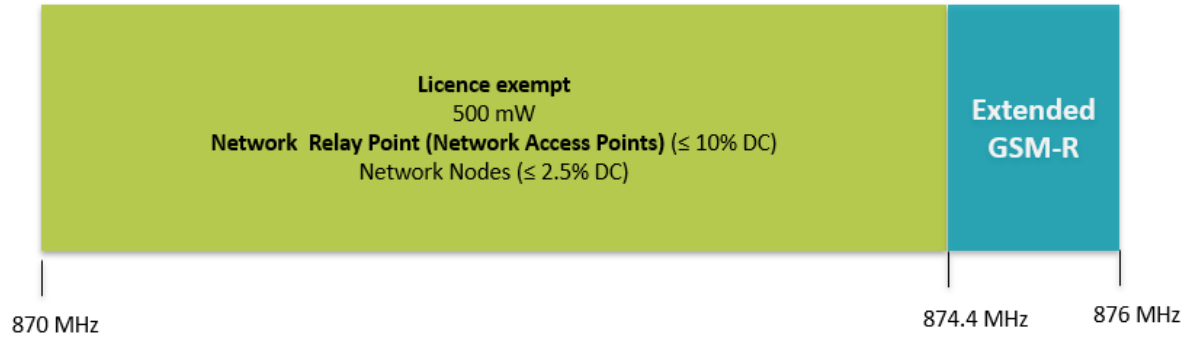
a) **870 to 873 MHz** – use of higher duty cycle equipment in this band was authorised under a light licensing regime as a precautionary approach, to allow us to manage any problems arising from high densities of devices interfering with each other. As these problems have not arisen due to updates in the equipment standards, we believe the licence requirement is no longer necessary. We therefore propose to make the use of network relay point / network access point devices operating up to a duty cycle of 10% licence-exempt.

b) **873 to 874 MHz** – to align the technical parameters with the use in 870 to 873 MHz and 874 to 874.4 MHz we propose to increase the permitted duty cycle limit for network access points from 0.01% to up to 10% and for other network devices from 0.01% up to 2.5% on a licence-exempt basis. As the 870/915 MHz Decision has now removed the uncertainty surrounding the band, we therefore propose to align the technical conditions with the adjacent uses.

c) **874 to 874.4 MHz** – No changes are being proposed to the technical parameters for this equipment.

3.9 As we are proposing to harmonise the technical and authorisation parameters across the band to in line with CEPT Rec 70-03, we would implement this through the creation of a single authorisation. This would replace the existing authorisations with a single provision going from 870 to 874.4 MHz. This is set out in Figure 2 below.

Figure 2: Proposed authorisation of data networks in 870 to 874.4 MHz band in the UK and current CEPT Rec 70-03 allocation



3.10 By removing the current restrictions, we would make available 4.4 MHz of continuous bandwidth, making the spectrum more attractive and usable for data networks. This would create additional and wider bandwidth channels to support growth and innovation in the IOT and M2M sectors. It could support delivery of new services with significant benefits to citizens and consumers across a range of sectors, including smart cities, agriculture, energy, transport and healthcare.

3.11 If, subject to responses to this consultation, we decide to proceed with these proposals, the Proposed Regulations would implement these changes by including the technical provisions in the updated IR 2030 as shown in Annex A6. As devices operating in 870 to 873 MHz would then be licence-exempt, we would no longer issue any further High Duty Cycle Network Relay Point licences and remove IR 2095[15] from the Ofcom website.

Question 1: Do you agree with Ofcom's proposal to update the authorisation approach and technical criteria for SRD data networks in the 870 to 874.4 MHz band? If not, please provide your reasoning.

[15] IR2095 https://www.ofcom.org.uk/__data/assets/pdf_file/0019/85204/ir_2095_high_duty_cycle_nrp_final.pdf

4. Authorisation of higher power wideband data transmission systems in 57 to 71 GHz

Background

4.1 In November 2018 we made regulations that licence-exempted the use of a class of SRDs called wideband data transmission systems in the 57 to 71 GHz band. The class covers radio devices that use wideband modulation techniques to access the spectrum and feature typical uses such as such as radio local area networks (WAS/RLANs), wideband SRDs in data networks as well as Point to Point and Point to Multipoint fixed wireless systems.

4.2 Two of the provisions we introduced were for lower power systems of up to 40dBm equivalent isotropically radiated power (e.i.r.p.) (covering both indoor and outdoor operation). At the same time, we also extended the existing licence-exemption from 57.1 GHz to 63.9 GHz up to 70.875 GHz and changed the authorisation approach for fixed wireless systems operating in the 64 to 66 GHz band from light licence to licence-exempt.[16]

4.3 After we made our regulations in 2018 the European Commission in 2019 introduced the SRD Decision based on the technical work and discussions in CEPT. The SRD Decision also included updates to the technical conditions to wideband data transmission systems as well as extending the use from 57 to 66 GHz up to 71 GHz. Two provisions for lower power 40dBm e.i.r.p. devices (EU Bands 75 & 75a) aligned with what Ofcom had already made licence-exempt in 2018. The third category (EU Band 75b) was for higher power fixed outdoor installations up to 55dBm e.i.r.p. As indicated in our "Review of spectrum used by Fixed wireless services",[17] we said we would further review the UK regulation for systems operating at e.i.r.p's above 40 dBm following the completion of the work in CEPT.[18]

4.4 The new higher power regulation in the SRD Decision (EU Band 75b) slightly differs from what is already licence-exempt in the UK via IR 2078. Although the maximum e.i.r.p. of 55dBm and antenna gain ≥ 30dBi is the same, the difference is the removal of the 10 dBm maximum transmitter power delivered to the antenna. This difference has the effect of allowing a higher e.i.r.p. coupled with a fixed antenna gain and therefore gives more flexibility for the new generation of lower gain phased array element antennas. This means we need to consider the higher power regulation in the context of Ofcom's recent consideration of public exposure to electromagnetic fields.

[16] https://www.ofcom.org.uk/__data/assets/pdf_file/0013/126121/Statement_Implementing-Ofcoms-decision-on-the-57-71GHz-band.pdf
[17] https://www.ofcom.org.uk/consultations-and-statements/category-2/fixed-wireless-spectrum-strategy
[18] Review of spectrum used by fixed wireless services; section 4.17; https://www.ofcom.org.uk/__data/assets/pdf_file/0017/115631/statement-fixed-wireless-spectrum-strategy.pdf

Consideration of exposure to electromagnetic fields (EMF)

4.5 Levels for limiting exposure to EMF are set out in guidelines published by the International Commission for Non-Ionising Radiation Protection (ICNIRP Guidelines).[19] These guidelines are endorsed by Public Health England (PHE) in its advice to the UK Government. Manufacturers, installers and users of the radio spectrum should already be aware of the ICNIRP Guidelines and be taking EMF exposure into account when conducting their business.

4.6 In our recent "Statement on Measures to require compliance with international guidelines for limiting exposure to electromagnetic fields (EMF)" (the "EMF Statement"),[20] we explained that some spectrum users are not fully aware of the limits in the ICNIRP Guidelines or are not taking full account of EMF exposure when installing or modifying radio equipment. In order to address the risks identified in our EMF Statement, we decided to include a specific condition in WT Act licences requiring licensees to comply with limits in the ICNIRP Guidelines for the protection of the general public ("ICNIRP general public limits"). This condition will apply to all licence classes which authorise equipment to transmit at powers higher than 10 Watts e.i.r.p. (including, for example, the licences of mobile phone companies, TV and radio broadcasters and most point-to-point microwave links). We also explained that we intend to apply a similar approach for equipment that is exempt from the requirement to have a licence and that is authorised to transmit at powers higher than 10 Watts e.i.r.p.

4.7 We have considered whether we should include a requirement for users of higher power wideband data transmission systems in the 57 to 71 GHz band to comply with the ICNIRP general public limits. We note that a key use of this equipment is for wireless broadband services and as a result it is likely to be used in the vicinity of areas which are accessible to the general public. We also note that the equipment is authorised to transmit at powers of up to 55dBm, which translates to 316W and is significantly higher than the 10W threshold above which we have decided it may be appropriate for us to intervene. However, for the reasons set out above, it is in our view appropriate for Ofcom to include a requirement in the authorisation of this equipment in the 57 to 71 GHz band to comply with the ICNIRP general public limits.

