Shared Access Licence

Guidance document

Updated 14th January 2025

Contents

Section

1. Overview

1.1 This document is about the Shared Access licence. It is intended to provide guidance on these licences, how they can be used and our processes, which new users may find helpful.[1] It includes information on how much the licence costs, how you can apply for a licence, and what terms and conditions you have to adhere to.

1.2 In July 2019, Ofcom published a Statement, "Enabling wireless innovation through local licensing", which introduced two new licence products to make it easier for a wider range of users in the UK to access radio spectrum on a shared basis.[2]

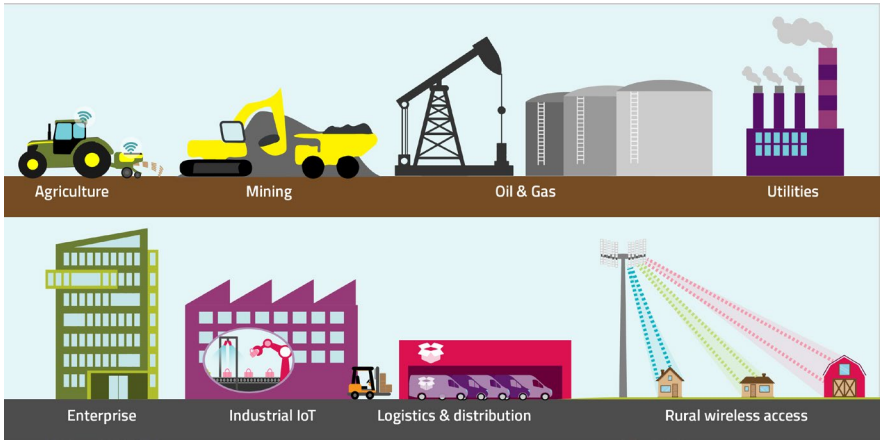
1.3 These are:

i) the Shared Access licence, which gives access to several spectrum bands which support mobile technology; and

ii) the Local Access licence, which provides a way for other users to access spectrum which has already been licensed to the UK's Mobile Network Operators (MNOs), in locations where an MNO is not using their spectrum. You can find the guidance document for the Local Access licence on the Ofcom website.

1.4 A Shared Access licence can support wireless connectivity to a business or site, in a way that can be more secure than licence exempt technology like Wi-Fi and more customisable than using a solution from an MNO. The licence can be useful for all sorts of different businesses and industries, such as those set out in the graphic below.

Figure 1: Possible users of the Shared Access licence product



Shared Access licence review

1.5 We reviewed the Shared Access licence through 2023 and 2024. We published Statements in July and December 2024 that set out our decisions to update and liberalise the framework. These updates are reflected in this guidance. We note that some of the decisions taken

[1] For example, if users are unfamiliar with obtaining licences from Ofcom or what spectrum options are available.

[2] Ofcom, *Enabling wireless innovation through local licences: Shared access to spectrum supporting mobile technology*, 25 July 2019,

through this review require further steps to implement them in our systems. We will update this guidance to reflect the latest position as we implement our decisions in the coming months. More detail on these implementation timelines will also be provided on our Licensing updates - Ofcom page.

Frequencies available under the Shared Access licence

1.6 There are four different spectrum bands currently available for licensees using the Shared Access licence. We call these "the Shared Access bands", and they are:

i) **1781.7-1785 MHz paired with 1876.7-1880 MHz** (which we refer to as "the 1800 MHz shared spectrum"): This is part of the wider 1800 MHz mobile band (although this particular portion has not been licensed for national mobile services) and is supported by commercially available mobile base stations and equipment, including most mobile handsets. There is a total of 2 x 3.3 MHz available in the band.

ii) **2320-2340 MHz and 2390-2400 MHz** (we refer to this spectrum as "the 2300 MHz shared spectrum": This is part of the 2300 MHz mobile band, of which the 2350-2390 MHz frequencies are used for national mobile services in the UK. It is supported by commercially available mobile base stations and equipment. There will then be a total of 30 MHz available in this band available in 10 MHz channels.[3] This band is only widely available for indoor low power licences (see section 2 and 3 for more details).

