
Proposed annual licence fees for 10 GHz, 28 GHz and 32 GHz spectrum

CONSULTATION:

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1. Overview

In this consultation, we set out our proposals for the level of annual licence fees for 10 GHz, 28 GHz and 32 GHz spectrum and on the draft regulations to implement them.

In 2000, 42 lots of 28 GHz spectrum (three 2 x 112 blocks in each of 11 English regions and the 3 devolved Nations) were made available, of which 16 were awarded.

In 2008, we awarded the remaining regional 28 GHz lots. We also awarded two 2 x 112 MHz lots of national 28 GHz spectrum as well as national licences for 10 GHz and 32 GHz spectrum.

The initial term of the regional 28 GHz spectrum awarded in 2000 expired in 2016 and this spectrum has been subject to annual licence fees set in 2015 and payable from January 2016. The 10, 28 and 32 GHz spectrum awarded in 2008 will be subject to annual licence fees from February 2023.

The purpose of this document is to consult on the level of annual licence fees for these 10, 28 and 32 GHz licences awarded in 2008. We also propose to align the licence fees and payment date for the 28 GHz spectrum auctioned in 2000 and in 2008. This means that, under our proposals, in certain regions the fees will increase and in other regions the fees will decrease compared to the regional fees set in 2015. Overall, given licensees hold spectrum in multiple regions, there is no significant impact to licensees with the proposed alignment.

We consider that setting fees which reflect the market value (opportunity cost) of the underlying spectrum will best achieve our statutory duties, including our duty to secure the optimal use of the spectrum.

In brief

We propose:

- to set a national annual licence fee of £7,568 per 2 x 1 MHz for 10 GHz spectrum and £4,576 per 2 x 1 MHz for 32 GHz spectrum;
- to set regional annual licence fees for 28 GHz spectrum based on a national rate of £4,576 per 2 x 1 MHz of spectrum;
- that the proposed annual licence fees would apply from 21 February 2023, with an option to pay across ten equal monthly instalments; and
- to align the regional annual licence fees previously set in 2015 for 28 GHz licences awarded in 2000 with the regional annual licence fees we are now proposing to set for 28 GHz licences awarded in 2008, including the payment dates, so that a single regional fee applies for 28 GHz spectrum awarded in both 2000 and 2008.

We aim to publish our decision and fee regulations by January 2023.

The overview section of this document is a simplified high-level summary only. The proposals we are consulting on and our reasoning are set out in the full document.

2. Introduction

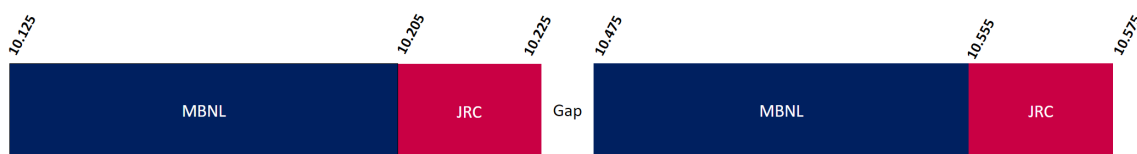
- 2.1 In this consultation, we make proposals on the level of annual licence fees (“**ALFs**”) payable for 10 GHz, 28 GHz and 32 GHz spectrum¹. We are also proposing to revise the fees for 28 GHz spectrum awarded in 2000. These proposals are in line with our spectrum pricing policy set out in our Strategic Review of Spectrum Pricing (“**SRSP**”)² in 2010 which included our approach to setting licence fees based on opportunity cost³ for spectrum.

Background

10 GHz

- 2.2 The 10 GHz spectrum was auctioned in 10 national lots of 2 x 10 MHz in 2008. Eight lots were allocated to T Mobile (UK) and this spectrum is now held by Mobile Broadband Network Limited (“**MBNL**”). Two lots were allocated to Digiweb and this spectrum is now held by the Joint Radio Company Limited (“**JRC**”). Figure 2.1 below shows the band-plan for the current 10 GHz licences with the current licence holders.

Figure 2.1: Band-plan of 10 GHz with the current licence holder



28 GHz

- 2.3 In December 2000, the Radiocommunications Agency (an Ofcom legacy regulator) auctioned three paired spectrum packages of 2 x 112 MHz, with 28 MHz separation between each, in 11 English regions plus the 3 devolved Nations.⁴ Of the 42 lots available, 16 were awarded in the auction. Licences were originally of a fixed duration but were varied⁵ in 2013 to align with other Ofcom-awarded licences, to become of indefinite duration, subject to licence fees being applicable from 1 January 2016. One licence in Northern Ireland expired at the end of 2015 and remains currently unallocated. In

¹ The 40 GHz spectrum is also due to be subject to ALFs from February 2023. These licences are currently the subject of a separate consultation. We will consult on setting annual licence fees for the 40 GHz band once we decide on the future of these licences.

² Ofcom, *SRSP: The revised Framework for Spectrum Pricing, Our policy and practice of setting AIP spectrum fees*, December 2010, https://www.ofcom.org.uk/data/assets/pdf_file/0024/42909/srsp-statement.pdf.

³ Opportunity cost in this context is the value of alternative spectrum use forgone by society due to the current spectrum use.

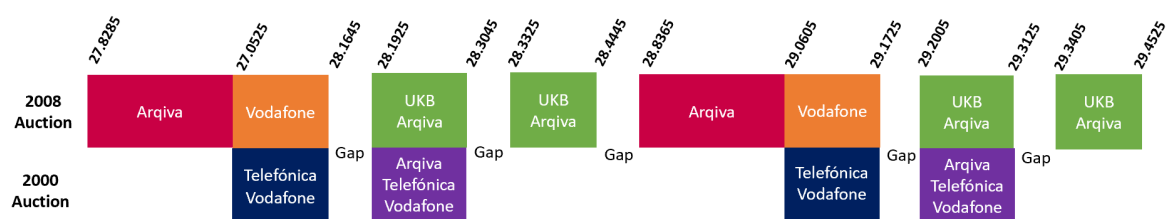
⁴ The regions are identified in Part 1 of the Schedule to the Wireless Telegraphy (Broadband Fixed Wireless Access Licences) Regulations 2000.

⁵ Ofcom, *Statement on the Requests for Variation of 28 GHz Broadband Fixed Wireless Access Licences*, July 2013 <https://www.ofcom.org.uk/consultations-and-statements/category-2/variation-28ghz>.

December 2015⁶, Ofcom set annual licence fees for the remaining licences, payable from 5 January 2016.

- 2.4 In 2008, Ofcom auctioned the (then) unallocated 2 x 112 MHz regional packages as three sub-national lots, plus two contiguous national lots of 2 x 112 MHz. The two national lots were won and are still held by Arqiva Limited (“**Arqiva**”), the sub-national 1⁷ licence is now held by Vodafone Limited (“**Vodafone**”) and the sub-national 2⁸ and 3⁹ licences are held by UK Broadband Limited (“**UKB**”). Additionally, six locations from the sub-national 2 and sub-national 3 licences were subsequently traded from UKB to Arqiva. Details of these six locations are listed in Table A5.2 in Annex A5. Figure 2.2 below shows the 28 GHz band-plan with the current licence holders.

Figure 2.2: Band-plan of 28 GHz with the current licence holders



- 2.5 Further details regarding the background and regions covered by the awards in the 28 GHz band are provided in Annex A5.

32 GHz

- 2.6 The 32 GHz spectrum was auctioned in 6 national lots of 2 x 126 MHz in 2008. Two lots were won by T Mobile (UK). This spectrum is now held by MBNL. Two lots were won by Orange Personal Communications Services. This spectrum is now held by EE Limited (“**EE**”). One lot was won by MLL Telecom, now MLL 32 GHz Limited (“**MLL**”) and one lot was won by British Telecommunications plc (“**BT**”). Figure 2.3 below shows the band-plan of the licences awarded in 2008 with the current licence holders.

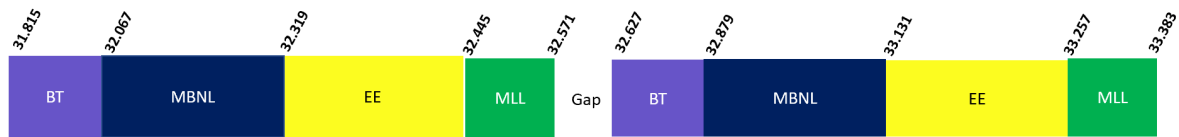
⁶ Ofcom, *Statement on Fees for Spectrum Access, 28 GHz Licences*, December 2015, https://www.ofcom.org.uk/data/assets/pdf_file/0028/80938/28_ghz_fee_statement.pdf.

⁷ 28.025-28.1645 paired with 29.0605-29.1725 GHz

⁸ 28.1925-28.3045 paired with 29.2005-29.3125 GHz

⁹ 28.3325-28.4445 paired with 29.3405-29.4525 GHz

Figure 2.3: Band-plan of 32 GHz with the current licence holders



Relevant legal framework

- 2.7 Ofcom has the power pursuant to the Wireless Telegraphy Act 2006 (the “**Wireless Telegraphy Act**”) to require spectrum licensees to pay fees to Ofcom on the grant of a licence and subsequently. This includes the power to set fees at an amount that is higher than the cost to us of carrying out our radio spectrum functions, if we think this is appropriate in light of our statutory duties at Section 3 of the Wireless Telegraphy Act.
- 2.8 These duties include having regard to:
- a) the extent to which the electromagnetic spectrum is available for use, or further use, for wireless telegraphy;
 - b) the demand for use of the spectrum for wireless telegraphy;
 - c) the demand that is likely to arise in future for the use of the spectrum for wireless telegraphy; and
 - d) the desirability of promoting:
 - i) the efficient management and use of the part of the electronic electromagnetic spectrum available 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.
- 2.9 Ofcom also has a number of statutory duties under the Communications Act 2003 (the “**Communications Act**”) which are relevant to its spectrum management functions. These include its principal duty to further the interests of citizens and consumers (where appropriate by promoting competition) and its duties to secure the optimal use for wireless telegraphy of the electro-magnetic spectrum. It is also required to have regard to the desirability of encouraging investment and innovation in relevant markets and encouraging the availability and use of high-speed data transfer services throughout the UK.
- 2.10 Further detail on the relevant legal framework and our assessment of the impact of our proposals is set out in Section 4 and Annex A7 of this consultation.

Structure of the document

2.11 The rest of this document is set out as follows:

- Section 3: Approach to determining annual licence fees;
- Section 4: Assessment of ALF in light of our statutory duties;
- Section 5: Summary and implementation;
- Annex A1: Responding to this consultation;
- Annex A2: Ofcom's consultation principles;
- Annex A3: Consultation coversheet;
- Annex A4: Consultation questions;
- Annex A5: Background of the awards in the 28 GHz band and regions covered by the licences;
- Annex A6: Calculation of regional and location specific ALF in the 28 GHz spectrum;
- Annex A7: Legal framework;
- Annex A8: Notice of proposed regulations; and
- Annex A9: Draft of the proposed regulations.

3. Approach to determining annual licence fees

Introduction

- 3.1 Our policy as set out in the SRSP is that, for spectrum which is expected to be in excess demand, we will set administered incentive pricing (“AIP”) which reflects the market value of the spectrum. Following the convention of more recent documents, we typically refer to annual licence fees (“ALFs”) and any references to AIP should be read as equivalent to ALFs.
- 3.2 The purpose of setting AIP is to provide licence holders with a long-term signal of spectrum values (based on its opportunity cost). Setting fees on this basis promotes the optimal use of spectrum, since there is an incentive amongst others, for users to sell spectrum to alternative users where the highest value alternative use is more valuable than the current use.
- 3.3 In instances where there is no excess demand for spectrum (i.e. no other user would pay above cost for it), we set fees that reflect our spectrum management costs, in line with our framework for setting cost-based fees, published in 2014.¹⁰

Structure of approach

- 3.4 Following the approach set out in the SRSP, we have considered whether applying cost-based fees would result in excess demand for spectrum in each of the 10 GHz, 28 GHz and 32 GHz spectrum bands from existing and/or feasible alternative users in the future.
- 3.5 For the reasons set out in paragraphs 3.17 and 3.18 below, we initially consider that there would be excess demand for each of 10 GHz, 28 GHz and 32 GHz spectrum in future if cost-based fees were applied. On this basis, ALFs that reflect the opportunity cost should be payable.
- 3.6 We have then estimated the market value of each of these spectrum bands (i.e. the opportunity cost of the use of the spectrum). We explain how we have done this from paragraph 3.21 below.
- 3.7 Finally, we have considered what would be the likely impact of setting fees at our estimate of the market value and whether, in light of our statutory duties, there is any reason for us to set fees at a different level. This assessment is set out in Section 4.