4.8 We have carefully considered what may be the most appropriate mechanism to require users of wideband data transmission systems in the 57 to 71 GHz band to comply with the ICNIRP general public limits. We have considered whether we should amend the relevant licence-exemption regulations or move to a licensing regime which would require users to obtain a licence from Ofcom prior to using equipment. A licensing approach would make an individual licence available to a spectrum user which clearly sets out the obligations with which they are required to comply and would make clear that it is the licensee that is responsible for compliance. The more generic nature of licence-exemption regulations on

[19] https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf
[20] Statement on Measures to require compliance with international guidelines for limiting exposure to electromagnetic fields (EMF)

the other hand may mean it is less clear to spectrum users who is responsible for compliance in different scenarios. For example, there is a risk that an installer of licence-exempt wideband data transmission systems in the 57 to 71 GHz band may not be aware of a requirement to ensure compliance with the ICNIRP general public limits. Considering the likely use cases of this equipment, a licensing approach would in our view provide the most clarity in terms of who is responsible for ensuring compliance with the ICNIRP general public limits. It is also more likely to facilitate a climate of compliance.

4.9 We recognise that a licensing regime does add a regulatory burden to users compared to licence-exemption. It requires that prior to installing and using the equipment a user will need to obtain a licence from Ofcom. Licensing would make facilitating wide scale consumer devices use more difficult, however, we note that the use of this equipment is restricted to outdoor fixed installations only by the SRD Decision. Also, the equipment is most likely to be used to provide wireless broadband services/ backhaul for Fixed Wireless Access (FWA) solutions. These types of system are not normally deployed, controlled and installed by end users. Ofcom already licences equipment that provides a similar functionality in the 5725 to 5850 MHz band and has done so for several years. We expect that most consumer devices will utilise the lower power technical parameters that is already licence-exempt in the UK.

4.10 We note that the SRD Decision also permits the use of Transport and Traffic Telematics devices in the 76 to 77 GHz band at a peak level of 55dBm. However, the use of this band will be by radar systems and the SRD Decision requires that for pulse radars, the mean e.i.r.p. must be 23dBm or below. This is under the 10W (40dBm) threshold requirements that we have in place. Given how radars operate and the likely deployment locations we do not believe that the specific ICNIRP general public limits provisions are necessary for this equipment and that they can also be exempted from the need to hold a licence. We will keep this under review and may implement specific conditions at a later date. Equipment installers for this equipment are still required to comply with the ICNIRP general public limits.

Proposed authorisation regime

4.11 There are various licensing approaches available to Ofcom to authorise the use of wideband data transmission systems equipment in the 57 to 71 GHz band. As there is a low risk of interference between users, we do not believe that granting individual rights of use to a location or area is necessary or desirable. We are therefore proposing to adopt a light licensing approach that will provide users with equal access to deploy equipment in the band. As these devices are likely to be deployed in volume to provide network coverage, we do not believe that a licence per location or link would be appropriate.

4.12 On 1 October 2020 we announced that we would be introducing a new licence to cover the deployment of equipment in the Extremely High Frequency (EHF) band which goes from 30

to 300 GHz.[21] The Spectrum Access EHF licence allows a licensee to deploy equipment in either the 116 to 122 GHz, 174.8 to 182 GHz or 185 to 190 GHz bands across the UK. It permits the licensees to install unlimited devices anywhere in the UK without the need for coordination or registration with Ofcom.

4.13 Having considered the licensing approaches we could adopt we have concluded that including wideband data transmission systems in the 57 to 71 GHz band into the Spectrum Access EHF regime would be the most appropriate and proportionate option. The Spectrum Access EHF licence allows for the widespread deployment of equipment with minimal regulatory intervention and a small fee. We view the requirement for each terminal to be registered before use as an unnecessary regulatory cost, as we do not need to hold information on individual terminals in this band for coordination purposes. However, the licence does give Ofcom powers to request this information from a licensee if needed.

4.14 The main conditions of the Spectrum Access EHF licence are listed below:

- can deploy throughout the UK;
- the licence grants no exclusive access and all use is on a non-interference basis with no protection from users;
- has a fee of £75 chargeable every 5 years;
- has a one-year notice period for Ofcom to revoke the licence for spectrum management reasons;
- does not permit Airborne use;
- requires licensees to maintain a record of all their deployments[22] and provide information to Ofcom when formally requested; and
- includes Ofcom's standard terms and conditions covering the grounds for revocation, inspection and shutdown rights for Ofcom representatives.

4.15 In addition to these provisions, we have already advised that we are to include clauses in the licence which require compliance with the ICNIRP general public limits, as set out in Annex 2 of the EMF statement.[23]

4.16 The Spectrum Access EHF licence was designed to allow additional frequency bands and their associated technical limits to be included easily. To enable the use of 57 to 71 GHz equipment under the Spectrum Access EHF licence we are proposing to include technical provisions, as set out in the SRD Decision, in the licence and in IR 2106.[24] When doing this we will also transfer across into IR 2106 the existing three MoD deployment exclusion zones listed in section 4 of IR 2078.[25] A draft example of the licence with the wideband data transmission systems 57 to 71 GHz band included can be found in Annex 7.

[21] https://www.ofcom.org.uk/manage-your-licence/radiocommunication-licences/spectrum-access-ehf
[22] The provision relating to the antenna angle of elevation will not apply to equipment in the 57 to 71 GHz band.
[23] https://www.ofcom.org.uk/__data/assets/pdf_file/0014/204053/emf-statement.pdf . Further information and guidelines on how to comply with these conditions will be published on the Ofcom website
[24] https://www.ofcom.org.uk/__data/assets/pdf_file/0018/203652/IR-2106.pdf
[25] https://www.ofcom.org.uk/__data/assets/pdf_file/0028/84646/ir_2078.pdf

4.17 In the Spectrum Access EHF licence there is a requirement for licensees to keep records of transmitter locations. We understand that some stakeholders may believe that this imposes additional costs on them to maintain these records. However, even if Ofcom decided to authorise the use of these devices via licence-exemption, there would still be a requirement to hold records of this information in order to comply with the ICNIRP general public limits provision. As we have outlined in paragraph 4.7, due to the permitted power levels and likely deployment scenarios of this equipment we would have applied this requirement no matter the authorisation approach. Given this, we do not see this requirement imposes any additional regulatory burden compared to licence-exemption.

4.18 We consider that the low-cost, light-touch requirements of the Spectrum Access EHF licence are unlikely to create barriers over the next few years. On this basis, we think that requiring a licence to access these bands is unlikely to constrain innovation, deployment and device availability. We believe that our proposed licensing approach balances the ability for users to rollout equipment easily with the need to ensure compliance with the ICNIRP Guidelines.

Existing licence-exempt equipment

4.19 For a number of years higher power equipment in the band has been licence-exempt, providing it complies with the limits set out in IR 2078.[26] This allowed a maximum e.i.r.p of 55dBm with a minimum antenna gain of 30dBi as well as a maximum transmitter power of 10dBm.

4.20 We are aware that the licence-exemption of this equipment in the 57 to 64 GHz band has been in place for over 10 years and in 64 to 71 GHz for two years. Although we acknowledge this, we believe that the same criteria for complying with ICNIRP general public limits should apply to this older higher power equipment. Therefore, we are proposing, that from 1 September 2020 all existing deployments that transmit over 40dBm (10W) will need to be authorised via the Spectrum Access EHF licence. Equipment that transmits at or under this limit would be covered by the existing 40dBm licence-exempt criteria in IR 2030 and will not require a licence. To ensure that all existing equipment would be covered in the licence we will incorporate the existing power limit thresholds set out in IR 2078 into the new licence and IR 2106.

4.21 To make this change, we would need revoke regulation 5 that covers this equipment. This would be implemented through a future amendment to the regulations. Our plan, if we decide to proceed with this proposal, would be to consult on the draft regulations by the summer of 2021. This is to provide a six month transition period during which the current exemption will remain in place alongside the new licence. This is to allow time for existing users operating under the licence exemption regime to apply for and obtain a licence.

[26] https://www.ofcom.org.uk/__data/assets/pdf_file/0028/84646/ir_2078.pdf

Question 2: Do you agree with Ofcom's proposals to authorise higher power use of 57 to 71 GHz by wideband data transmission systems via a light licensing regime? If not, please provide your reasoning.

5. Notice

Notice of proposals

5.1 To give effect to the licence-exemption changes set out in Section 2 of this document, we are proposing to make the Proposed Regulations, in accordance with section 122(4) and (5) of the WT Act.

5.2 This section sets out the legal framework for making the Proposed Regulations, summarises the changes currently proposed, and provides a provisional assessment that implementing the proposals would be consistent with the requirements of the WT Act.

The legislative framework

5.3 Ofcom is responsible for authorising use of the radio spectrum. We permit the use of the radio spectrum by granting wireless telegraphy licences under the WT Act or by making statutory regulations exempting users of particular equipment from the requirement to hold such a licence. It is unlawful and an offence to install or use wireless telegraphy apparatus without holding a licence granted by Ofcom, unless the use of such equipment is exempted.