iii) **3.8-4.2 GHz**: This band sits just above the 3.6-3.8 GHz mobile band, and chipsets which support 5G technology in this band are available. There is 390 MHz of spectrum available in the band (although note that this bandwidth is shared with a variety of other existing users across the UK). A recent European Conference of Telecommunications Administrations (CEPT)[4] decision has agreed to harmonise the technical conditions for shared use in Europe. This could assist in further developing the equipment ecosystem for this band over time.

iii) **24.45-27.5 GHz** (which we refer to as "the 26 GHz band"): This band is one of the pioneer 5G bands in Europe and has 3.05 GHz of spectrum available in total. The 24.45-27.5 GHz band is available for low power and medium power applications.[5]

1.7 The type of application you want to provide will determine the most appropriate band for you, as the characteristics and bandwidth available in each band differs. For example:

- lower frequencies such as in the 1800 MHz shared spectrum have better propagation characteristics; this means that transmissions can "bend" around obstacles or penetrate through buildings much more easily than at higher frequencies. However, the smaller amount of bandwidth available means that you probably can't use these bands for applications that need to transmit very large amounts of data.

[3] We expect to be offering Low Power Shared Access licences in the 2320-2340 MHz band, for indoor base stations only by the end of Q1 2025.
[4] CEPT is the European Conference of Postal and Telecommunications Administrations.
[5] As we explain further in para 2.48 below, this includes making 24.45-25.1 GHz available for low power use in defined high density areas, with spectrum available for low and medium power use outside of these high density areas across the wider 24.45-27.5 GHz.

- if you need larger bandwidth, options could include Shared Access spectrum in 3.8-4.2 GHz and 26 GHz. Other options could include licence exempt use, for example in the 5150-5925 MHz band (3GPP Band 46).

1.8 To support users in the 3.8-4.2 GHz band, we have made available an online, searchable map of spectrum available in an area which is accessible via the Ofcom website. Although this does not provide a guarantee of availability, it provides a guide to how much spectrum may be available for you to access.

1.9 It is not permitted to use the 3.8-4.2 GHz band to provide wide area mobile broadband services; we have awarded national licences in the 3.4-3.8 GHz band for that purpose.

Status of this guidance

1.10 This guidance sets out the approach Ofcom generally takes when assessing and issuing Shared Access licences. However, we may consider exceptional applications on a case-by-case basis and we retain the discretion to adopt a different approach if it is appropriate to do so in the particular circumstances. We will also keep this general guidance under review and may amend it from time to time as appropriate.

1.11 This guidance is not legally binding. In the event of any inconsistency between this guidance and your licence, the terms of your licence will prevail. You should therefore read your licence carefully to familiarise yourself with its terms.

2. Introduction to the Shared Access licence

The Shared Access licence is part of a framework enabling shared use of spectrum

2.1 Our spectrum sharing framework is intended to provide a simple method for users to access spectrum in a number of frequency bands.

2.2 One of the aims of this framework is to make it easier for people and businesses to access spectrum which can be used to support a wide range of local wireless connectivity applications.

2.3 Our spectrum sharing framework enables access to a number of bands under a common process, as outlined below:

1. **You will apply to Ofcom** to get licences for the locations, bands and bandwidths that you need to provide a service.
2. **Ofcom will assess applications** to see if any interference would be caused to, or received from, other licensees in the band.
3. **Ofcom will grant individual licences** for the requested locations, bands and bandwidths on a first come, first served basis, provided that the application passes this coordination process.[6]
4. **You will pay licence fees to Ofcom**, which are due annually.

2.4 There may be some differences between conditions in the different bands. For example, each of the bands has different existing users and therefore our approach to assessing applications may look different from band to band because of different interference risks.

2.5 The Shared Access licence is currently available in:

i) the 1800 MHz shared spectrum (1781.7-1785 MHz paired with 1876.7-1880 MHz);
ii) the 2300 MHz shared spectrum (2320-2340 MHz and 2390-2400 MHz);
iii) 3.8-4.2 GHz; and
iv) the 26 GHz band (24.45-27.5 GHz).