¹⁰ Ofcom, *Spectrum Pricing: A framework for setting cost based fees*, March 2014, https://www.ofcom.org.uk/_data/assets/pdf_file/0018/50247/cbfstatement.pdf.

Highest value alternative use and excess demand

10 GHz highest value use

- 3.8 The 10 GHz licences are currently used for point-to-point fixed wireless services. The licence terms restrict use to fixed terrestrial use or wireless cameras.
- 3.9 We have not identified any alternative use for the band and our initial view is that the next highest value use is fixed wireless services.

28 GHz highest value use

- 3.10 The 28 GHz licences permit terrestrial or satellite (Earth to space) use. The main use is for point-to-point fixed wireless services and there are satellite earth stations deployed in some locations.
- 3.11 Ofcom also issues satellite earth station licences in spectrum¹¹ adjacent to the 28 GHz licences between 27.5 - 30 GHz. The entire spectrum range (i.e. 27.5 - 30 GHz) is also known as the Ka band.
- 3.12 In Ofcom's space spectrum strategy¹², we said we expect that satellite use in the Ka band will increase. We also note that the 28 GHz band could be used for 5G fixed wireless access ("FWA") where equipment is available.
- 3.13 Given the potential different uses, it is uncertain which would be the highest value use in the future. In 2015¹³, we set the licence fee for the applicable 28 GHz licences based on fixed wireless as the highest alternative use.
- 3.14 On balance, our initial view is that the next highest value use will continue to be from fixed wireless services.

32 GHz highest value use

- 3.15 The 32 GHz licences permit terrestrial use and are currently used for point-to-point fixed wireless services. Some stakeholders have expressed interest in deploying FWA for broadband services in this spectrum.
- 3.16 Our initial view is that the next highest value use would also be from fixed wireless services.

Excess demand in the 10, 28 and 32 GHz bands

- 3.17 Fixed links can transmit in either block-assigned frequency bands (if the operator has access to block-assigned spectrum), or in Ofcom-assigned bands. Of the bands between

¹¹ Gateway licence covers the following frequencies: 27.5- 27.8285 GHz, 28.4445-28.8365 GHz, 29.4525-30 GHz and network licence covers the following frequencies: 27.5-27.8185 GHz, 28.4545-28.8265 GHz, 29.5-30 GHz

¹² Ofcom, *Consultation: Space spectrum strategy*, March 2022, https://www.ofcom.org.uk/_data/assets/pdf_file/0024/233853/consultation-space-spectrum-refresh.pdf.

¹³ Ofcom, *Statement on Fees for Spectrum Access, 28 GHz Licences*, December 2015, https://www.ofcom.org.uk/_data/assets/pdf_file/0028/80938/28_ghz_fee_statement.pdf.

10 GHz and 40 GHz, the 10, 28, 32 and 40 GHz bands are block-assigned, while the 13, 15, 23, 26 and 38 GHz bands are Ofcom assigned and subject to AIP fees.

- 3.18 We consider that there is likely to be excess demand in each of the 10, 28 and 32 GHz bands if cost-based fees were applied, for the following reasons:
- a) Current block assigned licensees in the 10, 28 and 32 GHz spectrum bands also hold a substantial number of licences in functionally substitutable Ofcom-assigned fixed wireless spectrum. This suggests that there is potential demand that could not be accommodated in existing block assigned spectrum. If block assigned spectrum were priced at cost, we expect that acquiring additional block assigned spectrum would be more attractive to licensees than continuing to use Ofcom assigned spectrum, particularly given that use of the block assigned spectrum entails lower transaction costs and the flexibility to deploy without having to coordinate with other users.
 - b) Potential use of the 26 GHz and 40 GHz bands for mobile technology¹⁴, including 5G, means that some existing links in these bands may need to be moved to other frequency bands. This may lead to increased demand for block assigned spectrum (such as 10, 28 and 32 GHz spectrum).
 - c) We noted in the 2018 review of spectrum used for fixed wireless services¹⁵ (see paragraph 3.5 of the review) that the key demand drivers likely to impact the future needs of fixed wireless links included increasing demand for mobile services including 5G. This would require wider channels and could increase demand for block assigned spectrum if priced at cost or if potential demand cannot be accommodated in all locations using Ofcom-assigned spectrum.
 - d) In the same review, we noted increasing capacity demand for broadband provision particularly for last mile connectivity and in rural areas as other demand drivers for fixed wireless links. Block assigned spectrum can also support point to multipoint FWA technology to provide last mile broadband provision under the licence condition. Some licensees have indicated interest to deploy FWA in the 28 and 32 GHz band. If block assigned spectrum were priced at cost, this could make it more attractive for provision of FWA than other spectrum bands¹⁶ that could be used for FWA. This is because access to these other bands is on a shared basis and in certain bands there is no guaranteed quality of service compared to that afforded in block-assigned spectrum.
- 3.19 Our view is that we should apply AIP fees to the 10, 28 and 32 GHz spectrum in view of the likely excess demand for these licences if their fees were set at cost. We note that licensees of 28 GHz spectrum awarded in December 2000 have paid AIP fees since January 2016 .

¹⁴ On 9 May 2022, Ofcom published a [consultation](#) on proposals to make available 26 and 40 GHz spectrum for new uses, including some options which would involve revocation of 40 GHz block-assigned licences currently used for fixed links.

¹⁵ Ofcom, *Statement on Review of Spectrum used by fixed wireless services*, July 2018, https://www.ofcom.org.uk/data/assets/pdf_file/0017/115631/statement-fixed-wireless-spectrum-strategy.pdf.

¹⁶ The 5.8 GHz and 57 – 71 GHz band can be used for FWA on a light licence basis. The 3.8 – 4.2 GHz band can also be used for FWA assigned on a per location first come first served basis.

Question 1: Do you agree with our initial conclusion that fixed wireless services are the highest value alternative use for each of the 10, 28 and 32 MHz bands? If not, please provide evidence to support your answer.

Question 2: Do you agree with our initial conclusion that there is likely to be excess demand for each of the 10, 28 and 32 GHz bands in future, if cost-based fees were applied and that therefore an AIP fee is appropriate? If not, please provide evidence to support your answer.

Our view of market value

- 3.20 As set out above, our initial view is that fixed wireless services are the highest value alternative use in each of the 10, 28 and 32 GHz bands, and there would be excess demand for each of these bands if fees were set at cost.
- 3.21 We first considered whether it is appropriate to use the 2008 auction result¹⁷ to inform our forward-looking view of the market value of the 10, 28 and 32 GHz spectrum. Our initial view is that we do not consider this to be appropriate, in particular, we note that the volume of mobile data transferred over the UK's mobile networks increased forty-fold between 2007 and 2010.¹⁸ In 2018, we noted that with data capacity increasing significantly over recent years, and with increasing fibre penetration, services such as mobile broadband continue to rely on fixed wireless links to provide backhaul connectivity¹⁹.
- 3.22 Accordingly, we propose to estimate the market value of spectrum in each of the 10, 28 and 32 GHz bands based on current fixed links fees in functionally substitutable bands. That is, we propose to use the AIP in functionally substitutable Ofcom-assigned fixed links spectrum bands.
- 3.23 This is essentially the same approach that we used in 2015 to estimate the market value for those regional 28 GHz licences where ALFs were payable from 2016.

Proposed methodology

Previous approach to estimate regional 28 GHz ALF payable from 2016

- 3.24 In assigning fixed links licences in the Ofcom-assigned bands, Ofcom seeks to manage technical interference and availability. The fee for fixed links licences is set according to an algorithm which is designed to reflect the market value (opportunity cost) of the spectrum.

¹⁷ In the 2008 auction of 10 GHz, 28 GHz, 32 GHz and 40 GHz spectrum:

Digiweb acquired 2x20 MHz of 10 GHz spectrum for £39,000;

Arqiva acquired 2x224 MHz of 28 GHz spectrum (nationally) for £260,500;

Orange Personal Communication Services acquired 2x252 MHz of 32 GHz spectrum for £261,000.¹⁷

¹⁸ <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2011/a-nation-addicted-to-smartphones>, under the heading 'Digital Decade'.

¹⁹ Ofcom, *Statement on Review of Spectrum used by fixed wireless services*, July 2018, paragraph 3.74,

https://www.ofcom.org.uk/data/assets/pdf_file/0017/115631/statement-fixed-wireless-spectrum-strategy.pdf.

The current fixed links algorithm²⁰ as set out in Schedule 3 of the Wireless Telegraphy (Licence Charges) Regulations 2020²¹ is as follows:

Fee per link = Reference fee x Bandwidth factor x Frequency band factor x Path length factor x Availability factor, where:

- Reference fee: £88 per 2x1 MHz for a bi-directional link. The reference fee is based on an average incremental cost to an operator of reducing its need for spectrum by adopting more spectrally-efficient technology,²² and was set in 2004.²³
- Bandwidth factor: the value of the actual system bandwidth (multiple of 2 x 1 MHz).
- Frequency band factor: the band factor set for each frequency band. This is 0.43 for frequency band between 10 and 15 GHz and 0.26 for frequency band between 24 to 40 GHz. The frequency band factor reflects that lower frequency bands tend to have a higher value than higher frequency bands.
- Path length factor: value between 1 and 4 which is determined by the actual path length and the minimum path length. The path length factor means that the fee is higher for shorter links (which could potentially be accommodated in higher-frequency bands).
- Availability factor: value between 0.4 and 1.45 which is determined by the required system availability. The availability factor is a premium charged if the operator requests higher 'availability' (i.e. the minimum percentage of time that the fixed link is capable of functioning, as set out in the licence).

3.25 In 2015, the approach used to set regional ALFs for 28 GHz spectrum awarded in 2000 was as follows:

- a) Use the algorithm described above to calculate the fee for a 'typical' fixed link (of the most frequently used bandwidth) in a functionally substitutable Ofcom-assigned band. In 2015, we identified the 26 GHz band as substitutable for 28 GHz and based the ALF on the fee for a fixed link with a bandwidth of 28 MHz. We used a path length factor of 1 and availability factor of 1 to reflect 99.99% availability²⁴.
- b) Multiply the result by an estimate of the number of times a given channel could be used nationally. In 2015 we chose a multiplier of 400, reflecting typical 're-use' in a number of comparator Ofcom assigned fixed links bands (the 15, 23 and 38 GHz bands).

²⁰ Ofcom, *Fixed Service Unit – Fixed link licence fee algorithm in force from 2nd June 2005*, April 2005, https://www.ofcom.org.uk/data/assets/pdf_file/0018/72144/feecalcdoc.pdf.

²¹ <https://www.legislation.gov.uk/uksi/2020/1068/contents/made>

²² See:

A.321 of *An Economic Study to Review Spectrum Pricing*, Indepen, Aegis Systems and Warwick Business School, 2004 https://www.ofcom.org.uk/data/assets/pdf_file/0012/40332/spectrum_pricing.pdf;

A2.8 to A2.10 of *Spectrum Pricing: a consultation on proposals for setting wireless telegraphy act licence fees*, Ofcom, 2004 https://www.ofcom.org.uk/data/assets/pdf_file/0010/50014/spec_pricing.pdf;

Paragraphs 3.44 to 3.46 of *Spectrum Pricing: a statement on proposals for setting Wireless Telegraphy Act licence fees*, Ofcom, 2004 https://www.ofcom.org.uk/data/assets/pdf_file/0020/45146/statement.pdf

²³ The reference fee of £88 is lower than the £132 recommended by Indepen *et al* in 2004. The reference fee is not adjusted for inflation. An inflation-adjusted reference fee of £88 in 2004 would be around £128 in 2021 – see <https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator>.

²⁴ These were the most common values for fixed links operating at 28 MHz channel in the 26 GHz band.

- c) Multiply this by the number of channels of this size that could fit within the block of spectrum. For example, four 2 x 28 MHz channels can fit in a 2 x 112 MHz block, so we multiply by four to calculate a national fee in a 2 x 112 MHz block.
 - d) To calculate a regional fee, apportion the national fee calculated above based on the percentage of fixed links in the adjacent 26 GHz fixed links band for each region. See Annex A6 for a detailed description of the methodology.
- 3.26 In essence, this approach seeks to estimate the value to the highest-value alternative user of a 10 GHz, 28 GHz or 32 GHz block-assigned licence, based on the fact that holding such a licence would allow an operator to use the band for fixed links, and so avoid the licence fees for using a functionally-substitutable Ofcom-assigned band for fixed links.