5.4 Ofcom's statutory powers and duties in relation to spectrum management are set out primarily in the Communications Act 2003 (the "2003 Act") and the WT Act. Amongst our functions are the making available of frequencies for use for particular purposes and the granting of rights of use of spectrum through wireless telegraphy licences and licence-exemptions.

5.5 Our principal duties under the 2003 Act, when carrying out our functions and exercising our powers, are to further the interests of citizens and consumers, where appropriate by promoting competition. In doing so, we are also required (among other things) to secure the optimal use of spectrum and the availability throughout the United Kingdom of a wide range of electronic communications services.

5.6 We must also have regard to: (i) the desirability of promoting competition in relevant markets; (ii) the desirability of encouraging investment and innovation in relevant markets; (iii) the different needs and interests, so far as the use of the electro-magnetic spectrum for wireless telegraphy is concerned, of all persons who may wish to make use of it; and (iv) the different interests of persons in the different parts of the United Kingdom, of the different ethnic communities within the United Kingdom and of persons living in rural and in urban areas.

5.7 Additionally, in carrying out our spectrum functions we have a duty under section 3 of the WT Act to have regard in particular to: (i) the extent to which the spectrum is available for use, or further use, for wireless telegraphy; (ii) the demand for use of that spectrum for wireless telegraphy; and (iii) the demand that is likely to arise in future for such use.

5.8 We also have a duty to have regard to the desirability of promoting: (i) the efficient management and use of the spectrum for wireless telegraphy; (ii) the economic and other benefits that may arise from the use of wireless telegraphy; (iii) the development of innovative services; and (iv) competition in the provision of electronic communications services.

5.9 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 except under and in accordance with a wireless telegraphy licence granted under the WT Act.

5.10 Under sections 8(3) – 8(3B) of the WT Act, Ofcom may make regulations exempting from the licensing requirements under section 8(1), the establishment, installation or use of wireless telegraphy stations or wireless telegraphy apparatus of such classes or description as may be specified in the regulations, either absolutely or subject to such terms, provisions and limitations as may be specified.

5.11 Under section 8(4) of the WT Act, we must make regulations to exempt equipment if its installation or use is not likely to:

- 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.

5.12 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.

5.13 We make exemption regulations by means of a statutory instrument. Before making any such regulations, we are required by section 122(4) of the WT Act to give statutory notice of our proposal to do so. Under section 122(5), such notice must state that we propose to make the regulations in question, set out their general effects, specify an address from which a copy of the proposed regulations or order may be obtained, and specify a time period of at least one month during which any representations with respect to the proposal must be made to us.

5.14 We have formulated our proposals by reference to our statutory duties. For the reasons set out in this Notice, our provisional assessment is that they are consistent with those

duties and the terms, provisions and limitations would meet the requirements of section 8(4) of the WT Act.

5.15 In our view, the proposals set out in this document are:

- **objectively justified** in that they address the risks of undue interference that might otherwise arise from the use of SRD;
- **not unduly discriminatory** against particular persons or against a particular description of persons in that they would apply to all users of relevant SRDs;
- **proportionate** to what they are intended to achieve, in that they would be necessary to ensure that use of the relevant equipment would not be likely to have relevant adverse effects; and
- **transparent** in relation to what they are intended to achieve, in that they are described and explained in this Notice.

Our proposed changes

5.16 The Proposed Regulations would revoke the 2010 Regulations,[27] as well as the various regulations which have amended them in the intervening period,[28] and replace them with an updated, consolidated set of regulations. In doing so, the following change will be made:

i) for the exemption for SRDs (regulation 5 of the 2010 Regulations and Regulation 4 of the Proposed Regulations) the publication date for IR 2030 will be updated to give effect to the new technical parameters set out in the SRD Decision. This will implement our decision on the changes to Wi-Fi in the 6 GHz band, the SRD Decision and if agreed, SRD Data Networks in the 870 to 874.4 MHz band.

5.17 Aside from the amendments above, all the remaining licence-exemption provisions set out in the Proposed Regulations will remain the same as they were in the 2010 Regulations, as amended by subsequent regulations. This means that high density fixed satellite service systems (Regulation 6 of the Proposed Regulations), personal locator beacons (Regulations 7 of the Proposed Regulations), earth stations on mobile platforms (Regulation 8 of the Proposed Regulations) and citizen band radio equipment (Regulation 9 of the Proposed Regulations) will continue to be licence-exempt as before.

[27] http://www.legislation.gov.uk/uksi/2010/2512/contents/made

[28] These Regulations include: the Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2011 (S.I. 2011/3035); the Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2013 (S.I. 2013/1253); the Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2014 (S.I. 2014/1484); the Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2017 (S.I. 2017/746); the Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2018 (S.I. 2018/263); and the Wireless Telegraphy (Exemption and Amendment)(Amendment)(No.2) Regulations 2018 (S.I. 2018/1140).

Question 3: Do you agree that the Proposed Regulations would correctly implement the policy decision made earlier this year on extending Wi-Fi to the 6 GHz band, the SRD Decision and, if agreed, the changes to SRD Data Networks in the 870 to 874.4 MHz band?

Comments and representations

5.18 We are inviting comments on the proposal to make the Wireless Telegraphy (Licence Exemption) Regulations 2021. This consultation is to see whether the Proposed Regulations correctly implement the decisions we made to extend Wi-Fi use in the 6 GHz band and the SRD Decisions. We are also asking for comments on proposals to make changes to the authorisation of SRD Data Networks in the 870 to 874.4 GHz band and the licensing of higher power equipment in the 57 to 71 GHz band. Annexes 1 to 4 of this document set out the information needed to respond to this document.

5.19 Comments on the Proposed Regulations, Interface Requirements and licensing changes are invited by **5pm on 28 January 2019**.

5.20 Subject to our consideration of responses, we intend to bring the Proposed Regulations into force in March 2021. A regulatory impact assessment for the Proposed Regulations and new licence arrangements will accompany the making of the regulations.

A1. Responding to this consultation

How to respond

A1.1 Ofcom would like to receive views and comments on the issues raised in this document, by 5pm on 28 January 2021.

A1.2 You can download a response form from https://www.ofcom.org.uk/consultations-and-statements/category-2/licence-exemption-licensing-equipment-changes. You can return this by email or post to the address provided in the response form.

A1.3 If your response is a large file, or has supporting charts, tables or other data, please email it to paul.chapman@ofcom.org.uk, as an attachment in Microsoft Word format, together with the cover sheet.

A1.4 We welcome responses in formats other than print, for example an audio recording or a British Sign Language video. To respond in BSL:

- Send us a recording of you signing your response. This should be no longer than 5 minutes. Suitable file formats are DVDs, wmv or QuickTime files. Or
- Upload a video of you signing your response directly to YouTube (or another hosting site) and send us the link.

A1.5 We will publish a transcript of any audio or video responses we receive (unless your response is confidential)

A1.6 We do not need a paper copy of your response as well as an electronic version. We will acknowledge receipt if your response is submitted via the online web form, but not otherwise.

A1.7 You do not have to answer all the questions in the consultation if you do not have a view; a short response on just one point is fine. We also welcome joint responses.

A1.8 It would be helpful if your response could include direct answers to the questions asked in the consultation document. The questions are listed at Annex 4. It would also help if you could explain why you hold your views, and what you think the effect of Ofcom's proposals would be.

A1.9 If you want to discuss the issues and questions raised in this consultation, please contact Paul Chapman.

Confidentiality

A1.10 Consultations are more effective if we publish the responses before the consultation period closes. In particular, this can help people and organisations with limited resources or familiarity with the issues to respond in a more informed way. So, in the interests of transparency and good regulatory practice, and because we believe it is important that everyone who is interested in an issue can see other respondents' views, we usually publish all responses on the Ofcom website as soon as we receive them.

A1.11 If you think your response should be kept confidential, please specify which part(s) this applies to, and explain why. Please send any confidential sections as a separate annex. If you want your name, address, other contact details or job title to remain confidential, please provide them only in the cover sheet, so that we don't have to edit your response.

A1.12 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and try to respect it. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.

A1.13 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's intellectual property rights are explained further in our Terms of Use.

Next steps

A1.14 Following this consultation period, Ofcom plans to publish a statement in March 2021.

A1.15 If you wish, you can register to receive mail updates alerting you to new Ofcom publications.

Ofcom's consultation processes

A1.16 Ofcom aims to make responding to a consultation as easy as possible. For more information, please see our consultation principles in Annex 2.