2.6 These bands all support widely available conventional mobile technology, or are adjacent to other mobile bands where this is the case. This is good for users because lots of equipment is already available using these bands, which means this equipment is cheaper than using bespoke or proprietary technology.

2.7 In the future we may add more bands to this same framework if appropriate to do so.

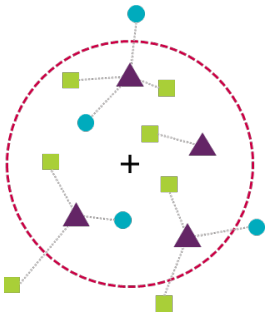
[6] If the application fails the coordination process, there is the option for the applicant to use our 'User-Led' coordination process to see if those licensees who our coordination tool suggests might be impacted would be willing to make a local agreement to accept this new neighbouring use. See Chapter 3 of our July 2024 statement for more details on this process.

There are two kinds of licence: low power and medium power

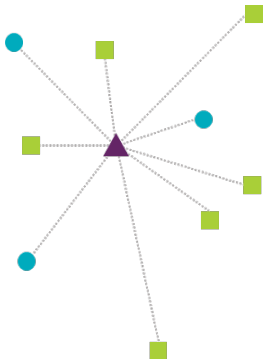
2.8 To provide options for new users, we offer two different versions of the Shared Access licence, which authorises uses in slightly different ways.

2.9 Figure 2 below shows how the two types of licence differ, with the low power licence authorising an area where the base stations could operate, and the medium power licence authorising each base station individually.

Figure 2: Low power (left) and medium power (right) Shared Access licences



Licence authorises all base stations within 50 metres of a given location (max EIRP 24 dBm), and any connected terminals.



Licence authorises a base station at a given location (max EIRP 42 dBm) and any connected terminals.

Legend

- Base station
- Fixed/installed terminal
- Mobile/nomadic terminal

Low power licence

2.10 We think the low power licence product could be suitable for industrial and enterprise users looking to deploy their own private networks. This could be to support voice and text applications or other wireless data applications around their sites; it could also potentially be used for indoor mobile coverage extension schemes, for example through a neutral host model.

2.11 The low power licence will authorise users to deploy as many base stations as they require within **a circular area with a radius of 50 metres**, centred on a grid coordinate provided to us when you apply for the licence. You then have the flexibility to move base stations around within the licensed area without requiring further coordination by Ofcom.

2.12 If you are looking for the flexibility to place base stations anywhere within a larger area, you can apply for multiple low power licences, which could be contiguous or spaced out over a larger area.

2.13 There is an indoor-only option available, as well as an indoor/outdoor option.

2.14 Base stations covered by the low power Shared Access licence can connect to fixed, nomadic or mobile terminals.

2.15 “Fixed terminals” are those which are at a fixed location and do not move; we refer to these as “fixed/installed terminals” in our Statements.[7] “Nomadic terminals” are terminals that

[7] Ofcom, Enabling Wireless Innovation via Local Licensing, July 2019

can move around, but typically only transmit when stationary. "Mobile terminals" can transmit and receive while moving.

Medium power licence

2.16 This licence could be suitable if you need a longer transmission range from your base station, but don't expect to need to change the locations of base stations once they're deployed. This could suit providers of Fixed Wireless Access (FWA) services in rural areas, along with industrial or enterprise users with sites spread over a larger area, such as ports, agriculture or forestry. It could also be suited to providing mobile coverage extension schemes in rural areas (for example in the 1800 MHz band).

2.17 The medium power licence authorises **a single base station**. The base station can connect to fixed, nomadic or mobile terminals.

Where Shared Access licences are not available

2.18 Although the Shared Access licence is available across the UK, there are some limits to this. The following section sets these out.

2.19 In the **2300 MHz shared spectrum band**,

i) licences are only available for indoor low power use.[8]
ii) 2320-2340 MHz is not available within the Salisbury Plain Training Area.[9]

2.20 In the **3.8-4.2 GHz band**, we are not currently accepting applications within 5km of the following MOD sites:

i) GCHQ Bude, Cornwall
ii) RAF Menwith Hill, North Yorkshire

2.21 In the **26 GHz band**,

i) we are not currently accepting applications within 1km of Harwell Earth Exploration Satellite Service earth station, Oxfordshire.
ii) Medium power is not available in High Density areas and low power is only available in 24.45-25.1 GHz in these areas.