Proposed revision of previous approach

- 3.27 We propose to take the same approach to setting ALFs for all 10 GHz, 28 GHz and 32 GHz spectrum awarded in 2008 as we followed when setting ALFs for the 28 GHz spectrum awarded in 2000 and for which we set fees in 2015 (as described above) with the following differences:
- a) In 2015, we were only considering the 28 GHz band, and used the 26 GHz as the reference. We propose to use the 13 GHz band as our reference for the 10 GHz band, and to use the 26 GHz band as our reference for the 28 GHz and 32 GHz bands. In practice the only difference is that we apply a higher frequency band factor for the 10 GHz band than for the other two bands.
 - b) While we used a multiplier of 400x in 2015, we have reviewed the question of the appropriate multiplier, and propose to use a different multiplier in this case as discussed below.
 - c) In 2015, we applied a 50% downward modification to AIP. For the reasons set out below, we do not propose to make any such modification in setting licence fees for the 10 GHz, 28 GHz and 32 GHz band.
- 3.28 We also propose to recalculate the regional 28 GHz ALFs set in 2015 (set out in more detail in Annex A6) to align the regional 28 GHz ALFs already set in 2015 with the new proposed regional 28 GHz ALFs applicable from February 2023.
- 3.29 This would provide a single fee for the same quantity of spectrum in each geographic region. In section 5, we outline how we propose to align the fee and payment date for the 28 GHz licences awarded in 2000 and 2008.
- 3.30 In addition, for ALFs applicable to certain 28 GHz licences which authorise specific locations within a region, we propose to divide the area of each location by the size of the region where it is located and multiply this value by the proposed fee of the relevant region. This is set out further in Annex A6.
- 3.31 In the next section, we set out our rationale for proposing to remove the 50% downward modification we applied when setting previous ALFs for 28 GHz spectrum awarded in 2000 as well as our rationale for proposing to use a different multiplier value to the one used in 2015.

Previous modification of AIP fee

- 3.32 In May 2015 we published an initial consultation on a review of spectrum fees for all authorisations for fixed links and satellite services.²⁵ As the first stage in that review, we commissioned an independent report from Plum Consulting to review our approach to fees. We noted that if we followed Plum's recommendations then, based on trends in demand, we expected to propose marginally higher fees below 20 GHz, and to propose lower fees above 30 GHz, perhaps as low as the cost-based floor.²⁶
- 3.33 We published a Notice on the 28 GHz fixed link fees in October 2015.²⁷ In the Notice, we considered that a downward modification of our proposed 28 GHz price by 50% was appropriate to reflect the preliminary work of the Fixed Links Fee Review. This was because the 28 GHz band is one of the higher frequency bands in the intermediate (20 GHz to 30 GHz) range and we considered that, unless the fixed fee review were to conclude that the fees below 20 GHz should go up substantially, it seemed likely that following the Fixed Link Fees Review, the fees for the 28 GHz band would be lower than the then-current equivalent rate for links in the 26 GHz band.²⁸ We confirmed this position in the subsequent statement,²⁹ which was published in December 2015.
- 3.34 In November 2016, we published a brief update to the Fixed Links Fees Review,³⁰ noting that since the initiation of the review a number of developments had raised doubts as to the potential future higher value alternative use of a number of the bands concerned.³¹ As a result, we decided to suspend the fee review until we had more certainty on the future of these bands.
- 3.35 At the time, we did not revise the 50% downwards modification applied to ALFs for 28 GHz spectrum awarded in 2000 in light of this decision. However, Ofcom has not at this time made any decision to resume the Fixed Links Fees Review. In our view, the reason for including a 50% downwards modification in the 2015 28 GHz ALF decision does not apply at present, and it would not be appropriate to apply such a downward modification to the revised fees based on the reasoning for such a downward modification set out in that decision.

²⁵ Ofcom, *Initial consultation on Review of spectrum fees for fixed links and satellite services*, May 2015, https://www.ofcom.org.uk/data/assets/pdf_file/0024/82185/fixed_services_fee.pdf.

²⁶ https://www.ofcom.org.uk/data/assets/pdf_file/0024/82185/fixed_services_fee.pdf, paragraph 1.10.

²⁷ Ofcom, *Consultation on Fees for Spectrum Access 28 GHz licences*, October 2015,

https://www.ofcom.org.uk/data/assets/pdf_file/0021/82722/spectrum_access_28ghz_notice.pdf.

²⁸ https://www.ofcom.org.uk/data/assets/pdf_file/0021/82722/spectrum_access_28ghz_notice.pdf, paragraphs 5.11 and 5.12.

²⁹ Ofcom, *Statement on Fees for Spectrum Access, 28 GHz Licences*, December 2015, paragraph 3.9, https://www.ofcom.org.uk/data/assets/pdf_file/0028/80938/28_ghz_fee_statement.pdf.

³⁰ Ofcom, *Review of spectrum fees – For fixed links and satellite services*, November 2016, <https://www.ofcom.org.uk/consultations-and-statements/category-1/review-spectrum-fees-fixed-links-satellite>

³¹ In particular, the identification of 3.6 – 3.8 GHz and 1.4 GHz as high priority future mobile bands in our Mobile Data Strategy and the identification of 26 GHz as a pioneer 5G bands by the European Radio Spectrum Policy Group (RSPG).

Multiplier

- 3.36 Our proposed methodology requires us to identify a reasonable proxy for how many times a specific frequency in each band could be used across the country (the ‘multiplier’) to determine the national fee.
- 3.37 We have used observed usage rates in Ofcom-assigned bands³² to inform ourselves of an appropriate multiplier. In these bands, Ofcom licenses fixed links of different channel widths depending on demand. Consistent with the approach taken in 2015, we focused on the highest re-use rates within the most typical channels in each band. This is illustrated in Table 3.1 below. To take the 13 GHz band as an example, the most extensively used 28 MHz channel in this band contains 296 fixed links. A similar rate of use is seen in a 28 MHz channel in the 23 GHz band (282 fixed links), and in a 7 MHz channel in the 26 GHz band (289 fixed links). The highest observed use rate in the 15 GHz band is 324 fixed links in a 3.5 MHz channel, and the highest in the 38 GHz band is 208 links in a 56 MHz channel.

Table 3.1: Highest use rates (number of fixed links licences issued by Ofcom) in Ofcom-assigned bands, as of 16 May 2022³³

Channel Width	Frequency band				
	13 GHz	15 GHz	23 GHz	26 GHz	38 GHz
3.5 MHz	34	324	2	192	9
7 MHz	150	223	215	289	152
14 MHz	121	115	94	25	48
28 MHz	296	195	282	61	140
56 MHz	125	143	186	31	208

- 3.38 Taken together, these observed rates suggest that a multiplier of between around 200 and around 325 may be appropriate.
- 3.39 We have considered whether a multiplier in this range might understate or overstate the likely actual re-use in a block assigned band.
- a) On the one hand, we note that focusing on the highest use rate in a single channel within an Ofcom-assigned band, and applying this use rate across all channels in the band implies more extensive use than is currently observed in the band as a whole. For example, consider a hypothetical 2 x 112 MHz block of spectrum. If we took 2 x 28 MHz as the most typical channel for this band, and a multiplier of 200, this would imply that we could assign 200 fixed links in each of four channels ($112 \text{ MHz} \div 28 \text{ MHz} = 4$), for a total of 800 links. (Note that a direct comparison with actual use in Ofcom-assigned

³² We consider the Ofcom-assigned 13 and 15 GHz bands to be functionally substitutable with the 10 GHz block-assigned spectrum and the Ofcom-assigned 23 GHz, 26 GHz and 38 GHz bands to be functionally substitutable with the 28 and 32 GHz block-assigned spectrum.

³³ Details of licences issued by Ofcom can be found in

<https://static.ofcom.org.uk/static/radiolicensing/html/register/WTR.csv> which is updated daily.

bands is not possible, as we accommodate links of a range of different bandwidths in each Ofcom-assigned band.)

b) On the other hand:

- i. The multiplier reflects the capacity of a block of spectrum (i.e. the number of fixed links it would be able to support), even if that capacity may not always be fully utilised in Ofcom-assigned bands. An operator with access to (for example) a 2 x 112 MHz block of spectrum would in practice be able to put 200 2 x 112 MHz fixed links in that band if it chose to do so, assuming 200 links in each channel (or 300 fixed links assuming 300 links in each channel).
- ii. The range of possible multipliers mentioned above (200x to 325x) is conservative in light of actual use of block-assigned bands. In practice, a comparison of the number of fixed links in block assigned bands indicates that some channels in these bands are much more extensively used than would be implied by this range. One reason for more extensive use in block-assigned bands is that the licence holder has the flexibility to optimise how it uses the spectrum for its own fixed-link requirements, without any need for coordination between operators. Another reason may be that the holder of a block-assigned licence does not face any incremental licence-fee costs from adding further fixed links to the band. There is also a trend towards use of larger channel widths in the block assigned spectrum to accommodate higher capacity mobile backhaul requirements. We consider that, other things being equal, this is likely to lead to more extensive use of fixed link bands. For these reasons, we consider that our proposed approach of focusing on use in the most extensively used channels in Ofcom-assigned bands is appropriate.

3.40 In our view, there is a case for setting the multiplier at 300x, since the observed re-use rate in three Ofcom-assigned bands is close to 300x, while in one it is higher (around 325x) and in another it is lower (around 200x).

3.41 A more conservative approach would be to set the multiplier at 200x. We do not consider that there is a basis for setting a multiplier below this level.

Initial assessment of market value of the 10, 28 and 32 GHz spectrum

3.42 In this section, we consider whether it is appropriate to take a more conservative or a less conservative approach to setting ALFs.

3.43 In the SRSP, we set out the principle that when deciding at what level we should set an AIP fee, we should consider the risks of setting the AIP fee too high or too low in light of the specific circumstances and of our statutory duties. Consistent with our approach to other ALFs, on balance we consider that the risk of inefficiency from spectrum lying fallow if the ALF for 10 GHz, 28 GHz, or 32 GHz spectrum was set above the market value is greater than the risk that efficiency-improving changes would not occur if the ALF is too low.³⁴ Given

³⁴ See Annex 5 of our August 2014 consultation on ALFs for 900 and 1800 MHz spectrum, https://www.ofcom.org.uk/data/assets/pdf_file/0030/76926/annexes_1-7.pdf.

our statutory duty to promote the optimal use of spectrum, we therefore propose to take a conservative approach to interpreting the evidence on market price/opportunity cost of spectrum.

3.44 Having identified the options of setting the multiplier value at 200x or 300x, we now consider whether we should choose the more conservative (200x) or less conservative (300x) of these options. In assessing whether we should adopt a more or a less conservative estimate of the value of spectrum in these bands, we have had regard to evidence as to the forward-looking demand for fixed links spectrum.

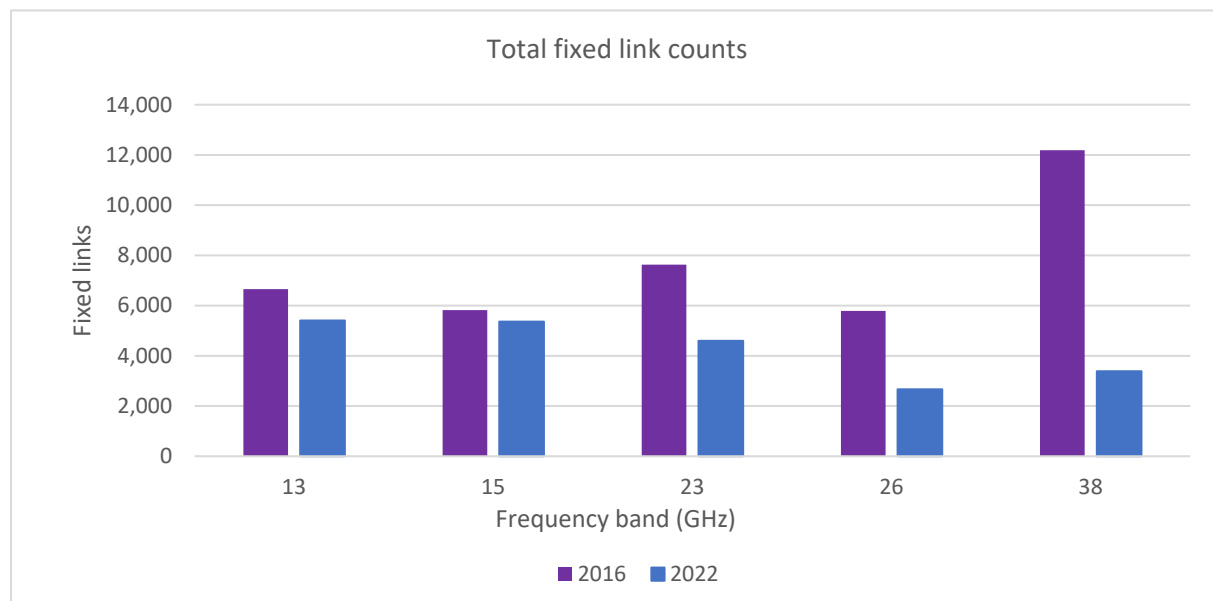
3.45 In our 2018 Fixed Wireless Spectrum Strategy³⁵, we commented on how demand for fixed links would change over the next five years as follows:

- a) “Bands below 20 GHz: bands below 20 GHz will continue to be required by users requiring longer links for both rural and suburban areas as well as for applications that require increased capacity over longer routes or where low latency (compared to fibre) is a key design objective.
- b) Bands between 20-45 GHz: Mobile backhaul connectivity is the primary use in this frequency range. With fibre penetration in urban areas, we expect the very high capacity uses in the future to focus on bands above 60 GHz as mobile backhaul connectivity requirements move towards the edges of the network. For all other uses of fixed wireless links, we expect a continued dependency on bands up to 38 GHz. We also expect that with greater use of block assigned bands within this range, that enough spectrum will remain for future uses, including where 26 GHz is made available for future mobile uses.”