A1.17 If you have any comments or suggestions on how we manage our consultations, please email us at consult@ofcom.org.uk. We particularly welcome ideas on how Ofcom could more effectively seek the views of groups or individuals, such as small businesses and residential consumers, who are less likely to give their opinions through a formal consultation.

A1.18 If you would like to discuss these issues, or Ofcom's consultation processes more generally, please contact the corporation secretary:

Corporation Secretary
Ofcom
Riverside House
2a Southwark Bridge Road
London SE1 9HA
Email: corporationsecretary@ofcom.org.uk

A2. Ofcom's consultation principles

Ofcom has seven principles that it follows for every public written consultation:

Before the consultation

A2.1 Wherever possible, we will hold informal talks with people and organisations before announcing a big consultation, to find out whether we are thinking along the right lines. If we do not have enough time to do this, we will hold an open meeting to explain our proposals, shortly after announcing the consultation.

During the consultation

A2.2 We will be clear about whom we are consulting, why, on what questions and for how long.

A2.3 We will make the consultation document as short and simple as possible, with a summary of no more than two pages. We will try to make it as easy as possible for people to give us a written response. If the consultation is complicated, we may provide a short Plain English / Cymraeg Clir guide, to help smaller organisations or individuals who would not otherwise be able to spare the time to share their views.

A2.4 We will consult for up to ten weeks, depending on the potential impact of our proposals.

A2.5 A person within Ofcom will be in charge of making sure we follow our own guidelines and aim to reach the largest possible number of people and organisations who may be interested in the outcome of our decisions. Ofcom's Consultation Champion is the main person to contact if you have views on the way we run our consultations.

A2.6 If we are not able to follow any of these seven principles, we will explain why.

After the consultation

A2.7 We think it is important that everyone who is interested in an issue can see other people's views, so we usually publish all the responses on our website as soon as we receive them. After the consultation we will make our decisions and publish a statement explaining what we are going to do, and why, showing how respondents' views helped to shape these decisions.

A3. Consultation coversheet

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing ☐

Name/contact details/job title ☐

Whole response ☐

Organisation ☐

Part of the response ☐

If there is no separate annex, which parts? _____

_____

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

Name Signed (if hard copy)

A4. Consultation questions

A4.1 Please refer to our proposals set out in Sections 2-5 of the document above covering the proposed changes we wish to make for devices to be licence-exempt and the drafting of the proposed regulations.

Question 1: Do you agree with Ofcom's proposal to update the authorisation approach and technical criteria for SRD data networks in the 870 to 874.4 MHz band? If not, please provide your reasoning.

Question 2: Do you agree with Ofcom's proposals to authorise higher power use of 57 to 71 GHz by wideband data transmission systems via a light licensing regime? If not, please provide your reasoning.

Question 3: Do you agree that the Proposed Regulations would correctly implement the policy decision made earlier this year on extending Wi-Fi to the 6 GHz band, the SRD Decision and, if agreed, the changes to SRD Data Networks in the 870 to 874.4 MHz band?

A5. Draft regulations

STATUTORY INSTRUMENTS

2021 No. 000

ELECTRONIC COMMUNICATIONS

Wireless Telegraphy (Exemption) Regulations 2021

Made - - - -	***
Coming into force - -	***

The Office of Communications ("OFCOM"), makes the following Regulations in exercise of the powers conferred by sections 8(3) and 122(7) of the Wireless Telegraphy Act 2006([29])("the Act") and in exercise of those sections of the Act ([30]).

Before making these Regulations, OFCOM have given notice of their proposal to do so in accordance with section 122(4)(a) of the Act, published notice of their proposal in accordance with section 122(4)(b) of the Act, and have considered the representations made to them before the time specified in the notice in accordance with section 122(4)(c) of the Act.

Citation and commencement

1. These Regulations may be cited as the Wireless Telegraphy (Exemption) Regulations 2021and shall come into force on XXX 2021

Interpretation

2. In these Regulations—

"the Act" means the Wireless Telegraphy Act 2006; and

"GHz" means gigahertz.

Revocations and amendments

3. The Regulations specified in the Schedule are revoked to the extent specified.

([29]) 2006 c.36.

([30]) Section 8(3) and section 122(7) were extended to the Bailiwick of Guernsey by article 2 of the Wireless Telegraphy (Guernsey) Order 2006 (S.I. 2006/3325); to the Bailiwick of Jersey by article 2 of the Wireless Telegraphy (Jersey) Order 2006 (S.I. 2006/3324); and to the Isle of Man by article 2 of the Wireless Telegraphy (Isle of Man) Order 2007 (S.I. 2007/278).

Short range devices

4. The establishment, installation and use of wireless telegraphy stations and wireless telegraphy apparatus complying with an interface requirement which forms part of the publication "IR 2030—UK Interface Requirements 2030 Licence Exempt Short Range Devices", published by OFCOM in XXX 20121 is exempt from the provisions of section 8(1) of the Act, if—

(a) it does not cause or contribute to any undue interference to any wireless telegraphy; and

(b) in cases where the interface requirement does not state that airborne use is permitted, use is not airborne.

Fixed wireless systems

5. The establishment, installation and use of wireless telegraphy stations and wireless telegraphy apparatus complying with the publication "IR 2078—UK Interface Requirement 2078, Fixed Wireless Systems in the frequency band 57.1 to 70.875 GHz", published by OFCOM in November 2018, is exempt from the provisions of section 8(1) of the Act if—

(a) it does not cause or contribute to any undue interference to any wireless telegraphy;

(b) use is not airborne; and

(c) any stations or apparatus operating in the frequency band 59 to 63.9 GHz are not established, installed or used within six kilometres of any of the following locations (expressed by latitude and longitude coordinates)—

(i) 07° 23' 36.6" W, 57° 21' 3.6" N;

(ii) 04° 58' 21" W, 51° 37' 16.8" N; and

(iii) 00° 36' 22.8" W, 52° 38' 1.8" N.

High density fixed satellite service systems

6. The establishment, installation and use of wireless telegraphy stations and wireless telegraphy apparatus complying with the publication "IR 2066—UK Interface Requirement 2066, High Density Fixed Satellite Service Systems", published by OFCOM in January 2018, is exempt from the provision of section 8(1) of the Act, if—

(a) it does not cause or contribute to any undue interference to any wireless telegraphy; and

(b) use is not airborne.

Personal locator beacons

7. The use of wireless telegraphy apparatus in the frequency band 406 to 406.1 megahertz complying with the publication "IR 2084—UK Interface Requirement 2084 Cospas-Sarsat locator beacons for use on land (December 2011)", published by OFCOM in December 2011, is exempt from the provisions of section 8(1) of the Act, if—

(a) it does not cause or contribute to any undue interference to any wireless telegraphy;

(b) use is not airborne; and

(c) it is not used on board a ship.

Earth stations on mobile platforms

8. The use of wireless telegraphy apparatus complying with the publication "IR 2093—UK Interface Requirement 2093 Earth Stations on Mobile Platforms (ESOMPs)", published by OFCOM in February 2014, is exempt from the provisions of section 8(1) of the Act, if—

(a) it does not cause or contribute to any undue interference to any wireless telegraphy;

(b) it is not used on board an aircraft and use is not otherwise airborne; and

(c) it is not used on board a ship.

Citizens' Band Radio Equipment

9. The use of wireless telegraphy apparatus complying with the publication "IR2027.2–UK Radio Interface Requirement 2027.2 for AM/SSB and DSB use in the Citizens' Band Radio Service", published by OFCOM in June 2014, is exempt from the provisions of section 8(1) of the Act, if it does not cause or contribute to any undue interference to any wireless telegraphy.

Philip Marnick
Group Director, Spectrum Group
Office of Communications

XXX

SCHEDULE

Regulation 3

Revocations

Regulations	*References*	*Extent of revocation*
Wireless Telegraphy (Exemption and Amendment) Regulations 2010	S.I. 2010/2512	Regulation 2 Regulation 4 Regulation 5 Regulation 6 Regulation 7 Regulation 8 Regulation 9 Regulation 10
Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2011	S.I. 2011/3035	The whole Regulations
Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2013	S.I. 2013/1253	The whole Regulations
Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2014	S.I. 2014/1484	The whole Regulations
Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2017	S.I. 2017/746	The whole Regulations
Wireless Telegraphy (Exemption and Amendment)(Amendment) Regulations 2018	S.I. 2018/263	Regulation 2 Regulation 3(2)
Wireless Telegraphy (Exemption and Amendment)(Amendment)(No.2) Regulations 2018	S.I. 2018/1140	The whole Regulations
Wireless Telegraphy (Exemption and Amendment) (Amendment) Regulations 2020	S.I 2020/549	The whole Regulations

A6. Draft interface requirements

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
IR 2030 Short Range Devices									
IR2030/x/x	Non-specific short-range devices	This set of usage conditions is only available for person detection and collision avoidance devices.	442.2-450.0 kHz		7 dBµA/m at 10 m		Channel spacing ≥ 150 Hz		
IR2030/x/x	Inductive devices		13553-13567 kHz		42 dBµA/m at 10 metres	Transmission mask and antenna requirements for all combined frequency segments apply The transmit power may be increased to 60 dBµA/m at 10 m for Radio Frequency Identification and Electronic Article Surveillance applications		Antenna requirements to comply with the essential requirements of UK SI 2017/1206 Transmission mask should comply with the essential requirements of SI 2017/1206.	
IR2030/x/x	Non-specific short-range devices		169.4-169.4875 MHz		10 mW e.r.p.	Duty cycle limit: 0.1%.			