2.22 There are some restrictions in the **Crown Dependencies**:

i) On the Isle of Man, neither the 1800 MHz nor 2300 MHz shared spectrum bands are available. Use of the other bands may be possible, but you will need to talk to the Isle of Man Communications and Utilities Regulatory Authority[10] as well as Ofcom.
ii) On the Channel Islands, the 1800 MHz shared spectrum is currently unavailable. Use of the other bands may be possible, but you will need to talk to the Guernsey

[8] Our continued work with MOD has confirmed that it is possible to make 2320-2340 MHz available only for indoor low power uses. As noted in 2019, we will need to gather more evidence before making 2390-2400 MHz available for outdoor low power and medium power uses.
[9] For the purposes of implementation in our licensing software, Salisbury Plain Training Area border has been simplified.
[10] Isle of Man Communications and Utilities Regulatory Authority

Competition and Regulatory Authority[11] or the Jersey Competition Regulatory Authority[12] as appropriate as well as Ofcom.

2.23 Additionally, while these are not restrictions, you should also be aware of the following:

i) **1800 MHz shared spectrum:** It's possible that you could experience periodic interference from MOD use of this band in some locations. This could happen near three specific sites: RAF Colerne in Wiltshire, RAF Oakhanger in Hampshire, and RAF Menwith Hill in North Yorkshire. We consider the risk of interference to be very low.

ii) **2300 MHz shared spectrum (in band):** You should be aware that this band is shared by amateur radio users. These uses are mainly temporary and we expect the risk of interference to be very low. However, it is possible that you could experience interference from amateur radio users, as Ofcom does not coordinate these. If you do receive interference to your licensed equipment, you can report this to Ofcom – although it should be noted that Ofcom cannot guarantee spectrum will always be free of interference.[13]

iii) **2300 MHz shared spectrum (adjacent band):** The 2400 MHz band, adjacent to the 2390-2400 MHz shared spectrum, contains a number of different services. These include Wi-Fi, Zigbee (used, for example, in smart meters and home automation) and Assistive Listening Devices (ALDs) devices, used in conjunction with hearing aids to help people with hearing impairments hear properly.

- In the 2300 MHz band, to avoid interference to Wi-Fi and Zigbee, it's probably best to make sure your Wi-Fi access point or smart meter is not located next to (i.e. within a few metres of) your 2300 MHz shared spectrum base station.
- Regarding ALDs, we'd advise prospective users of the 2300 MHz shared spectrum to consider very carefully if they intend to install a base station anywhere ALDs are likely to be used. In particular, we'd advise against using this band inside a school and recommend that you consider if any of the other shared access bands might suit your intended application instead. This is because younger school pupils who use hearing aids and ALDs are much less likely than adult users to understand why their devices are not working correctly, if, for example, their devices were receiving interference from mobile terminals or base stations in the 2300 MHz shared spectrum in the same location.

iv) **3.8-4.2 GHz band:** This spectrum should not be used to construct wide area mobile networks. Users looking to provide wide-area coverage should look for spectrum in other bands.

How to apply for a licence

2.24 To apply for a Shared Access licence, you'll need to fill in an application form. You'll be able to access the form on the Ofcom website. Prior to doing so, for applications in the 3.8-4.2 GHz band, you may wish to use our online spectrum map. It provides a preliminary

[11] Guernsey Competition and Regulatory Authority
[12] Jersey Competition and Regulatory Authority
[13] You can find more information on doing this on the Ofcom website: Complain about wireless interference - Ofcom

indication of the amount of spectrum, both total and contiguous, that may be accessible in a specific area.