3.46 Figure 3.1 below indicates that since 2016 the number of Ofcom-assigned fixed links in the 13 GHz and 15 GHz bands has been broadly steady, while there has been a decline in the number of Ofcom-assigned fixed links in the 23 GHz, 26 GHz and 38 GHz bands.

³⁵ Ofcom, *Statement on Review of Spectrum used by fixed wireless services*, July 2018, paragraph 1.6, https://www.ofcom.org.uk/data/assets/pdf_file/0017/115631/statement-fixed-wireless-spectrum-strategy.pdf.

Figure 3.1: Fixed links in Ofcom-assigned bands, 2016 and 2022 (as of 16 May 2022)



Source: Ofcom analysis.

- 3.47 In our spectrum roadmap³⁶ published in March 2022, we indicated plans to carry out a new review of how spectrum demand for fixed links in existing and new higher frequency bands may evolve in the coming decade in light of future fibre roll-out, new emerging wireless technologies such as 5G/6G and LEO satellite and as well as the role of wireless connectivity in providing redundancy for fibre connectivity.
- 3.48 Recognising potential changes in future demand for fixed wireless particularly in spectrum above 20 GHz, we consider it appropriate to adopt a more conservative fixed links re-use factor by applying a multiplier of 200x rather than 300x. We have considered whether it would be appropriate to adopt a multiplier of 300x in the 10 GHz band to reflect stronger demand for sub-20 GHz spectrum for fixed links. However, on balance we consider that adopting a multiplier of 200x consistently across all three bands is likely to give licence holders a sufficient incentive to hold 10 GHz spectrum efficiently. We note that a higher band factor already applies for fixed links in Ofcom assigned spectrum between 10 GHz and 15 GHz.
- 3.49 The resultant proposed market value for the 10, 28 and 32 GHz national spectrum is shown in Table 3.2 below. Tables A6.1 and A6.2 in Annex A6 set out the corresponding proposed market value for 28 GHz spectrum for each region and at specific locations respectively.

³⁶ Ofcom, *Spectrum Roadmap: Delivering Ofcom's Spectrum Management Strategy*, March 2022, page 40, https://www.ofcom.org.uk/_data/assets/pdf_file/0021/234633/spectrum-roadmap.pdf.

Table 3.2: Proposed market value for 10, 28 and 32 GHz spectrum on a national basis

	10 GHz	28 GHz	32 GHz
Reference rate:	£88	£88	£88
Band factor:	0.43	0.26	0.26
Multiplier	200	200	200
ALF per 2x1 MHz:	£7,568	£4,576	£4,576

Question 3: Do you agree with our proposed market value for the national 10, 28 and 32 GHz spectrum? If not, please provide evidence to support your view.

Question 4: Do you agree with our proposed calculation of the regional 28 GHz ALFs set out in detail in Annex A6, including our proposed calculation of fees for specific locations in part of a region? If not, please provide evidence to support your view.

4. Assessment of ALF in light of our statutory duties

Introduction

- 4.1 For the reasons explained in Section 3 above, we estimate:
- a) the market value of national 10 GHz spectrum and 32 GHz spectrum (and corresponding ALF, if set based on that estimate) is **£7,568 per 2 x 1 MHz** and **£4,576 per 2 x 1 MHz** respectively; and
 - b) the market value of 28 GHz spectrum on a national basis is **£4,576 per 2 x 1 MHz**.
- 4.2 We explain in Section 2 above that as set out in the SRSP, our existing spectrum pricing policy is to set fees for spectrum holdings to reflect the market value of the spectrum (based on its opportunity cost) in order to promote the optimal use of spectrum.
- 4.3 We explained in the SRSP that we would need to take account of the particular circumstances of the frequency bands and licence types under review. In this section, we therefore present our assessment (in light of all our statutory duties) of setting ALFs for 10, 28 and 32 GHz spectrum based on our estimates of the full market value of the spectrum.
- 4.4 As explained in Section 2 (and in more detail in Annex A7 of this consultation), when we exercise our powers in relation to setting spectrum fees, a number of statutory duties are relevant. Broadly speaking, these can be categorised as follows:
- a) *Optimal use of spectrum*: The Communications Act requires Ofcom to secure the optimal use for wireless telegraphy of the electro-magnetic spectrum. The Wireless Telegraphy Act also requires Ofcom to have regard to: (i) the desirability of promoting the efficient management and use of spectrum, and (ii) the extent to which spectrum is available for use, and the demand (current and likely future) for use of the spectrum.
 - b) *Furthering the interests of citizens and consumers*: Ofcom's principal duty in the Communications Act is to further the interests of citizens in relation to communication matters and of consumers in relevant markets, where appropriate by promoting competition.
 - c) *Encouraging investment and innovation*: Ofcom is required by the Communications Act to have regard to the desirability of encouraging investment and innovation in relevant markets and to encouraging the availability and use of high-speed data transfer services throughout the UK. It is also required by the Wireless Telegraphy Act to have regard to the desirability of promoting the development of innovative services.
 - d) *Promoting competition*: Ofcom is required by the Communications Act to promote competition when managing the radio spectrum, and to have regard to the desirability of promoting competition in relevant markets. It is also required by the Wireless Telegraphy Act to have regard to the desirability of promoting competition in the provision of electronic communications services.

- 4.5 We therefore consider in this section the specific effects of our proposed ALFs on:
- a) securing the optimal use of spectrum;
 - b) consumers;
 - c) investment and innovation; and
 - d) competition.

Securing the optimal use of spectrum

- 4.6 The aim of setting spectrum fees based on market value is to provide users with a long-term signal of spectrum value, therefore giving incentives to use it in a way that maximises benefits to society over time. Operators may be incentivised to use spectrum they currently hold as efficiently as possible even without fees set at market value. However, this does not necessarily mean that they are the highest value user of this spectrum (i.e. even if they are incentivised to maximise the value of their use of that spectrum, they are not necessarily the most efficient user).
- 4.7 In addition, spectrum users can trade or acquire spectrum licences and in theory this creates incentives for users to only hold licences for which they are the highest value users. However, we believe that there is a risk that users may be less responsive to the opportunity cost of holding spectrum (i.e. forgoing the revenue from trading it) than to ALFs based on market value, implying that trading by itself may not be sufficient to ensure that spectrum is allocated most efficiently.
- 4.8 The SRSP identified several general barriers which might prevent spectrum trading from being sufficiently effective to promote the optimal use of spectrum, including high transaction costs or lack of price information.³⁷ Overall we consider that setting an ALF at market value is likely to secure optimal spectrum use by creating appropriate incentives to hold or release spectrum.
- 4.9 We note that some spectrum trading has occurred in the 10 GHz, 28 GHz and 32 GHz bands:
- a) In the 10 GHz band, JRC acquired its spectrum from Digiweb.³⁸
 - b) In 28 GHz, UK Broadband acquired its spectrum in 2010 from Faultbasic Ltd and Red-M Wireless Ltd. Vodafone acquired its spectrum in 2012 and 2013 from Transfinite Systems and Cable & Wireless. UK Broadband traded spectrum to Arqiva at 6 locations in 2017.
 - c) In 32 GHz, no spectrum has been traded between operators who were independent of one another.³⁹

³⁷ SRSP, paragraphs 4.189–4.212

³⁸ The 10 GHz spectrum now held by MBNL was originally held by T-Mobile, before T-Mobile combined with Orange and became EE, one of the owners of MBNL.

³⁹ The 32 GHz spectrum now held by EE and MBNL was originally held by T-Mobile and Orange. The spectrum now held by MLL 32 GHz was originally held by its parent company MLL.

- 4.10 Whilst there has been some trading in the past, we do not consider that trading alone can be relied on as an effective mechanism for ensuring the efficient use of spectrum in these bands in the future, if AIP were not applied at market value. In particular, trading has not been a feature of these bands in recent years, despite some of the spectrum concerned having very few links deployed.
- 4.11 Moreover, and as we have noted in previous decisions,⁴⁰ we consider that even if licence holders can assess the opportunity cost of their spectrum licence, and identify potential buyers for their spectrum, they may not respond to these opportunity costs by trading unwanted spectrum. This could happen because i) managers making the decisions may lack the incentives to act on opportunity costs of holding spectrum, e.g. if an organisation considers minimising costs a greater priority, and places less weight on realising untapped revenues from existing spectrum holdings; and/or ii) managers' response to opportunity costs could also depend on whether outcomes are framed in terms of losses or gains – managers may respond more easily to the direct cost of a licence fee than the foregone revenues from trading spectrum.
- 4.12 In our view, spectrum priced to reflect the forward-looking opportunity cost of spectrum captured by market value should ensure that the licensees have sufficient incentives to use all spectrum efficiently and only hold the spectrum that they value as highly as the best alternative user or use. Therefore, we consider that setting ALFs for the 10 GHz, 28 GHz and 32 GHz spectrum at market value is in line with our statutory duty to secure optimal use of spectrum.

Impact on citizens and consumers

- 4.13 In general, we consider that setting ALFs in accordance with market value will provide efficient price signals for the use of scarce spectrum which will overall benefit consumers by ensuring that spectrum is used in the most efficient way for the provision of downstream services for which there is greatest value. If the price of spectrum is below the opportunity cost, there is a risk that it will continue to be held by current licence holders even if it is not the highest value user of that asset. This could be harmful to consumers and society more widely.
- 4.14 The SRSP sets out our view that:

“We believe that if it is considered that a subsidy should be provided to support wider policy objectives, it is more efficient for those services to be explicitly subsidised by government from general taxation, leaving those providing them to have the same incentives to use resources, such as spectrum, efficiently, rather than seeking to provide such services through concessions on the fee charged. For these reasons, socially beneficial but un-commercial services do not generally receive

⁴⁰ Ofcom, Annual Licence Fees for 900 MHz and 1800 MHz frequency bands, December 2018, paragraphs 5.36-5.49 https://www.ofcom.org.uk/data/assets/pdf_file/0020/130547/Statement-Annual-licence-fees-900-MHz-and-1800-MHz.pdf;

Ofcom, Annual licence fees for 2100 MHz spectrum, December 2021, paragraph 5.20.

https://www.ofcom.org.uk/data/assets/pdf_file/0027/229428/1900_2100-mhz-statement.pdf.

goods, services or resources at a concession but, as a general rule, pay the market price.”

- 4.15 We have therefore sought to apply a policy based on efficient price signals, which in general should lead to better welfare outcomes. Consequently, in accordance with our primary duty to further the interests of citizens and consumers, we have not identified any reasons which we consider would justify departing from setting ALFs at market value.⁴¹

Impact on competition

- 4.16 Our view on spectrum fees and competition, as set out in the SRSP, is that fees are unlikely to introduce distortions to competition in downstream markets when they reflect the opportunity cost of spectrum. However, in the SRSP, we said that we would consider the potential effect of spectrum fees on a case-by-case basis.
- 4.17 We have not identified any reasons why it might be appropriate to discount any of the 10 GHz, 28 GHz or 32 GHz spectrum below market value in order to promote downstream competition. Setting ALFs below market value would effectively be providing licence holders with a subsidy which could potentially distort competition in downstream markets. Therefore, our view is that setting ALFs for this spectrum based on our estimate of market value is consistent with promoting competition.

Impact on investment

- 4.18 Investment decisions should reflect the true cost of inputs. This is achieved where ALFs are set based on market value, as operators are required to pay the opportunity cost of their spectrum holdings.
- 4.19 It is important to distinguish between efficient and inefficient investment and consider the impact on efficient investment only. We recognise that setting ALFs at market value could in theory reduce the ability of existing licence holders to make investments that they otherwise would have made. However, this outcome may still be efficient as they will look for more efficient investment solutions or choose not to invest. This position is explained in the SRSP.⁴²
- 4.20 Therefore, our view is that setting ALFs for this spectrum based on our estimate of market value is consistent with encouraging investment and innovation.