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
IR2030/x/x	Non-specific short-range devices		169.4875-169.5875 MHz		10 mW e.r.p.	Duty cycle limit: 0.001%.		Between 00:00h and 06:00h local time a duty cycle limit of 0.1 % may be used.	
IR2030/x/x	Non-specific short-range devices		169.5875-169.8125 MHz		10 mW e.r.p.			Duty cycle limit: 0.1%.	
IR2030/x/x	Medical data acquisition devices	Wireless medical capsule endoscopy is used for medical data acquisition designed for use in medical doctor-patient scenarios with the aim of acquiring images of human digestive tract. The set of usage conditions is only available for Ultra-Low Power Wireless Medical Capsule Endoscopy (ULP-WMCE) applications.	430-440 MHz		-50 dBm/100kHz e.r.p. power density but not exceeding a total power of -40 dBm/10MHz (both limits are intended for measurement outside of the patient's body)				

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
IR2030/x/x	Non-specific short-range devices		433.05-434.79 MHz		10 mW e.r.p.	Duty cycle limit: 10%			
IR2030/x/x	Non-specific short-range devices		434,04-434,79 MHz		10 mW e.r.p.	Duty cycle limit: 100 % subject to channel spacing up to 25 kHz.		Voice applications are allowed with advanced mitigation techniques. Other audio and video applications are excluded.	
IR2030/x/x	Non-specific short-range devices		862-863 MHz		25 mW e.r.p.	Duty cycle limit: 0.1%.	Bandwidth: ≤ 350 kHz.		
IR2030/x/x	Non-specific short-range devices		865-868 MHz		25 mW e.r.p.	Requirements on techniques to access spectrum and mitigate interference apply Alternatively, a duty cycle limit of 1 % may also be used.		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
								2017/1206, performance at least equivalent to these techniques shall be ensured.	
IR2030/x/x	Non-specific short-range devices		868-868.6 MHz		25 mW e.r.p.	Requirements on techniques to access spectrum and mitigate interference apply. Alternatively, a duty cycle limit of 1 % may also be used.		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
IR2030/x/x	Non-specific short-range devices		868.7-869.2 MHz		25 mW e.r.p.	Requirements on techniques to access spectrum and mitigate interference apply. Alternatively, a duty cycle		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
						limit of 0,1 % may also be used		UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
IR2030/x/x	Non-specific short-range devices		869.4-869.65 MHz	.	500 mW e.r.p.	Requirements on techniques to access spectrum and mitigate interference apply. Alternatively, a Duty cycle limit of 10% may also be used.		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
								least equivalent to these techniques shall be ensured.	
IR2030/x/x	Non-specific short-range devices		869.7-870 MHz		25 mW e.r.p.	Requirements on techniques to access spectrum and mitigate interference apply. Alternatively, a duty cycle limit of 1 % may also be used.		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
IR2030/x/x	Transport and Traffic Telematics devices	Smart tachograph, weight and dimension applications are defined as remote enforcement of the tachograph in Appendix 14 of the Commission	5 795-5 815 MHz		2 W e.i.r.p	Requirements on techniques to access spectrum and mitigate interference apply [7].		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
		Implementing Regulation 2016/799 and for the weights and dimensions enforcement in Article 10d of the Directive 2015/719						UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
IR2030/x/x	Transport and Traffic Telematics devices	This set of usage conditions is only available to vehicle-to-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems	5 855-5 865 MHz		33 dBm e.i.r.p., 23 dBm/MHz e.i.r.p. density and a Transmit Power Control (TPC) range of 30 dB	Requirements on techniques to access spectrum and mitigate interference apply [7].		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
								least equivalent to these techniques shall be ensured.	
IR2030/x/x	Transport and Traffic Telematics devices	This set of usage conditions is only available to vehicle-to-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems.	5 865-5 875 MHz		33 dBm e.i.r.p., 23 dBm/MHz e.i.r.p. density and a Transmit Power Control (TPC) range of 30 dB	Requirements on techniques to access spectrum and mitigate interference apply.		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
IR2030/x/x	Non-specific short-range devices		57-64 GHz		100 mW e.i.r.p. and a maximum transmit power of 10dBm				

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
IR2030/x/x	Wideband data transmission devices	Fixed outdoor installations are excluded. This set of usage conditions is only available to vehicle-to-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems.	57-71 GHz		40 dBm e.i.r.p. and 23 dBm/MHz e.i.r.p. density	Requirements on techniques to access spectrum and mitigate interference apply.		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
IR2030/x/x	Wideband data transmission devices	This set of usage conditions is only available to vehicle-to-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems.	57-71 GHz		40 dBm e.i.r.p., 23 dBm/MHz e.i.r.p density and maximum transmit power of 27 dBm at the antenna port or ports.	Requirements on techniques to access spectrum and mitigate interference apply.		Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used.	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
								If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
IR2030/x/x	Transport and Traffic Telematics devices	This set of usage conditions is only available to vehicle-to-vehicle, vehicle-to-infrastructure and infrastructure-to-vehicle systems. TTT devices placed on the market before the 1 January 2020 are 'grandfathered', i.e. they are permitted to use the previous frequency range 63-64 GHz, and otherwise the same conditions apply	63.72-65.88 GHz		40 dBm e.i.r.p.				

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
IR2030/x/x	Transport and Traffic Telematics devices	Fixed transportation infrastructure radars have to be of a scanning nature in order to limit the illumination time and ensure a minimum silent time to achieve coexistence with automotive radar systems. This set of usage conditions is only available to ground-based vehicle and infrastructure systems.	76-77 GHz		55 dBm peak e.i.r.p. and 50 dBm mean e.i.r.p. and 23.5 dBm mean e.i.r.p. for pulse radars			Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
Replaces 2030/1/47	Non-specific short-range devices	This set of usage conditions is only available for data networks. All devices within the data network shall be under the control of network access points	870 – 874.4		500 mW e.r.p.	Adaptive Power Control (APC) required, alternatively other mitigation techniques which achieve at least an equivalent level of spectrum compatibility.	Bandwidth: ≤ 200 kHz	Duty cycle: ≤ 10 % for network access points Duty cycle: 2.5 % otherwise Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
								UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
CEPT Rec 70-30	Non-specific SRD	This set of usage conditions is only available for data networks. All devices within the data network shall be under the control of network access points.	870-874.4 MHz		500 mW e.r.p.	Adaptive Power Control (APC) required, alternatively other mitigation techniques which achieve at least an equivalent level of spectrum compatibility.	≤ 200 kHz	Duty cycle: ≤ 10 % for network access points Duty cycle: 2.5 % otherwise Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
								been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	
IR2030/8/3	Wireless Access Systems (WAS)	Equipment must not form part of a fixed outdoors installation when operating in 5730 – 5850 MHz Aeronautical mobile use is not permitted. Equipment may be used airborne, within an aircraft, only to establish a connection with a station or apparatus within the same aircraft.	5725 – 5850 MHz		Maximum mean EIRP of 200mW and maximum mean EIRP density of 10mW/MHz in any 1 MHz band			Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards for the 5150 –5250 MHz band adopted in accordance with UK SI 2017/1206 must be used.	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
IR2030/x/x	Wireless Access Systems (WAS)	Equipment must not form part of a fixed outdoors installation when operating in 5925 – 6425 MHz Aeronautical mobile use is not permitted. The apparatus may only be used within a building or onboard an aircraft or any other enclosed space with attenuation characteristics at least as strong as those of either a building or an aircraft, and only to establish a connection with a station or apparatus within the same building or aircraft or other enclosed space. 'Onboard aircraft' means the use of radio links for communications purposes inside an aircraft.	5925 – 6425 MHz		Maximum mean EIRP of 250mW indoor and 25mW outdoor. Maximum mean EIRP density of 12.6mW/MHz in any 1 MHz band			Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards for the 5150 – 5250 MHz band adopted in accordance with UK SI 2017/1206 must be used.	