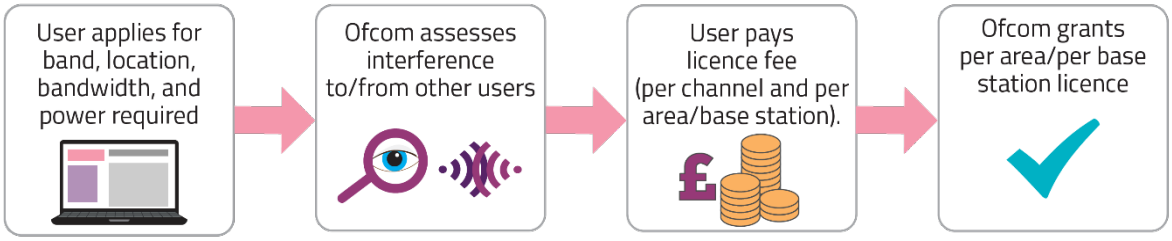
2.25 Once you've filled in the licence application form, email it to the Ofcom Licensing Team at spectrum.licensing@ofcom.org.uk.

2.26 Once you send in your completed application form, we'll carry out a technical assessment to make sure your new deployment wouldn't interfere with anyone else's equipment – and that their equipment won't interfere with your deployment. We'll notify you of the result of our assessment, and if your application is successful, we'll send out an invoice for payment.

2.27 Once payment is made your Licence will be issued and you will be able to transmit on the assigned frequency.

2.28 This process is summarised briefly in the graphic below.

Figure 3: Shared Access licence application process



Applications subject to procurement outcomes

2.29 We are aware that in some cases, a person (A) may wish to apply for a licence with the intention that another person (B) will ultimately use that licence.

2.30 This might occur where person A (for example a site owner tendering for a solution) wishes to ensure that there is spectrum available in their area, before person B is confirmed as their solution provider. In that scenario, we would encourage those involved to consider which party or parties is best placed to apply for a licence.

2.31 One option available today is that person A could apply for a licence, and at a later point consider surrendering the licence, shortly before person B submits an application for a licence at the same location, to ensure continuity. Alternatively, person A could retain their licence whilst person B applies for the same frequencies, and uses the User-Led coordination process to get their application approved, before person A surrenders their licence.

2.32 In the future, person A would be able to transfer the licence to person B directly through a spectrum trading mechanism.[14]

2.33 This will be possible after we make regulations allowing the trading of shared access licences, in line with the process set out in our spectrum trading guidance.[15] These regulations are currently going through a consultation process.

[14] Note that we are expecting to introduce trading regulations for this spectrum in the coming months. In the interim, where this situation occurs, we would recommend that the existing licensee and prospective new licensee liaise to ensure the existing licence is surrendered at the same time that a new licence application is submitted. Queries can be directed to spectrum.licensing@ofcom.org.uk

[15] See: Spectrum trades - Ofcom

2.34 In all circumstances, a licensee must commence regular transmissions within six months after the date on which their licence was issued. If they fail to do, Ofcom may revoke their licence.

The option of User-Led coordination (where your application fails our initial coordination assessment)

2.35 Where we inform you that your application has failed our coordination assessment, we are providing an option for you to override this assessment by obtaining informed consent from the relevant neighbouring users that they are content with the planned deployment. We call this process 'User-Led coordination'.

2.36 We will offer you this opportunity where an initial application fails technical coordination, and where you do not agree mitigations that our technical assignment tool suggests could be accommodated (e.g. alternative frequency, bandwidth or power). This opportunity is available for all users within the Shared Access bands, and could include agreements between 'Shared Access' users, as well as agreements between 'Shared Access' users and other band incumbents, for instance earth stations, fixed links and UK Broadband.

2.37 In these cases, we will provide you with details of the organisation, or organisations, which our technical tool forecasts could experience interference from, or cause interference to, your planned deployment.[16] It is your responsibility to clearly set out your plans to relevant local users, and secure their agreement. For the avoidance of doubt, those other local users are not under any obligation to agree to this arrangement, but if they do, it is their responsibility to satisfy themselves that they are prepared to accept any risk of interference posed by the arrangement. Ofcom cannot broker these agreements, and the application which was initially rejected cannot proceed without agreement from all relevant users. To simplify this process, and ensure clarity, we are providing a form that applicants must agree with the relevant users and then complete, as set out at Annex 1.