Question 5: Do you agree with our initial conclusion that fees set based on our estimate of market value will best meet our statutory duties?

⁴¹ We have also considered the impact of our proposals on vulnerable consumers, including those with protected characteristics under the Equality Act 2010. We consider that our proposed ALFs would have an over-arching positive impact on all consumers and citizens, given that our objective is to secure the optimal use of spectrum for the benefit of society as a whole. We do not therefore consider that our proposals would have any equality implications. Our legal obligations relating to equality are set out in paragraphs A7.16-A7.19.

⁴² SRSP statement, paragraphs 4.213–4.214 and 4.239.

5. Summary and implementation

Proposed ALFs

- 5.1 Our view is that setting the following ALFs is in line with our statutory duties in setting licence fees:
- a) **£7,568 per 2 x 1 MHz** for national 10 GHz spectrum;
 - b) **£4,576 per 2 x 1 MHz** for national 32 GHz spectrum; and
 - c) **£4,576 per 2 x 1 MHz** for 28 GHz spectrum on a national basis and on a regional and location specific basis as outlined in Tables 5.1 and 5.2 below.⁴³

Table 5.1: Proposed 28 GHz regional ALFs⁴⁴

Regions	Proposed ALF per 2 x 1 MHz
Region A:	£352.24
Region B:	£427.61
Region C:	£313.19
Region D:	£280.00
Region E:	£344.43
Region F:	£168.70
Region G:	£293.27
Region H:	£139.41
Region I:	£490.87
Region J:	£338.18
Region K:	£250.71
Region L:	£686.13
Region M:	£403.79
Region N:	£87.47

Table 5.2: Proposed 28 GHz location specific ALFs

Location	Proposed ALF per 2 x 1 MHz
a radius of 5km around Crawley Court, Hampshire with NGR SU 421 349	£2.69
a radius of 2 km around Morn Hill, Hampshire with NGR SU 516 292	£0.43
a radius of 4 km around Brookmans Park, Hampshire with NGR TL 260 049	£1.72
a radius of 2 km around Chalfont Grove, Buckinghamshire with NGR SU 983 917	£0.58

⁴³ The fee regulations identify regional fees for 28 GHz spectrum.

⁴⁴ The fees in Tables 5.1, 5.2 and 5.4 are based on the proposed ALFs licensees will be liable for from 21 February 2023 (i.e. the annual fee). As explained below, the first payment will be less than this because we are proposing to align the payment date for the 28 GHz spectrum awarded in 2008 with the existing payment date of 5 January for 28 GHz spectrum awarded in 2000. We are therefore proposing that the first payment will be the ALF in Tables 5.1, 5.2 or 5.4 pro-rated for the period 21 February 2023 – 4 January 2024 inclusive. Subsequent payments will then be due on 5 January 2024 for the ALFs shown in Tables 5.1, 5.2 and 5.4.

a radius of 5 km around Bedford Teleport, Bedfordshire with NGR TL 036 610	£0.81
a radius of 4 km around Whitehill, Oxfordshire with NGR SP 487 186	£1.72

5.2 If we maintain our initial view, this means that from 21 February 2023, the relevant licensees would be liable for the following fee:

Table 5.3 Proposed total ALFs payable for 10 GHz spectrum

Licensees	Spectrum holdings	Proposed total ALFs
JRC	2 x 20 MHz	£151,360
MBNL	2 x 80 MHz	£605,550

Table 5.4 Proposed total ALFs payable for 28 GHz spectrum⁴⁵

Licensees	Spectrum holdings	Proposed total ALFs
Arqiva	2 x 224 MHz (National licence) 2 x 112 MHz (Region A + 6 locations)	£1,066,257
Telefonica	2 x 112 MHz (Region A,B,C, I,L,N)	£264,041
UK Broadband	2 x 112 MHz (National licence + Region D,E,F,G,H,K,M)	£721,324 ⁴⁶
Vodafone	2 x 112 MHz (Region B,C,D,E,F,G,H,I,K,L,M) and 2x224 MHz (Region J)	£501,140

Table 5.5 Proposed total ALFs payable for 32 GHz spectrum

Licensees	Spectrum holdings	Proposed total ALFs
BT	2 x 126 MHz	£576,576
EE	2 x 252 MHz	£1,153,152
MBNL	2 x 252 MHz	£1,153,152
MLL	2 x 126 MHz	£576,576

Proposed implementation

5.3 This section sets out how we propose to implement the fees proposed in this consultation, including:

- a) phasing in; and
- b) application of revised fees.

5.4 We are proposing to implement our proposal by issuing new Regulations, “The Wireless Telegraphy (Licence Charges) (Amendment) Regulations 2023” (the “**Proposed**

⁴⁵ This reflects proposed payment from January 2024 where we propose to align the regional ALFs for 28 GHz spectrum awarded in 2000 and 2008.

⁴⁶ Includes deduction of £1782.39 payable by Arqiva at 6 locations traded from UKB to Arqiva.

Regulations”). The Proposed Regulations will amend the existing Wireless Telegraphy (Licence Charges) Regulations 2020/1068 (“**2020 Regulations**”) which set fees for other Spectrum Access licence classes including the ALFs for the regional 28 GHz spectrum awarded in 2000.⁴⁷

5.5 The Proposed Regulations are set out in Annex A9.

Phasing in

5.6 We have also considered whether, in this case, it would be appropriate to phase in the new fee rates over time. Our provisional view is that there should not be a phase-in period for these new fee rates, and that the full fees should become payable from fee payment date. In taking this provisional view, we note that:

- a) the existing licence condition includes provision that the licence fee becomes payable from the fee payable date. Therefore, licensees are aware that they are liable for ALFs from February 2023;
- b) the proposed fee levels for 28 and 32 GHz are the same as national rate previously set in 2015 for the 28 GHz licences awarded in 2000. While some regional fees for 28 GHz spectrum are changing, we have set fees based on a similar methodology to that used in 2015 and do not consider we are imposing any additional financial burdens on licensees for which phasing in may be considered appropriate; and
- c) we are proposing to amend Regulation 4(6) and (7) of the 2000 Regulations to provide licensees with the option to pay their annual licence fees across ten equal monthly instalments (rather than as a single, upfront payment).

Application of revised fees for 28 GHz Licences

5.7 ALFs were due from 5 January 2016⁴⁸ for 28 GHz spectrum awarded in 2000 for regions A, B, C, I, J, L and N, and on 5 January in each subsequent year (the payment date).⁴⁹ In accordance with Regulation 7 of the 2020 Regulations, the ALFs for 28 GHz licences awarded in 2000 will therefore become due on 5 January 2023 (before the ALFs for 28 GHz licences awarded in 2008 become due on 21 February 2023).

5.8 ALFs will be due for 28 GHz spectrum awarded in 2008 from 21 February 2023.

5.9 While the technical terms of the 28 GHz licences awarded in 2000 and 2008 are already aligned, we are proposing to align the administrative terms, specifically to align the fee payment dates for all licences. This means licensees would receive a single consolidated

⁴⁷ The Wireless Telegraphy (Licence Charges) (Amendment) (No. 2) Regulations 2015 (the “**2015 Regulations**”) amended The Wireless Telegraphy (Licence Charges) Regulations 2011 (the “**2011 Regulations**”) to set ALFs for the 2000-awarded regional 28 GHz spectrum. The 2011 Regulations were subsequently revoked by the 2020 Regulations.

⁴⁸ See Regulation 4 of the 2015 Regulations.

⁴⁹ See Regulation 4 of the 2015 Regulations and Regulation 7(1) of the 2020 Regulations. In accordance with our billing processes, the regional 28 GHz spectrum awarded in 2000 becomes eligible for payment from 1 January annually and licensees have a period of 30 days in which to make payment.

licence and annual invoice rather than multiple billing of fees. This will also facilitate the administration of stage payment across the licences held by each licensee.

5.10 We therefore propose:

- a) To set an annual fee for each of the 14 regional areas (or part of a regional area) authorised by all 28 GHz licences awarded in 2000 and 2008 to apply from 5 January 2024, by amending Regulation 7 of the 2020 Regulations. These fees will be eligible for stage payments.
- b) To set a fee from 21 February 2023 for each of the 14 regional areas (or part of a regional area) authorised by a 28 GHz licence awarded in 2008 and becoming eligible for annual fees, in respect of the period from 21 February 2023 to 4 January 2024, by inserting a new Regulation 6A in the 2020 Regulations. This fee will be a pro-rated amount of the ALFs under Regulation 7 to reflect the fact the fees cover the period 21 February 2023 to 4 January 2024 inclusive. These fees will be invoiced as a single combined amount per licensee and will be eligible for stage payments.
- c) After the full fee (or the final stage payment by 30 November 2023) is received for those licences mentioned in b) above, all the spectrum from those licences will be merged into one licence held by each licensee, alongside other regions and spectrum for which fees already apply. This will streamline administration and billing to a single annual invoice per licensee, which will be invoiced in January 2024. We intend to implement this by revoking the 28 GHz licences awarded in 2008 and varying the 28 GHz licences awarded in 2000 to include the relevant authorisations and schedules from the 28 GHz licences awarded in 2008. We would expect to carry out this process with the consent of licensees.⁵⁰

5.11 Further information on how we propose to give effect to our proposals is set out in Annex A8.

This consultation

5.12 We invite comments on our proposals and the basis for them, and on the drafting of our proposed fee regulations.

Question 6: Are there any other comments that you wish to make in respect of the proposals that we make in this consultation?

⁵⁰ See paragraph 7(12) of Schedule 1 WTA.

A1. Responding to this consultation

How to respond

- A1.1 If you would like to provide views or comments on the issues raised in this document, please do so no later than 5pm on 27 September 2022.
- A1.2 You can download a response form from <https://www.ofcom.org.uk/consultations-and-statements/category-1/annual-licence-fees-10-28-and-32-ghz-spectrum>. 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 ALF2022@ofcom.org.uk, as an attachment in Microsoft Word format, together with the [cover sheet](#). This email address is for this consultation only, and will not be valid after 28th September 2022.
- A1.4 Responses may alternatively be posted to the address below, marked with the title of the consultation:
- Spectrum Management and Authorisation
Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA
- A1.5 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.
- A1.6 We will publish a transcript of any audio or video responses we receive (unless your response is confidential)
- A1.7 We do not need a paper copy of your response as well as an electronic version. We will acknowledge receipt of a response submitted to us by email.
- A1.8 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.
- A1.9 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 A4. 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.
- A1.10 If you want to discuss the issues and questions raised in this consultation, please contact the ALF team by email to ALF2022@ofcom.org.uk.

Confidentiality

- A1.11 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 responses on [the Ofcom website](#) at regular intervals during and after the consultation period.
- A1.12 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.
- A1.13 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.
- A1.14 To fulfil our pre-disclosure duty, we may share a copy of your response with the relevant government department before we publish it on our website. This is the Department for Business, Energy and Industrial Strategy (BEIS) for postal matters, and the Department for Culture, Media and Sport (DCMS) for all other matters.
- A1.15 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

- A1.16 Following this consultation period, Ofcom plans to publish a statement in January 2023.
- A1.17 If you wish, you can [register to receive mail updates](#) alerting you to new Ofcom publications.

Ofcom's consultation processes

- A1.18 Ofcom aims to make responding to a consultation as easy as possible. For more information, please see our consultation principles in Annex A2.
- A1.19 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.
- A1.20 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 an overview of no more than two pages. We will try to make it as easy as possible for people to give us a written response.
- 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 the responses on our website at regular intervals during and after the consultation period. 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 aims to publish responses at regular intervals during and after the consultation period. 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

Question 1: Do you agree with our initial conclusion that fixed wireless services are the highest value alternative use for each of the 10, 28 and 32 MHz bands? If not, please provide evidence to support your answer.

Question 2: Do you agree with our initial conclusion that there is likely to be excess demand for each of the 10, 28 and 32 GHz bands in future, if cost-based fees were applied and that therefore an AIP fee is appropriate? If not, please provide evidence to support your answer.

Question 3: Do you agree with our proposed market value for the national 10, 28 and 32 GHz spectrum? If not, please provide evidence to support your view.

Question 4: Do you agree with our proposed calculation of the regional 28 GHz ALFs set out in detail in Annex A6, including our proposed calculation of fees for specific locations in part of a region? If not, please provide evidence to support your view.

Question 5: Do you agree with our initial conclusion that fees set based on our estimate of market value will best meet our statutory duties?

Question 6: Are there any other comments that you wish to make in respect of the proposals that we make in this consultation?