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
IR 2106 Spectrum Access EHF									

Interface number / Date	Application	Comments to application	Frequency band	Comments to frequency band	Maximum transmit power / Power spectral density / Field strength	Comments to Maximum transmit power / Power spectral density / Field strength	Channelling	Channel access and occupation rules	Reference
IR2106/x/x	Wideband data transmission devices	This set of usage conditions is only available to licensed fixed outdoor installations.	57-71 GHz		55 dBm e.i.r.p., 38 dBm/MHz e.i.r.p. density and a transmit antenna gain ≥ 30 dBi Or 55 dBm e.i.r.p, maximum transmit power of 10 dBm and a minimum antenna gain of 30 dBi			Techniques to access spectrum and mitigate interference that provide an appropriate level of performance to comply with the essential requirements of UK SI 2017/1206 shall be used. If relevant techniques are described in harmonised standards or parts thereof the references of which have been published under UK SI 2017/1206, performance at least equivalent to these techniques shall be ensured.	

A7. Draft Spectrum Access EHF licence

Wireless Telegraphy Act 2006

Spectrum Access: EHF

Sector/Class/Product:	xxxxxx – Spectrum Access: EHF
Licence number:	
Licensee:	
Company registration:	
Licensee address:	
Email:	
Date of issue:	xx xxxx 202x
Valid from:	xx xxxx 202x
Payment interval:	5 year

1. The Office of Communications (Ofcom) grants this wireless telegraphy licence ("the Licence") to [LICENSEE] to establish, install and use wireless telegraphy stations and/or wireless telegraphy apparatus as described in the schedules to this Licence (together "the Radio Equipment") subject to the terms set out below.

Licence Term

2. This Licence shall continue in force until revoked by Ofcom or surrendered by the Licensee.

Licence Revocation and Variation

3. Pursuant to schedule 1 paragraph 8 of the Wireless Telegraphy Act 2006 ("the Act"), Ofcom may not revoke this Licence under schedule 1 paragraph 6 of the Act except:

   (a) at the request, or with the consent, of the Licensee;
   (b) if there has been a breach of any of the terms of this Licence;
   (c) in accordance with schedule 1 paragraph 8(5) of the Act;
   (d) if it appears to Ofcom to be necessary or expedient to revoke the Licence for the purpose of complying with a direction by the Secretary of State given to Ofcom under section 5 of the Act or section 5 of the Communications Act 2003;
   (e) for reasons related to the management of the radio spectrum provided that in such a case the power to revoke may only be exercised after at least one year's notice is given in writing.

4. Ofcom may only revoke or vary this Licence in accordance with schedule 1 paragraphs 6, 6A and 7 of the Act.

5. Where Ofcom exercise their power to revoke or vary the Licence in accordance with schedule 1 paragraph 6 of the Act, the Licensee shall be notified in writing or by a general notice. Any general notices will be posted on the Ofcom website.

Transfer

6. This Licence may not be transferred. The transfer of rights and obligations arising by virtue of this Licence may however be authorised in accordance with regulations made by Ofcom under powers conferred by section 30 of the Act[31].

Changes to Licensee details

7. The Licensee shall give prior notice to Ofcom in writing of any proposed changes to the Licensee's name, email address and/or address as recorded in this Licence.

Fees

8. The Licensee shall pay to Ofcom the relevant fee(s) as provided in section 12 of the Act and the regulations made thereunder on or before the fee payment date shown above, or on or before such dates as are notified in writing to the Licensee.

9. If the Licence is surrendered, revoked or varied, no refund, whether in whole or in part, of any amount which is due under the terms of this Licence, payable in accordance with any regulations made by Ofcom under sections 12 and 13(2) of the Act will be made, except at the absolute discretion of Ofcom.

Radio Equipment Use

10. The Licensee shall ensure that the Radio Equipment is established, installed and used only in accordance with the provisions specified in the schedules to this Licence. Any proposal to amend any detail specified in any of the schedules to this Licence must be agreed with Ofcom in advance and implemented only after this Licence has been varied or reissued accordingly.

11. The Licensee shall ensure that the Radio Equipment is operated in compliance with the terms of this Licence and is used only by persons who have been authorised in writing by the Licensee to do so and that such persons are made aware of, and of the requirement to comply with, the terms of this Licence.

Access and Inspection

12. The Licensee shall permit any person authorised by Ofcom:

    (a) to have access to the Radio Equipment; and

    (b) to inspect this Licence and to inspect, examine and test the Radio Equipment,

[31] See Ofcom's website for the latest position on spectrum trading and the types of trade which are permitted.

at any and all reasonable times or, when in the opinion of that person an urgent situation exists, at any time, to ensure the Radio Equipment is being used in accordance with the terms of this Licence.

Modification, Restriction and Closedown

13. Any person authorised by Ofcom may require the Radio Equipment or any part thereof, to be modified or restricted in use, or temporarily or permanently closed down immediately if in the opinion of the person authorised by Ofcom:

    (a) a breach of this Licence has occurred; and/or

    (b) the use of the Radio Equipment is, or may be, causing or contributing to undue interference to the use of other authorised radio equipment.

14. Ofcom may require any of the Radio Equipment to be modified or restricted in use, or temporarily closed down either immediately or on the expiry of such period as may be specified in the event of a national or local state of emergency being declared. Ofcom may only exercise this power after a written notice has been served on the Licensee or a general notice applicable to holders of a named class of licence has been published.

Geographical Boundaries

15. Subject to the requirements of any coordination procedures notified to the Licensee pursuant to Schedule 1 to this Licence, the Licensee is authorised to establish, install and use the Radio Equipment in the United Kingdom, United Kingdom territorial sea (measured in accordance with section 1 of the Territorial Sea Act 1987), the Channel Islands and the Isle of Man.

Interpretation

16. In this Licence:

    (a) the establishment, installation and use of the Radio Equipment shall be interpreted as establishment and use of wireless telegraphy stations and installation and use of wireless telegraphy apparatus for wireless telegraphy as specified in section 8(1) of the Act;

    (b) the expression "interference" shall have the meaning given by section 115 of the Act;

    (c) the expressions "wireless telegraphy station" and "wireless telegraphy apparatus" shall have the meanings given by section 117 of the Act;

    (d) the schedule(s) form part of this Licence together with any subsequent schedule(s) which Ofcom may issue as a variation to this Licence; and

    (e) the Interpretation Act 1978 shall apply to the Licence as it applies to an Act of Parliament.

Issued by the Office of Communications (Ofcom)

Spectrum Access: EHF

SCHEDULE 1 TO LICENCE: xxxxxx

Description of Radio Equipment

1. References in this schedule to the Radio Equipment are references to any wireless telegraphy station or wireless telegraphy apparatus that is established, installed and/or used under the schedules to this Licence.

Interface Requirements for the Radio Equipment

2. Use of the Radio Equipment shall be in accordance with the following Interface Requirements:

   IR 2106 Spectrum Access EHF

Special conditions relating to the Radio Equipment

3. Radio Equipment is not permitted to be used airborne.

4. During the period that this Licence remains in force, unless consent has otherwise been given by Ofcom, the Licensee shall compile and maintain accurate written records of the following details relating to the Radio Equipment:

   I. The postal address (including postcode) and National Grid Reference (to 1m resolution) of the Radio Equipment or, in case of mobile use, of the centre of any 5km radius within which the Radio Equipment is used.
   II. For equipment deployed outdoors in the 116-122 GHz, 174.8-182 GHz and 185-190 GHz bands the Antenna main beam elevation angle measured in degrees above horizontal.

5. The Licensee shall submit to Ofcom in such manner and within such period as specified by Ofcom, such other information in relation to the Radio Equipment, or any wireless telegraphy station or wireless telegraphy apparatus which the Licensee is planning to use, as Ofcom may from time to time request. Such information may include, but is not limited to, information in relation to the radio frequency, transmitted power and date of first use for wireless telegraphy stations or wireless telegraphy apparatus to be established, installed or used within such timeframe and in such areas as Ofcom may reasonably request.

Coordination at frequency and geographical boundaries

6. The Licensee shall ensure that the Radio Equipment is operated in compliance with such coordination procedures as may be notified to the Licensee by Ofcom from time to time.

Interpretation of terms in this schedule

7. In this schedule:

a) "IR" means a United Kingdom Radio Interface Requirement notified by Ofcom in accordance with Article 8 of Directive 2014/53/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment (known as the Radio Equipment Directive).