2.38 Any such agreement should be emailed to spectrum.licensing@ofcom.org,uk , quoting your reference number, within 21 days of Ofcom notifying you of the rejection of your initial application and you beginning the User-Led coordination process. Your email should include a completed User-Led coordination form and copy in named contacts for each of the relevant neighbouring licensees.[17]

2.39 Note that this option is only available for deployments which fall within the technical terms specified in our standard Shared Access licence templates (i.e. transmit powers and heights associated with our core products). This is because we need to be able to record the effects of this deployment on our system, to support coordination with other future applicants.

2.40 Our expectation is that, given the wider reforms that we have made to technical coordination in the 3.8-4.2 GHz, this mechanism will only be necessary in a small number of cases. We will monitor demand, the levels of resource required to administer the process

[16] If the only forecast interference is to you (the applicant), you may simply agree to accept this, with no further steps required.

[17] Please note that whilst Ofcom will place a marker against this spectrum in the location that you request, we would recommend agreements are returned as quickly as possible, as the spectrum available in this area could be impacted by requests from other users in the vicinity while you are negotiating your User Led agreement.

and user experience of this process as it is rolled out, with a view to any improvements or amendments that may be required in the future.

Commencing operations and frequency agility

2.41 You'll have to start transmitting within six months of being issued your licence, and continue to remain operational after this. This is to ensure that the spectrum is being used efficiently, and spectrum access is not restricted by users seeking licences well in advance of need. If you need to switch your equipment off from time to time (e.g. for maintenance) this is fine; this condition is about making sure that licensees who have not begun transmitting after six months, or who have stopped transmitting for good, aren't blocking access to spectrum for new users.

2.42 Your Shared Access licence will also allow Ofcom to request that you change frequency from time to time; we may do this for spectrum planning purposes, or if we need to deal with interference.

2.43 If we need to do this, we will email you the frequency you need to change to, and the time by which you will need to have changed frequency by. This means that you will have to deploy equipment that can be tuned across an entire band.

Forthcoming changes and potential future developments in 3.8-4.2 GHz

2.44 Licensees should be aware that, in the first half of 2025, coordination between Shared Access users in the 3.8-4.2 GHz band will begin to be undertaken on the basis of protecting terminals from other base stations (based on the assumption that users are synchronised).

2.45 If you wish deploy uplink heavy frame structures, you may do so but should take account in your network planning and design of other nearby users with more downlink heavy frame structures which could cause some degradation to uplink performance.

2.46 We also note that the CEPT has been studying proposals to adopt a harmonised approach to spectrum sharing in this band. CEPT's Electronic Communications Committee has recently confirmed this decision.[18] We will consider whether any changes may be needed to our rules, and to this guidance, as this process completes.

2.47 One of the issues that this CEPT work has explored is the role of Active Antenna Systems (AAS). Today, you can deploy AAS in the 3.8-4.2 GHz band provided you comply with the technical licence conditions set out in Tables 2 and 9 below. We will continue to monitor developments in AAS technology with a view to consulting on any changes to the technical licence conditions and coordination methodology for AAS, if appropriate, at a later date.

Future changes in the 40 GHz band

2.48 We are also in the process of extending access to Shared Access in the 40 GHz bands. In September 2023 we published our decision to make more spectrum available for Shared Access in this band from 2028.

[18] https://api.cept.org/documents/ecc/86138/ecc-24-078_minutes-of-65th-ecc-plenary-meeting

2.49 Shared Access licences authorising use of mmWave spectrum will be available in low density areas, where the 40 GHz (40.5-43.5) band will be available for low power and medium power use on a coordinated basis with existing users.

2.50 The technical conditions in these licences will be specific to mmWave spectrum. In particular, we have set a maximum transmission power limit of:

i) 36 dBm / 200 MHz TRP for medium power base stations; and
ii) 25 dBm / 200 MHz TRP for low power indoor and outdoor base stations, with an antenna height limit of 10m for outdoor low power base stations.

2.51 Channel sizes of 50 MHz, 100 MHz, 200 MHz, 400 MHz and 800 MHz will be available, with a licence fee of £80 per 100 MHz of spectrum, subject to a minimum licence fee of £80 for bandwidths of 100 MHz or less.

3. The low power Shared Access licence

3.1 Rather than authorising one specific base station, the low power licence authorises any number of base stations located in a circular area with a radius of 50 metres, centred on a grid coordinate provided to Ofcom by the user.