A5. Background of the awards in the 28 GHz band and regions covered by the licences

Broadband Fixed Wireless Access (BFWA) licences awarded in 2000

- A5.1 In November 2000, the Radiocommunications Agency⁵¹ auctioned 42 BFWA licences which were made available in three packages of 2 x 112 MHz paired spectrum in the 28 GHz band. Spectrum was offered in 14 geographic regions of the UK: 11 regions in England, plus Scotland, Wales and Northern Ireland. Of the 42 BFWA licences available, 16 were awarded at this auction.
- A5.2 Since the award, one licence has been surrendered and one has expired, while many others have changed ownership through trading⁵² and so are no longer held by the original bidders from the 2000 auction. Where multiple regions (from the earlier award) are held by a licensee in the same spectrum block, these have also been consolidated into single licences. The surrendered licence package was re-licensed as part of the 2008 award, while the later-expired spectrum package (in Northern Ireland) is currently unallocated.
- A5.3 At present, the following four companies hold licences:
- Arqiva Limited;
 - Telefónica UK Limited;
 - UK Broadband Limited; and
 - Vodafone Limited.
- A5.4 The spectrum was awarded in December 2000 for an initial period of 15 years, which expired on 31 December 2015. Licences were originally of a fixed duration but were varied⁵³ in 2013 to align with other Ofcom-awarded licences, to become of indefinite duration, subject to licence fees being applicable from 1 January 2016.

Spectrum Access licences awarded in 2008

- A5.5 As part of a wider awards process (the “10-40 GHz award”), unassigned spectrum in the 28 GHz band was auctioned in February 2008⁵⁴. The award included three lots, one in each of the three 2 x 112 MHz paired spectrum blocks, comprising the regional packages unsold in November 2000 (including one that had subsequently been surrendered by its licensee). Two national and contiguous 2 x 112 MHz packages were also auctioned.

⁵¹ An Ofcom legacy regulator

⁵² The 28 GHz licences can be traded in a number of ways. The 28 GHz bands are listed in Part 11 of the Trading Regulations: [The Wireless Telegraphy \(Spectrum Trading\) Regulations 2012 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukdsi/2012/5000120000000001/1-1)

⁵³ Ofcom, *Statement on the Requests for Variation of 28 GHz Broadband Fixed Wireless Access Licences*, July 2013 <https://www.ofcom.org.uk/consultations-and-statements/category-2/variation-28ghz>

⁵⁴ [10 GHz, 28 GHz, 32 GHz and 40 GHz Award](https://www.ofcom.org.uk/consultations-and-statements/category-2/variation-28ghz)

- A5.6 The geographic areas in each of the three 2 x 112 MHz spectrum packages were consolidated into three 'sub-national' licences (Spectrum Access 1, 2 and 3 respectively) with a 28 MHz guard channel between each of them. These sub-national licences are currently held by Vodafone Limited (Spectrum Access 1) and UK Broadband Limited (Spectrum Access 2 and Spectrum Access 3). The national packages were without guard channels abutting each other and the original award allocations (the lower Spectrum Access 1 package). Both national packages were awarded to Arqiva and amalgamated into a single 2 x 224 MHz block national Spectrum Access licence.
- A5.7 UK Broadband has traded spectrum in six locations from its two licences (sub-national 2 and 3) to Arqiva, which now comprise a separate licence. Details of these six locations are shown in Table A5.2 below.
- A5.8 The spectrum was awarded with an indefinite duration and an initial period of 15 years which expires in February 2023, after which annual licence fees become due.
- A5.9 UK Interface Requirement 2048⁵⁵ details the minimum requirements for the use of Spectrum Access 27.8285 GHz to 28.4445 GHz paired with 28.8365 GHz to 29.4525 GHz.

⁵⁵ Ofcom, *UK Interface Requirement 2048*, Jan2018,
https://www.ofcom.org.uk/_data/assets/pdf_file/0025/84643/ir2048.pdf

Regions covered by the licences awarded in 2000 and 2008

A5.10 Figure A5.1 below shows the licences awarded in 2000 and 2008 with the current licence holders, their respective licensed frequencies and the geographic area labels relating to each licence.

Figure A5.1: Details of the 28 GHz licences awarded in 2008 and 2000

	27.8285 – 28.0525 GHz paired with 28.8365 – 29.0605 GHz	28.0525 – 28.1645 GHz paired with 29.0605 – 29.1725 GHz	2 x 28 MHz	28.1925 – 28.3045 GHz paired with 29.2005 – 29.3125 GHz	2 x 28 MHz	28.3325 – 28.4445 GHz paired with 29.3405 – 29.4525 GHz
	(2 x 224 MHz)	(2 x 112 MHz)		(2 x 112 MHz)		(2 x 112 MHz)
A	Arqiva	Telefónica UK		Arqiva		UK Broadband
B		Vodafone		Telefónica UK		UK Broadband
C		Telefónica UK		Vodafone		UK Broadband
D		Vodafone		UK Broadband (Spectrum traded to Arqiva Ltd at 6 locations)		UK Broadband (Spectrum traded to Arqiva Ltd at 6 locations)
E						
F						
G						
H						
I		Telefónica UK		Vodafone		
J		Vodafone		Vodafone		
K				UK Broadband		
L				Telefónica UK		
M				UK Broadband		
N		Telefónica UK				

Spectrum Access complying with IR 2048 – First awarded December 2000

Spectrum Access complying with IR 2048 – First awarded February 2008

A5.11 Figure A5.2 below shows a map of the regions covered by the licences awarded in 2000 and 2008 with the corresponding geographic area labels. These regions were defined in the Schedule to the Wireless Telegraphy (Broadband Fixed Wireless Access Licences) Regulations 2000 by reference to descriptions of certain geographic areas labelled 'A' to 'N'. Licences were awarded in regions A, B, C, I, J, L and N in November 2000.

Figure A5.2: Map of the regions covered by Spectrum Access 28 GHz licences



A5.12 Table A5.1 below lists the regions covered by the geographic area labels A – N. ⁵⁶

Table A5.1: List of regions authorised by the Spectrum Access 28 GHz licences

Region A:	Greater London
Region B:	Greater Manchester, Merseyside & Cheshire
Region C:	West Midlands, Warwickshire, Staffordshire, Worcestershire, Shropshire & Herefordshire
Region D:	Isle of Wight, Hampshire, Berkshire & Oxfordshire
Region E:	Essex, Hertfordshire & Buckinghamshire
Region F:	Suffolk, Norfolk, Bedfordshire, Cambridgeshire & Northamptonshire
Region G:	Derbyshire, Lincolnshire (other than North and North East Lincolnshire District Councils), Leicestershire, Nottinghamshire, & Rutland
Region H:	Kent, Surrey, East Sussex & West Sussex
Region I:	East Riding of Yorkshire, North, West, & South Yorkshire, North & North East Lincolnshire District Councils
Region J:	Tyne and Wear, Durham, Northumberland, Cumbria & Lancashire
Region K:	Bristol, Devon, Cornwall and the Isles of Scilly, Dorset, Somerset, Wiltshire & Gloucestershire
Region L:	Scotland
Region M:	Wales
Region N:	Northern Ireland

A5.13 Table A5.2 below lists the six locations UKB have traded from their two sub-national (2 and 3) licences to Arqiva.

Table A5.2: List of locations which were traded from two of the 2008 licences by UK Broadband Limited to Arqiva Limited

Number	Location
1	A radius of 5 km around Crawley Court, Hampshire with NGR SU 421 349
2	A radius of 2 km around Morn Hill, Hampshire with NGR SU 516 292
3	A radius of 4 km around Brookmans Park, Hampshire with NGR TL 260 049
4	A radius of 2 km around Chalford Grove, Buckinghamshire with NGR SU 983 917
5	A radius of 5 km around Bedford Teleport, Bedfordshire with NGR TL 036 610
6	A radius of 4 km around Whitehill, Oxfordshire with NGL SP 487 186

⁵⁶ These regions are identified in Part 1 of the Schedule to the Wireless Telegraphy (Broadband Fixed Wireless Access Licences) Regulations 2000.

A6. Calculation of regional and location specific ALFs in the 28 GHz spectrum

- A6.1 This section sets out the proposed methodology for calculating the regional and location specific ALFs for 28 GHz spectrum.
- A6.2 For the regional 28 GHz ALFs, we propose to use the same methodology as that used when setting fees for certain 28 GHz regions in 2015.

28 GHz regional ALFs

Proposed methodology

- A6.3 In 2015, we apportioned the national 28 GHz fee to each region as identified in Table A5.1 based on the relative density of fixed links in that region and using the number of fixed links in the 26 GHz band as a reference band.
- A6.4 In order to reflect the relative demand for fixed links with different channel sizes, we assigned a weight to the different fixed link bandwidths. We used 28 MHz as a reference channel and assigned a weighting of 1 to the 28 MHz channel. A channel of 56 MHz has a weighting of 2 whilst a channel of 14 MHz has a weighting of 0.5, etc.
- A6.5 We propose to recalculate the fee apportionment to the different regions using the current distribution of fixed links in the 26 GHz band, a reference channel of 28 MHz, and with the proposed national 28 GHz fee. Therefore, the regional fee is estimated as follows:
- $$\text{ALF in region (n)} = \text{Weighted number of fixed links in region (n)} / \text{Weighted number of total fixed links} \times \text{National ALF}.$$

Proposed regional ALFs

- A6.6 Table A6.1 below shows the proposed new regional fees for 28 GHz spectrum and the previous fees in applicable regions. Detailed calculation of the regional apportionment using the current distribution of fixed links in the 26 GHz band and fee calculation is [available](#).

Table A6.1 Proposed new regional 28 GHz ALFs and previous regional ALFs

Region	ALF in 2015 for 2 x 1 MHz	Proposed new ALF for 2 x 1 MHz
Region A (Greater London)	£703.63	£352.24
Region B (Greater Manchester, Merseyside and Cheshire)	£520.17	£427.61
Region C (West Midlands, Warwickshire, Staffordshire, Worcestershire, Shropshire and Herefordshire)	£380.20	£313.19
Region D (Isle of Wight, Hampshire, Berkshire & Oxfordshire)	-	£280.00
Region E (Essex, Hertfordshire & Buckinghamshire)	-	£344.43
Region F (Suffolk, Norfolk, Bedfordshire, Cambridgeshire & Northamptonshire)	-	£168.70
Region G (Derbyshire, Lincolnshire (other than North and North East Lincolnshire District Councils), Leicestershire, Nottinghamshire, & Rutland)	-	£293.27
Region H (Kent, Surrey, East Sussex & West Sussex)	-	£139.41
Region I (East Riding of Yorkshire, North Yorkshire, South Yorkshire, West Yorkshire and the areas of North Lincolnshire and North-east Lincolnshire District Councils)	£341.22	£490.87
Region J (Tyne and Wear, Durham, Northumberland, Cumbria and Lancashire)	£263.97	£338.18
Region K (Bristol, Devon, Cornwall and the Isles of Scilly, Dorset, Somerset, Wiltshire & Gloucestershire)	-	£250.71
Region L (Scotland)	£372.72	£686.13
Region M (Wales)	-	£403.79
Region N (Northern Ireland)	£64.40	£87.47

28 GHz location specific ALFs

A6.7 In addition to its national and regional 28 GHz licences, Arqiva holds 28 GHz licences⁵⁷ at 6 specific locations defined as an area with radius up to 5 km from a defined national grid references (NGR) as outlined in Table A5.2.

Proposed methodology

A6.8 We propose to estimate the ALF for each location as follows:

ALF in a given location = (Area of the location / Area of the region) x ALF of the region in which the area authorised by the licence is located.

⁵⁷ Acquired through trade with UKB sub-national 2 and sub-national 3 28 GHz licences.

A6.9 The area of the location is calculated as a circular area based on the size of the radius at each location.

A6.10 The area of the region is calculated based on the OS Boundary Line data⁵⁸ for each unitary authorities making up each region as defined in Table A5.1. The area of each region is set out in Table A6.2 below.

Proposed location specific ALFs

A6.11 Table A6.2 shows the proposed ALF for each of the locations authorised to Arqiva.