Spectrum Access: EHF
SCHEDULE 2 TO LICENCE: xxxxxx

References in this schedule to the Radio Equipment are references to any wireless telegraphy station or wireless telegraphy apparatus that is established, installed and/or used under the schedules to this Licence.

This Licence is issued on the basis that interference is not caused by the Radio Equipment to other authorised spectrum users and that the Radio Equipment will not be protected from interference caused by other authorised spectrum users.

1. When operating, the Licensee must transmit and receive within the limits set out below.

Permitted Frequency Band	**Maximum power levels**	**Additional parameters**	**Other usage restrictions**
57 – 71 GHz	55 dBm e.i.r.p., 38 dBm/MHz e.i.r.p. density and a transmit antenna gain ≥ 30 dBi Or 55 dBm e.i.r.p., maximum transmit power of 10 dBm and a minimum antenna gain of 30 dBi	Techniques to access spectrum and mitigate interference that provide at least equivalent performance to the techniques described in harmonised standards must be used.	This set of usage conditions is only available to fixed outdoor installations. No deployments operating within 59 – 63.9 GHz are permitted within 6 km of the following locations: • Site 1: 57° 21' 3.6",-07° 23' 36.6" • Site 2: 51° 37' 16.8",-04° 58' 21" • Site 3: 52° 38' 1.8", -00° 36' 22.8"

Interpretation of terms in this schedule

1. In this schedule:

   a) "dBi" means the ratio between the gain of an antenna system relative to the gain of an isotropic radiator in decibels.

   b) "dBm" means the power level in decibels (logarithmic scale) referenced against 1milliwatt (i.e. a value of 0 dBm is 1 milliwatt);

   c) "e.i.r.p." means the equivalent isotropically radiated power. This is the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain), measured during the "on" part of the transmission;

d) "Indoor" means inside premises which: (i) have a ceiling or a roof; and (ii) except for any doors, windows or passageways, are wholly enclosed; and

e) "Outdoor use" means any device operating in an environment which does not meet the definition of "indoor".

A8. Draft regulatory impact assessment

Introduction

A8.1 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**") 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.

A8.2 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 policymaking. As a matter of policy, we are committed to carrying out and publishing impact assessments in relation to the vast majority of our policy decisions.

A8.3 For further information about our approach to impact assessments, see the guidelines, Better policymaking: Ofcom's approach to impact assessment, which are on our website.

A8.4 The following draft RIA relates to our proposals to make certain regulations to implement Ofcom's decisions to improve spectrum access for RLAN (including Wi-Fi) in the 5 and 6 GHz bands, the EU Decision on Short Range Devices (SRD) and simplify the rules covering the 870 to 874.4 MHz band. It also sets out the impact of removing the current licence exemption for higher power wideband data transmission systems in 57 to 71 GHz and replacing with a licensing regime.

A8.5 The draft assessments are consistent with the Government practice on RIAs and Ofcom's duty under the 2003 Act.

Background

A8.6 In the UK, Ofcom is responsible for authorising civil use of the radio spectrum and achieve this by granting wireless telegraphy licences under the Wireless Telegraphy Act 2006 (the "WT Act") and by making regulations exempting users of particular equipment from the requirement to hold such a licence.

A8.7 Under section 8(1) of the WT Act, it is unlawful to install or use wireless telegraphy apparatus without holding a licence granted by us, unless the use of such equipment is exempted. However, under Section 8(4) of the WT Act we must make regulations to exempt the use of equipment if we are satisfied that it is unlikely to cause undue interference.

A8.8 SRD is the term covering radio equipment that has a low capability of causing interference to other radio equipment. SRDs use either integral, dedicated or external antennas and all modes of modulation can be permitted subject to the relevant standards.

A8.9 The analysis set out in this document represents a regulatory impact assessment following Ofcom's notice of proposals to make The Wireless Telegraphy (Exemption) Regulations 2021 (the "**Proposed Regulations**"). The Proposed Regulations would update and consolidate the existing legislations that prescribes the criteria for many devices to operate without the need to hold a WT Act licence.

Proposals

A8.10 The Proposed Regulations intend to change authorisation for licence-exempt use of SRDs in the following areas, subject to certain technical conditions:

a) expand the amount of spectrum available for Wi-Fi and other RLAN devices in the 6 GHz band and relax some of the technical parameters in the 5725 to 5850 MHz band;

b) implement the European Commission Implementing Decision 2019/1345/EU of 2 August 2019 (the "SRD Decision")[32]; and

c) subject to consultation, align the use of SRD data networks in 870 to 874.4 MHz with CEPT Recommendation 70-03.

A8.11 We are also consulting on a move from a licence-exempt to a licensed approach for higher power wideband data transmission systems in the 57 to 71 GHz band. We are proposing that the exemption for existing equipment will remain in place until 1 September 2021 after this date all equipment operating at powers over 40dBm (10W) will require a licence from Ofcom.

The citizen and/or consumer interest

A8.12 Our principal duty under section 3 of the 2003 Act is to further the interests of citizens in relation to communications matters; and to further the interests of consumers in relevant markets, where appropriate by promoting competition.

A8.13 We take account of the impact of our decisions upon both citizen and consumer interests in the markets we regulate. We must, in particular, secure the optimal use for wireless telegraphy of spectrum and have regard to the principle under which all regulatory activities should be targeted only at cases in which action is needed. In deciding to make changes we have considered the wider impact beyond immediate stakeholders in the radiocommunications community.

A8.14 In proposing these changes, we have considered the wider impact beyond immediate stakeholders in the radiocommunications community. We believe that our decisions are of benefit to citizens and consumers for the following reasons:

- Most of the SRD measures concern the use of radio equipment on a licence-exempt basis, which reduces the regulatory and administrative burden on our stakeholders and helps to secure the optimal use of spectrum;

[32] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.212.01.0053.01.ENG&toc=OJ:L:2019:212:TOC

- The Proposed Regulations support the introduction of new and innovative technologies that will be of benefit to consumers and citizens in general and are for the use of equipment that is unlikely to cause harmful interference to other spectrum users including more spectrum available for Wi-Fi, RLAN, Internet of Things, Machine-to-Machine, and Smart Meters;
- We would be implementing the SRD Decision and the Conference of Postal and Telecommunications Administrations (CEPT) Recommendation 70-03 in regard to 870 to 874.4 MHz network equipment. Both are supported by technical studies undertaken by the CEPT (which Ofcom participates in) which considered interference and quality of service issues and found there to be none; and
- Where possible, we seek to harmonise these conditions with other countries for manufacturers to have economies of scale which would then lead to lower prices for UK citizens and consumers.

RLAN (including Wi-Fi) use in 5 GHz and 6 GHz bands

A8.15 Wi-Fi use is growing, driven by greater availability and adoption of faster broadband and the rising number and variety of connected devices and innovative applications. On 24 July 2020, we published our statement "Improving spectrum access for Wi-Fi"[33] which set out our decision to make more spectrum available for Wi-Fi and other RLAN use as well as easing some of the technical restrictions relating to the 5725 to 5850 MHz band.

A8.16 The new licence-exempt regime for the 5925 to 6425 MHz band will be available for RLANs for indoor use with a maximum equivalent isotropically radiated power ("e.i.r.p.") of 250mW, and outdoor use with a maximum e.i.r.p of 25mW. No fixed outdoor use will be permitted. Airborne use of the relevant equipment will be permitted within an aircraft only to establish a connection with a station or apparatus within the same aircraft. The Proposed Regulations would also remove the Dynamic Frequency Selection (DFS) requirements for indoor use (up to 200mW) from the 5.8 GHz band (5725-5850 MHz).

A8.17 We consider that, in general, the optimal use of spectrum is most likely to be secured for society if spectrum is used efficiently, that is if it delivers the maximum benefits (or value) for society. Opening the lower 6 GHz band to unlicensed spectrum use will enable RLAN technology (including Wi-Fi) developers to deploy more efficient routers which will increase spectrum efficient use. Removing the DFS requirement in 5.8 GHz will enable Wi-Fi devices to operate across these bands to deliver a better customer experience. RLAN and Wi-Fi.

A8.18 We believe that removing the DFS requirements for indoor use only in the 5.8 GHz band will not have any significant impact on radars in the UK. Making this change will provide significant benefits to people and businesses by allowing this spectrum to be more widely used for Wi-Fi and reduce congestion in other channels.