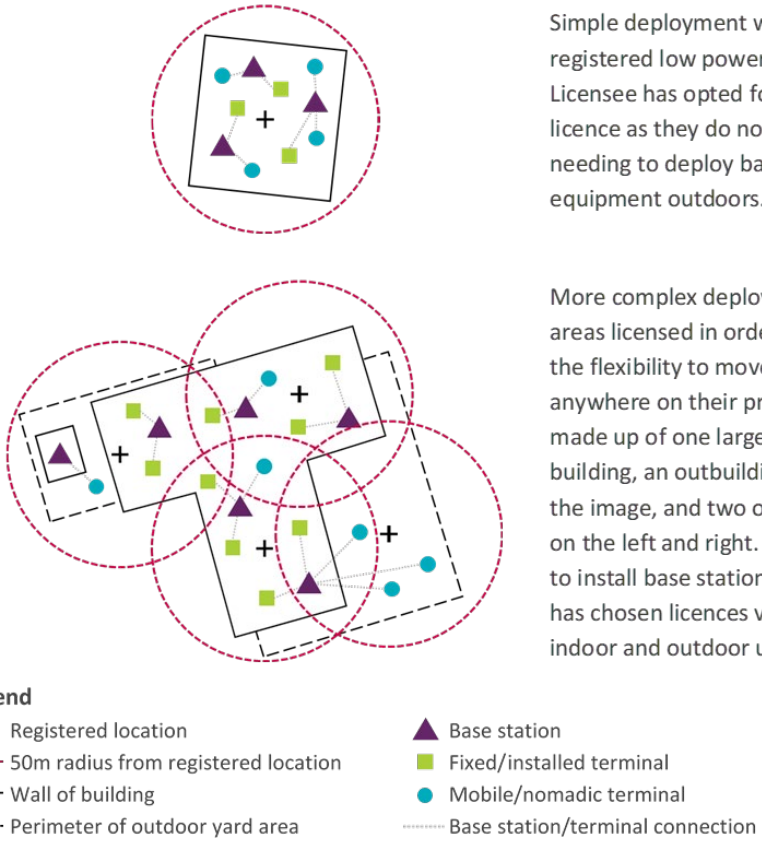
3.2 You can connect fixed, mobile or nomadic terminals to any base stations operating within the area covered by your licence, and these terminals will also be authorised by your licence.

3.3 Additionally, mobile and nomadic terminals connected to base stations using the 1800 and 2300 MHz shared spectrum will also be licence exempt.

3.4 You are free to deploy as many base stations as you like in the licensed area, and can move base stations around within this area without needing to inform Ofcom of such changes.

3.5 If you want to deploy base stations in a larger area, you can apply for multiple areas as part of the same licence application (which we would treat as multiple individual licence requests). It could be that you need these areas to be next to each other and overlapping, as shown in Figure 4, or spaced out around a larger site, like in Figure 5 further down.