Table A6.2 Proposed 28 GHz location specific ALFs

Locations	Region located (size of region)	Proposed ALF per 2 x 1 MHz
a radius of 5km around Crawley Court, Hampshire with NGR SU 421 349	Region D (8172 kmsq)	£2.69
a radius of 2 km around Morn Hill, Hampshire with NGR SU 516 292	Region D (8172 kmsq)	£0.43
a radius of 4 km around Brookmans Park, Hampshire with NGR TL 260 049	Region D (8172 kmsq)	£1.72
a radius of 2 km around Chalfont Grove, Buckinghamshire with NGR SU 983 917	Region E (7465 kmsq)	£0.58
a radius of 5 km around Bedford Teleport, Bedfordshire with NGR TL 036 610	Region F (16353 kmsq)	£0.81
a radius of 4 km around Whitehill, Oxfordshire with NGR SP 487 186	Region D (8172 kmsq)	£1.72

⁵⁸ <https://www.ordnancesurvey.co.uk/business-government/tools-support/boundaryline-support>

A7. Legal framework

Ofcom's power to set fees

- A7.1 Under Section 12 of the Wireless Telegraphy Act 2006 (the “**Wireless Telegraphy Act**”), Ofcom has power to require licensees to pay fees to Ofcom on the grant of a licence and subsequently. The requirement to pay fees at times after the grant of a licence must be imposed by way of regulations made by Ofcom. The timing of the fee payment must be set out in the regulations, and the amount of the fee can be prescribed in the regulations, or alternatively the regulations may provide for the amount to be determined by Ofcom in accordance with the regulations.
- A7.2 Section 12(5) of the Wireless Telegraphy Act provides that, where a licence has been awarded as part of an auction process, subsequent fees cannot ordinarily be charged for that licence. This is however subject to section 12(6) of the Wireless Telegraphy Act which provides that fees may be payable for auctioned spectrum in specific circumstances. This includes where provision has been included in the licence with the consent of the holder of that licence for subsequent fees to apply. Paragraph 8 of each of the 10, 28 and 32 GHz licences for which we are now setting ALFs states that, on or after 21 February 2023, annual licence fees will become payable in respect of those licences.
- A7.3 Section 13 of the Wireless Telegraphy Act provides that Ofcom can set fees at an amount that is higher than the cost to us of carrying out our radio spectrum functions, if we think that is appropriate, in particular in light of our statutory duties in section 3 of the Wireless Telegraphy Act.
- A7.4 Section 122 of the Wireless Telegraphy Act is a general provision about matters relating to Ofcom's powers to make statutory instruments (including fees regulations under section 12 of that Act). It includes a requirement that where we are proposing to make regulations we must publish a notice setting out the general effect of the regulations and give a period of at least one month within which representations on the proposed regulations may be made to us.
- A7.5 The legal framework for the setting of fees derives from the Communications Act 2003 (the “**Communications Act**”) and the Wireless Telegraphy Act.

The duties imposed by the Communications Act

- A7.6 Section 3 of the Communications Act sets out Ofcom's general duties including its principal duty:
- 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.

- A7.7 In carrying out its functions, section 3(2) provides that Ofcom is required, amongst other things, to secure the optimal use for wireless telegraphy of the electro-magnetic spectrum, the availability throughout the UK of a wide range of electronic communication services and the availability throughout the UK of a wide range of television and radio services.
- A7.8 Section 3(3) of the Communications Act provides that in performing its duties, Ofcom must in all cases have regard to the principles of transparency, accountability, proportionality and consistency, as well as ensuring that its actions are targeted only at cases in which action is needed.
- A7.9 Section 3(4) of the Communications Act requires Ofcom, in performing its duties, to have regard to a number of factors as appropriate, including the desirability of promoting competition, encouraging investment and innovation in relevant markets, encouraging the availability and use of high speed data transfer services throughout the UK, the different interests of persons living in rural and in urban areas and the different needs and interests of everyone who may wish to use the spectrum for wireless telegraphy.
- A7.10 In performing our duty under Section 3 of furthering the interests of consumers, we must have regard, in particular, to the interests of those consumers in respect of choice, price, quality of service and value for money.
- A7.11 Section 4 of the Communications Act requires Ofcom to act in accordance with six requirements when carrying out certain specified functions, including our functions under the Wireless Telegraphy Act 2006. These include a requirement to promote competition in relation to the provision of electronic communications networks and electronic communications services, and to take account of the desirability of carrying out its functions in a manner which, so far as practicable, does not favour one form of electronic communications network, electronic communications service or associated facility, or one means of providing these, over another.

The duties imposed by the Wireless Telegraphy Act

- A7.12 Section 3 of the Wireless Telegraphy Act imposes a number of further duties relating to spectrum management. Amongst other things, in carrying out its spectrum functions Ofcom is required to have regard to:
- a) the extent to which spectrum is available for use, or further use, for wireless telegraphy;
 - b) the demand for use of the spectrum for wireless telegraphy; and
 - c) the demand that is likely to arise in future for the use of the spectrum for wireless telegraphy.
- A7.13 Section 3 of the Wireless Telegraphy Act also requires Ofcom to have regard to the desirability of promoting:
- a) the efficient management and use of the part of the electromagnetic spectrum available for wireless telegraphy;
 - b) the economic and other benefits that may arise from the use of wireless telegraphy;

- c) the development of innovative services; and
- d) competition in the provision of electronic communications services.

Impact Assessment

- A7.14 Section 7 of the Communications Act requires us to carry out and publish an assessment of the likely impact of implementing a proposal which would be likely to have a significant impact on businesses or the general public, or when there is a major change in Ofcom's activities. As a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions, although the form of that assessment will depend on the particular nature of the proposal.
- A7.15 Section 4 constitutes our impact assessment for the purpose of section 7 of the Communications Act.

Equality Impact Assessment

- A7.16 Section 149 of the Equality Act 2010 (the "2010 Act") imposes a duty on Ofcom, when carrying out its functions, to have due regard to the need to eliminate discrimination, harassment, victimisation and other prohibited conduct related to the following protected characteristics: age; disability; gender reassignment; marriage and civil partnership; pregnancy and maternity; race; religion or belief; sex and sexual orientation. The 2010 Act also requires Ofcom to have due regard to the need to advance equality of opportunity and foster good relations between persons who share specified protected characteristics and persons who do not.
- A7.17 Section 75 of the Northern Ireland Act 1998 (the "1998 Act") also imposes a duty on Ofcom, when carrying out its functions relating to Northern Ireland, to have due regard to the need to promote equality of opportunity and regard to the desirability of promoting good relations across a range of categories outlined in the 1998 Act. Ofcom's Revised Northern Ireland Equality Scheme explains how we comply with our statutory duties under the 1998 Act.
- A7.18 To help us comply with our duties under the 2010 Act and the 1998 Act, we assess the impact of our proposals on persons sharing protected characteristics and in particular whether they may discriminate against such persons or impact on equality of opportunity or good relations. We fulfil these obligations by carrying out an Equality Impact Assessment ('EIA'), which examines the impact our policy is likely to have on people, depending on their personal circumstances. EIAs also assist us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers, regardless of their background and identity.
- A7.19 We do not consider the impact of our proposals have equality implications under the 2010 Act or the 1998 Act.

A8. Notice of proposed regulations

Notice of proposals

- A8.1 This notice is given in accordance with section 122(4) and (5) of the Wireless Telegraphy Act and covers a proposal to make a statutory instrument.
- A8.2 The proposed statutory instrument sets out how we would give effect to Ofcom's proposal to:
- a) Introduce fees for current holders of 28 GHz licences that were initially awarded in 2008 i.e. introduce fees for holders of licences granted under the procedure set out in a notice made under the Wireless Telegraphy (Licence Award) (No. 2) Regulations 2007 which authorises use of frequencies within the frequency bands 27.8285–28.4445 GHz and 28.8365–29.4525 GHz.
 - b) Align fees for current holders of 28 GHz licences that were initially awarded in 2000 (i.e. fees for holders of licences granted under the procedure set out in a notice made under the Wireless Telegraphy (Broadband Fixed Wireless Access Licences) Regulations 2000 which authorises use of frequencies within the frequency bands 28.0525–28.4445 GHz and 29.0605–29.4525 GHz) with the fees now being introduced for 28 GHz licences awarded in 2008.
 - c) Introduce fees for current holders of 10 GHz licences which authorises use of frequencies within the frequency bands 10.125–10.225 GHz and 10.475–10.575 GHz.
 - d) Introduce fees for current holders of 32 GHz licences which authorises use of frequencies within the frequency bands 31.815–32.571 GHz and 32.627–33.383 GHz.
- A8.3 Details of Ofcom's proposal are set out in this consultation document and the proposed statutory instrument shows how Ofcom would give effect to it if our final decision following the overall consultation process is in line with our current proposals.

Proposed Regulations

- A8.4 Ofcom has the power under section 12, 13 and 122(7) of the Wireless Telegraphy Act to make regulations to prescribe sums payable in respect of wireless telegraphy licences.
- A8.5 Ofcom proposes to make regulations to amend the Wireless Telegraphy (Licence Charges) Regulations 2020/1068 (the "**2020 Regulations**") to set an annual licence fee in respect of 10, 28 and 32 GHz licences, and to prescribe the amount of those fees.
- A8.6 A draft of the proposed regulations is set out in Annex A9 and their general effect is set out in this Annex.
- A8.7 Hard copies of this notice and the proposed regulations can be obtained from:

ALF team

Ofcom, Riverside House, 2A Southwark Bridge Road, London SE1 9HA

ALF2022@ofcom.org.uk

- A8.8 Comments or representations with respect to the proposed regulations are invited by **5pm on 27 September 2022**. Comments should be sent to the contact named above at the above address.
- A8.9 Following completion of the overall consultation process, Ofcom intends to make the final regulations as soon as practicable.

General effect of the proposed Wireless Telegraphy (Licence Charges) (Amendment) Regulations 2023

The legislative framework

- A8.10 Under section 12 the Wireless Telegraphy Act, Ofcom may make regulations to prescribe sums payable in respect of wireless telegraphy licences. When doing so, section 12(7) of the Wireless Telegraphy Act enables Ofcom to make different provisions for different cases and to make incidental provisions.
- A8.11 In 2008, following an auction process, Ofcom awarded licences for 10, 28 and 32 GHz.⁵⁹ In accordance with section 12(5) of the Wireless Telegraphy Act, no annual fees were payable in respect of these licences for an initial period of 15 years from their grant. However, in accordance with section 12(6) of the Wireless Telegraphy Act, these 10, 28 and 32 GHz licences include a requirement that, from 21 February 2023, an annual licence fee will be payable in accordance with regulations set by Ofcom.
- A8.12 Therefore, Ofcom is now giving notice of its proposed Wireless Telegraphy (Licence Charges) (Amendment) Regulations 2023 (the “**Proposed Regulations**”), which would give effect to Ofcom’s proposal to introduce an annual licence fee in respect of the 10, 28 and 32 GHz licences awarded in 2008.

28 GHz licences awarded in 2000 and already subject to annual licence fees

- 5.13 As explained in Section 5 above, annual licence fees became payable for 28 GHz spectrum awarded in 2000 from 5 January 2016⁶⁰ and on 5 January in each subsequent year⁶¹ In accordance with Regulation 7 of the 2020 Regulations, the next annual licence fees for 28 GHz licences awarded in 2000 will therefore become due on 5 January 2023 (before the annual licences fees for 28 GHz licences awarded in 2008 become due on 21 February 2023).

⁵⁹ The relevant background is set out in sections 2 and A5 of this document.

⁶⁰ The Wireless Telegraphy (Licence Charges) (Amendment) (No. 2) Regulations 2015 (the “**2015 Regulations**”) amended The Wireless Telegraphy (Licence Charges) Regulations 2011 (the “**2011 Regulations**”) to set annual licences for the 28 GHz spectrum awarded in 2000 in Regions A, B, C, I, J, L and N (see Regulation 4 of the 2015 Regulations). The 2011 Regulations were subsequently revoked by the 2020 Regulations.

⁶¹ See Regulation 4 of the 2015 Regulations and Regulation 7(1) of the 2020 Regulations.

The general effect of the Proposed Regulations

- A8.13 The Proposed Regulations would amend the 2020 Regulations to:
- a) prescribe the sums which will be payable for the 10 and 32 GHz licences from 21 February 2023;
 - b) prescribe the sums which will be payable for all 28 GHz licences (whether awarded in 2000 or 2008) from 5 January 2024; and
 - c) prescribe the sums which will be payable for 28 GHz licences awarded in 2008 for the period 21 February 2023 – 4 January 2024 inclusive (which will be a pro-rated amount of the annual sums which will be payable from 5 January 2024).

Extent of application and entry into force of the Proposed Regulations (reg.1)

- A8.14 The Proposed Regulations would apply in the United Kingdom.
- A8.15 The Proposed Regulations would come into force as soon as practical after making. The final regulation will be made after Ofcom has concluded its consultation process on the fees and made a final decision as to the level of fees payable.