[33] https://www.ofcom.org.uk/__data/assets/pdf_file/0036/198927/6ghz-statement.pdf

A8.19 We have also had regard to the economic and other benefits that may arise from the use of this spectrum, and the need to encourage the development of innovative services. In addition to increasing capacity to meet demand for services delivered via existing Wi-Fi networks, there is the potential for this spectrum to be used for new Wi-Fi services which require high data rates and wider channels. Further development of Wi-Fi services has the potential to deliver significant benefits for UK consumers and businesses, including superfast broadband, greatly expanded capacity and innovative applications. We consider it important to make these bands available in a timely manner to meet consumer demand, particularly for increasing capacity of Wi-Fi services, addressing the growth in network traffic and to enable the industry to take advantage of innovation opportunities.

SRD Decision

A8.20 The SRD Decision is supported by the recommendations in CEPT's Report 70[34] and the work of ETSI on harmonised standards for SRDs. Ofcom has been integral to the work of CEPT. The technical conditions for SRDs developed by these organisations help to ensure the efficient use of spectrum and the avoidance of interference.

A8.21 Ofcom believes the SRD Decision will deliver positive benefits from enhancing the freedom of movement of SRDs, by continuing the common approach to spectrum access conditions for SRDs and potentially lowers the costs of SRDs for UK consumers and business.

A8.22 If the spectrum access conditions were not harmonised for SRDs, limitations on free movement, increased production costs and the risks of harmful interference with other radio applications and services due to unauthorised use are more likely to occur. Citizens and consumers would not be able to benefit from the new opportunities that these devices could provide as a result of advances in technology. If the UK did not participate in this approach, it might be argued that UK businesses and consumers would be disadvantaged in not having access to these innovative technologies.

A8.23 Finally, if we did not implement an EU decision there are legal risks associated with non-compliance. The UK remains bound by EU law as if it were a Member State during the transitional period.

SRD Data Networks in 870 to 874.4 MHz

A8.24 CEPT recommendation Rec 70-03[35] forms the basis of many the technical harmonisation decisions taken by the European Commission. This report is used to provide the necessary updates to the various SRD decisions that have been introduced by the Commission. Unlike the SRD Decision, the REC 70-03 is not legally binding on administrations. On occasion, some aspects of REC 70-03 are impossible for some Member States to implement and therefore these provisions are often not included in Commission harmonisation decisions. It was for this reason that the EU Decision (Decision 2018/1538/EU)[36] only harmonised the

[34] https://docdb.cept.org/download/1ebaaede-1ab7/CEPTRep070.pdf
[35] https://docdb.cept.org/download/25c41779-cd6e/Rec7003e.pdf
[36] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018D1538&from=EN

use of 874 to 874.4 MHz for SRD data networks whereas in REC 70-03 CEPT harmonised the use of whole band from 870 to 874.4 MHz.

A8.25 After reviewing the current UK authorisation regime for devices between 870 to 874.4 MHz we believe that aligning the licence-exemption provisions with those set out in REC 70-03 would benefit UK citizen and consumers. By removing the current restrictions this would make available 4.4 MHz of continuous bandwidth, making the spectrum more attractive and usable. This would create additional and wider bandwidth channels to support growth and innovation in the Smart Metering, Internet of Things (IOT) and Machine-to-Machine (M2M) sectors. This would support delivery of new services with significant benefits to citizens and consumers across a range of sectors, including smart cities, agriculture, energy, transport and healthcare.

A8.26 If we choose to maintain the current authorisation regime, this risks an inefficient use of the radio spectrum. Some manufactures have advised that it is not cost effective for them to notch out the 873 to 874 MHz band in order to utilise the 874 to 874.4 MHz band. Therefore, they would continue to only produce equipment that works in 870 to 873 MHz leaving 1.4 MHz of spectrum not used by SRD data network equipment such as smart meters and other Internet of Things.

57 to 71 GHz Higher power wideband data transmission systems

A8.27 The SRD Decision sets out technical parameters for the harmonisation of equipment across the European Union. As part of the SRD Decision new provisions were introduced for wideband data transmission systems operating in the 57 to 71 GHz bands. In 2018 Ofcom introduced regulations that exempted the use of these devices.[37] However, the provisions for higher power wideband data transmission systems devices (operating at 55dBm) were more permissive than those in place in the UK. In order to implement the SRD Decision, we need to amend these technical parameters and align them with the those set out in the decision.

A8.28 In our Regulatory Impact Assessment that we produced alongside the regulations that exempted the use of this equipment we set out the many benefits that this equipment could bring.[38] In it we noted that the band has been identified as a priority 5G band in Europe.[39] With the increasing demand for data-hungry services we identified this band as key enabler to meet this demand.

A8.29 However, since Ofcom made these changes in 2018 and the SRD Decision was introduced in 2019 Ofcom has carried out work looking at compliance with the International Commission for Non-Ionising Radiation Protection (ICNIRP) Guidelines for the protection of the general public on exposure to electromagnetic fields (EMF). Given this we are proposing to move from using licence-exemption to the introduction of licensing

[37] https://www.legislation.gov.uk/uksi/2018/1140/made/data.pdf
[38] https://www.ofcom.org.uk/__data/assets/pdf_file/0012/126120/Regulatory-Impact-Assessment-57-71-GHz.pdf
[39] https://circabc.europa.eu/sd/a/fe1a3338-b751-43e3-9ed8-a5632f051d1f/RSPG18-005final-2nd_opinion_on_5G.pdf

arrangements for this higher power equipment deployed in the band. This will mean that to use equipment that complies with the SRD Decision a licence will be required.

A8.30 We are also proposing that from the 1 September 2021 all existing equipment that is deployed and that transmits over 40 dBm (10W) will also require to be authorised via a licence. Equipment that transmits at or under this limit will still be authorised through the current licence exemption limits set out in IR 2030.

A8.31 We are proposing to include the band into our existing Spectrum Access EHF licence. This licensing arrangement will result in a direct cost in the order of £75 for a five year, UK-wide licence. While this is a shift from the current licence-exemption, it is low cost and presents a low administrative burden to applicants. This is because the licence will cover all deployed systems on a national basis, for a low fee, with a one-off application process. We believe that any small cost will be more than offset by the benefits that the deployment of this equipment will bring as well as the assurance that ICNIRP Guidelines for the protection of the general public are being followed.

Our policy objective

A8.32 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.

A8.33 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 removing the need for spectrum users to apply for an individual wireless telegraphy licence to authorise the use of SRDs. We note that our licensing proposal for higher power wideband data transmission systems in the 57 to 71 GHz band adds a small regulatory burden on potential licensees, but this should not prevent the further roll-out of this equipment. It will however provide better assurance that ICNIRP Guidelines for the protection of the general public are been adhered to when equipment is being deployed and used.

Costs for Ofcom

A8.34 There are one-off administrative costs associated with making regulations. We believe that the costs, such as they are, will be offset by the benefits to business and consumer outlined above.

A8.35 There are one-off and ongoing administrative costs for Ofcom associated with imposing licensing arrangements for wideband data transmission systems higher power equipment in 57 to 71 GHz band. However, we consider that the implementation costs to be low and the administrative burden is minimised through the design of the licence. By including the band into the existing Spectrum Access EHF licence this should further reduce the costs to Ofcom.

A8.36 By not making regulations, there would be no additional cost imposed on Ofcom relating to making a Statutory Instruments. Taking this course would also mean that we would not be

implementing policy changes that Ofcom had previously consulted and decided upon, impacting on the regulatory certainty for stakeholders.

Cost to business, including small businesses and the voluntary sector

A8.37 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 Proposed 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.

A8.38 Our view is that introducing the licensing arrangements for higher power wideband data transmission systems in the 57 to 71 GHz band 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 continued deployment of these systems). We have noted the low licensing costs for stakeholders of £75 (payable every five years) and consider that our approach is unlikely to impose costs on other users. Equipment that is already deployed under the existing licence-exemption parameters will require a licence from 1 September 2021.

A8.39 The requirement for licenses to meet the ICNIRP Guidelines for the protection of the general public provisions will place a small administration cost on businesses for them to hold records of the results of their assessments. Compliance with the ICNIRP Guidelines themselves should not impose additional costs as licensees should already be aware of the general public limits and be taking EMF exposure into account when conducting their business.

Equality Impact Assessment

A8.40 We consider that it is reasonable to assume that any impacts on consumers and citizens arising from the Regulations and new licence arrangements 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.

A8.41 We do not consider that the proposal to make the Regulations or to introduce the licence for higher power wideband data transmission systems in the 57 to 71 GHz band 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.

A8.42 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 decisions made and implemented here are intended (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.

Conclusion

A8.43 Ofcom's assessment is that the benefits of authorising the licence-exempt use of short-range devices and licensing higher power wideband data transmission systems in 57 to 71 GHz band are likely to outweigh the costs.