Amendment of the 2020 Regulations (reg.2)

- A8.16 Regulation 2(1) of the Proposed Regulations provides that the 2020 Regulations shall be amended in accordance with regulations 2(2) and 2(6) of the Proposed Regulations.
- A8.17 Regulation 2(2) defines the meaning of a number of terms which are relevant to understand the other provisions in the Proposed Regulations.
- A8.18 Regulation 2(3) of the Proposed Regulations would amend regulation 4 of the 2020 Regulations to refer to the 10, 28 and 32 GHz licences awarded in 2008 and for which we are now setting annual licence fees, in particular to ensure these licences are among the class of licences in respect of which regulation 4(8) of the 2020 Regulations applies. Regulation 4(8) of the 2020 Regulations sets out those classes of licence in respect of which a licensee can elect to pay its licence fee across ten equal monthly instalments (rather than in a single lump sum). The effect of this amendment would therefore be to enable holders of 10, 28 and 32 GHz licences awarded in 2008 to pay their licence fees for these licences (including the pro-rated fee for 28 GHz licences for the period 21 February 2023 – 4 January 2024) in ten equal monthly instalments, provided that they notify Ofcom in advance of their intention to do so.
- A8.19 Regulation 2(4) of the Proposed Regulations would insert a new regulation 6A in the 2020 Regulations under the heading “Licence charges payable for the 28 GHz frequency band on 21 February 2023” and set out the one-off fees payable for 28 GHz licences awarded in 2008 for the period 21 February 2023 – 4 January 2024 inclusive (which is a pro-rated amount of the proposed annual fee). For the purpose of the Proposed Regulations, a fee is specified for a 2 x 1 MHz channel each of the 14 Regions that are identified in the Schedule to the Wireless Telegraphy (Broadband Fixed Wireless Access Licences) Regulations 2000. Regulation 2(4) of the Proposed Regulations also sets out a formula for working out the fee

where a licensee is authorised in an area comprising part of a Region, including where a licensee is authorised in (i) circular areas which have a radius of up to 5 km around an Ordnance Survey grid reference location; or (ii) a Region excluding the circular areas referred to in (i). This formula would prescribe the fee for licences currently held by Arqiva and UK Broadband.

- A8.20 Regulation 2(5) of the Proposed Regulations would replace regulation 7 of the 2020 Regulations with a new regulation 7 under the heading “Licence charges payable for the 28 GHz frequency band for each subsequent payment” and set out the annual fees payable for 28 GHz licences awarded in 2008 from 5 January 2024. For the purpose of the Proposed Regulations, a fee is specified for a 2 x 1 MHz channel each of the 14 Regions that are identified in the Schedule to the Wireless Telegraphy (Broadband Fixed Wireless Access Licences) Regulations 2000. Regulation 2(5) of the Proposed Regulations also sets out a formula for working out the fee where a licensee is authorised in an area comprising part of a Region, including where a licensee is authorised in (i) circular areas which have a radius of up to 5 km around an Ordnance Survey grid reference location; or (ii) a Region excluding the circular areas referred to in (i). This formula would prescribe the fee for licences currently held by Arqiva and UK Broadband and any future trades that may occur resulting in a licensee being authorised in part of a Region. These fees would subsequently be due on 5 January annually.
- A8.21 Regulation 2(6) of the Proposed Regulations inserts new Regulations 9 and 10 to set out the fees payable for a 2 x 1 MHz channel in respect of 10 and 32 GHz licences respectively. These fees will be payable from 21 February 2023 (and, in accordance with the 10 and 32 GHz licences, will be due on 21 February annually).

A9. Draft of proposed regulations

STATUTORY INSTRUMENTS

DRAFT

2023 No. 0000

ELECTRONIC COMMUNICATIONS

The Wireless Telegraphy (Licence Charges) (Amendment) Regulations 2023

Made - - - - [DATE]

Coming into force - - [DATE]

The Office of Communications (“OFCOM”), in exercise of the powers conferred by sections 12, 13(2) and 122(7) of the Wireless Telegraphy Act 2006(a) (the “Act”), make the following Regulations.

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 (Licence Charges) (Amendment) Regulations 2023 and shall come into force on [DATE].

Amendment to the Wireless Telegraphy (Licence Charges) Regulations 2020

2.—(1) The Wireless Telegraphy (Licence Charges) Regulations 2020(b) (the “principal Regulations”) shall be amended in accordance with paragraphs (2) to (6).

(2) In regulation 2 (Interpretation) of the principal Regulations—

(a) in sub-paragraph (1) after the definition of “the 2000 Regulations”, insert—

““the 2007 Regulations” means the Wireless Telegraphy (Licence Award) (No. 2) Regulations 2007”

(b) in sub-paragraph (1) after the definition of “prescribed time”, insert—

““Region” means any one of Regions A to N as described in Part 1 of the Schedule to the 2000 Regulations”

(a) 2006 c.36
(b) S.I. 2020/1068

(3) In regulation 4 (Licence charges and time of payment) of the principal Regulations—

- (a) in sub-paragraph (1) for the words “and to regulations 5, 6 and 7” substitute “and to regulations 5 to 10”
 - (b) in sub-paragraph (6)(a) for the words “under paragraph (1), regulation 7(1) or regulation 8(1)” substitute “under paragraph (1), regulation 6A(1), regulation 7(1), regulation 8(1), regulation 9(1) or regulation 10(1)”;
 - (c) in sub-paragraph (6)(b)(vii) for the words “under regulation 7(1)” substitute “under regulation 6A(1) or regulation 7(1)”;
 - (d) delete the word “or” at the end of sub-paragraph (6)(b)(vii);
 - (e) after sub-paragraph (6)(b)(viii), insert the following sub-paragraphs—
 - “(ix) the class “Spectrum Access Licence 10 MHz Band” under regulation 9(1); or
 - (x) the class “Spectrum Access Licence 32 MHz Band” under regulation 10(1).” and
 - (f) in sub-paragraph (7)(a) for the words “under paragraph (1) or regulation 7(1)” substitute “under paragraph (1), regulation 7(1), regulation 9(1) or regulation 10(1)”.
- (4) After regulation 6 of the principal Regulations, insert the following regulation—

“Licence charges payable for the 28 GHz frequency band on 21 February 2023

6A.—(1) On 21st February 2023 each holder of a licence of the Spectrum Access 28 GHz licence class granted under the procedure set out in a notice made under the 2007 Regulations which authorises use of frequencies within the frequency bands 27.8285–28.4445 gigahertz and 28.8365–29.4525 gigahertz shall pay to OFCOM the total sums specified in paragraph (2).

(2) The sums which must be paid in accordance with paragraph (1) comprise—

- (a) £306.88 for each 2 x 1 MHz channel which is authorised by the licence in Region A;
- (b) £372.55 for each 2 x 1 MHz channel which is authorised by the licence in Region B;
- (c) £272.86 for each 2 x 1 MHz channel which is authorised by the licence in Region C;
- (d) £243.94 for each 2 x 1 MHz channel which is authorised by the licence in Region D;
- (e) £300.08 for each 2 x 1 MHz channel which is authorised by the licence in Region E;
- (f) £146.98 for each 2 x 1 MHz channel which is authorised by the licence in Region F;
- (g) £255.51 for each 2 x 1 MHz channel which is authorised by the licence in Region G;
- (h) £121.46 for each 2 x 1 MHz channel which is authorised by the licence in Region H;
- (i) £427.66 for each 2 x 1 MHz channel which is authorised by the licence in Region I;
- (j) £294.64 for each 2 x 1 MHz channel which is authorised by the licence in Region J;
- (k) £218.42 for each 2 x 1 MHz channel which is authorised by the licence in Region K;
- (l) £597.78 for each 2 x 1 MHz channel which is authorised by the licence in Region L;
- (m) £351.79 for each 2 x 1 MHz channel which is authorised by the licence in Region M;
- (n) £76.21 for each 2 x 1 MHz channel which is authorised by the licence in Region N; and
- (o) a total sum which comprises the amount in pounds sterling calculated in accordance with paragraphs (3) to (4), for each 2 x 1 MHz channel which is authorised by a licence in an area identified in the licence and comprising part of a Region.

(3) The formula to calculate the total sum mentioned in sub-paragraph (2)(o) is—

$$S = R \times (LA \div RA)$$

where—

“S” means the total sum;

“R” means the sum specified in paragraph (2) for a 2 x 1 MHz channel in the Region in which the relevant area identified in the licence is located;

“LA” means the total size of the relevant area identified in the licence and comprising part of a Region; and

“RA” means the total size specified in Regulation 7(4) of the Region in which the relevant area identified in the licence is located.

(4) If the total sum calculated in accordance with paragraph (3) is a fraction of a whole number, it shall be rounded to the nearest whole penny.”

(5) For regulation 7 of the principal Regulations substitute the following regulation—

“Licence charges payable for the 28 GHz frequency band for each subsequent payment

7.—(1) On 5th January 2024 and on each anniversary of that date, each holder of a licence of the Spectrum Access 28 GHz licence class granted under the procedure set out in a notice made under the 2000 Regulations or the 2007 Regulations which authorises use of frequencies within the frequency bands 27.8285–28.4445 gigahertz and 28.8365–29.4525 gigahertz shall pay to OFCOM the sums specified in paragraph (2).

(2) The sums which must be paid in accordance with paragraph (1) comprise—

- (a) £352.24 for each 2 x 1 MHz channel which is authorised by the licence in Region A;
- (b) £427.61 for each 2 x 1 MHz channel which is authorised by the licence in Region B;
- (c) £313.19 for each 2 x 1 MHz channel which is authorised by the licence in Region C;
- (d) £280.00 for each 2 x 1 MHz channel which is authorised by the licence in Region D;
- (e) £344.43 for each 2 x 1 MHz channel which is authorised by the licence in Region E;
- (f) £168.70 for each 2 x 1 MHz channel which is authorised by the licence in Region F;
- (g) £293.27 for each 2 x 1 MHz channel which is authorised by the licence in Region G;
- (h) £139.41 for each 2 x 1 MHz channel which is authorised by the licence in Region H;
- (i) £490.87 for each 2 x 1 MHz channel which is authorised by the licence in Region I;
- (j) £338.18 for each 2 x 1 MHz channel which is authorised by the licence in Region J;
- (k) £250.71 for each 2 x 1 MHz channel which is authorised by the licence in Region K;
- (l) £686.13 for each 2 x 1 MHz channel which is authorised by the licence in Region L;
- (m) £403.79 for each 2 x 1 MHz channel which is authorised by the licence in Region M;
- (n) £87.47 for each 2 x 1 MHz channel which is authorised by the licence in Region N; and
- (o) a total sum which comprises the amount in pounds sterling calculated in accordance with paragraphs (3) to (5), for each 2 x 1 MHz channel which is authorised by a licence in an area identified in the licence and comprising part of a Region.

(3) The formula to calculate the total sum mentioned in sub-paragraph (2)(o) is—

$$S = R \times (LA \div RA)$$

where—

“S” means the total sum;

“R” means the sum specified in paragraph (2) for a 2 x 1 MHz channel in the Region in which the relevant area identified in the licence is located;

“LA” means the total size of the relevant area identified in the licence and comprising part of a Region; and

“RA” means the total size specified in regulation 6A(4) of the Region in which the relevant area identified in the licence is located.

(4) The total size of the Regions in accordance with paragraph (3) comprise—

- (i) 1,595 square kilometres for Region A;

- (ii) 4,477 square kilometres for Region B;
- (iii) 13,014 square kilometres for Region C;
- (iv) 8,172 square kilometres for Region D;
- (v) 7,465 square kilometres for Region E;
- (vi) 16,353 square kilometres for Region F;
- (vii) 13,452 square kilometres for Region G;
- (viii) 9,414 square kilometres for Region H;
- (ix) 15,884 square kilometres for Region I;
- (x) 15,828 square kilometres for Region J;
- (xi) 24,354 square kilometres for Region K;
- (xii) 80,257 square kilometres for Region L;
- (xiii) 21,233 square kilometres for Region M; and
- (xix) 14,146 square kilometres for Region N.

(5) If the total sum calculated in accordance with paragraph (3) is a fraction of a whole number, it shall be rounded to the nearest whole penny.”

(6) After regulation 8 of the principal Regulations, insert the following regulations—

“Licence charges payable for the 10 GHz frequency band

9.—(1) On 21st February 2023 and on each anniversary of that date, each holder of a licence of the Spectrum Access 10 GHz licence class which authorises use of frequencies within the frequency bands 10.125-10.225 gigahertz and 10.475-10.575 gigahertz shall pay to OFCOM the sums specified in paragraph (2).

(2) The total sum which must be paid in accordance with paragraph (1) is £7,568 for each authorisation under the licence of the use of a 2 x 1 MHz national channel.

Licence charges payable for the 32 GHz frequency band

10.—(1) On 21st February 2023 and on each anniversary of that date, each holder of a licence of the Spectrum Access 32 GHz licence class which authorises use of frequencies within the frequency bands 31.815-32.571 gigahertz and 32.627-33.383 gigahertz shall pay to OFCOM the sums specified in paragraph (2).

(2) The total sum which must be paid in accordance with paragraph (1) is £4,576 for each authorisation under the licence of the use of a 2 x 1 MHz national channel.”

[DATE]

[NAME]
Group Director, Spectrum Group
For and on behalf of the Office of Communications