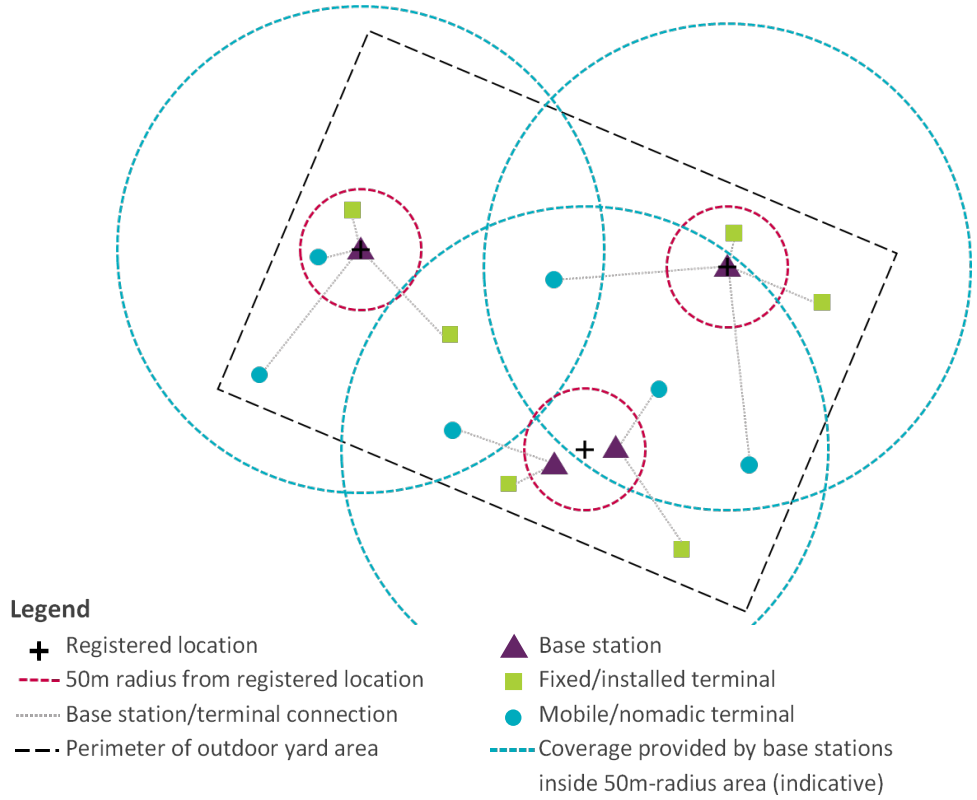
Figure 4: Examples of low power Shared Access licence use



3.6 Remember that you can only deploy **base stations** within the licensed 50 metre-radius areas, but **terminals** just need to be connected to a base station in a licensed area.

Terminals don't need to be situated inside a licensed area themselves. In practice the coverage provided by base stations is likely to be more than the 50 metre-radius circle we license especially when deployed outdoor. It will therefore be possible to connect devices across a larger site area without needing to obtain low power licences to cover the entire area, unless you want to have the flexibility to move your base stations anywhere within your coverage area. You can see an example of how this might work in Figure 5 below.

Figure 5: Example of terminal stations outside the areas licensed by the Shared Access low power licence, but connected to licensed base stations within these areas



3.7 You can apply for an indoor-only licence or one which allows both indoor and outdoor use. The exception to this rule is the 2300 MHz shared spectrum; currently the 2300 MHz band is only available for indoor-only licences.

3.8 In this context, "indoors" means inside premises which have a ceiling or a roof; and except for any doors, windows or passageways, are wholly enclosed.

3.9 If you have an indoor-only licence, it is not permitted to deploy base stations or fixed terminals outdoors; if you do, you'll be breaking your licence conditions. If you are looking to provide both indoor and outdoor coverage, you should apply for an indoor and outdoor licence.

3.10 If you have base stations outdoors, these can be a maximum of 10 metres above ground level. For indoor base stations, these can be at any height within your building.

3.11 The price of the licence will stay the same regardless of whether or not you opt for an indoor-only licence. However, we would encourage users who do not expect to deploy any equipment outdoors to apply for an indoor-only licence, as this is more likely to pass coordination and be approved than an application for both indoor and outdoor use. Conversely, if you do expect to deploy any equipment outdoors, you should not apply for an

indoor-only licence in order to pass coordination, as you will be restricted to indoor use only and will be breaking your licence conditions if you deploy outdoors.

Technical conditions

The following table contains the technical conditions for the low power Shared Access licence. You should consult the licence for the full technical conditions.

Table 1: Technical licence conditions for low power Shared Access licence

Condition	Parameters (by band)			
	1800 MHz shared spectrum	***2300 MHz shared spectrum***	***3.8-4.2 GHz***	***26 GHz band***
Permitted deployment	Indoor and outdoor Outdoor antennas limited to 10m height above ground	Limited to indoor only	Indoor and outdoor Outdoor antennas limited to 10m height above ground	Indoor and outdoor Outdoor antennas limited to 10m height above ground The main beam must point below the horizon No more than 3 outdoor bases stations in 24.45-25.05 GHz
Authorised bandwidth	2 x 3.3 MHz	10, 20 MHz[19]	10, 20, 30, 40, 50, 60, 80, 100 MHz	50, 100, 200, 400 MHz
Maximum base station power	24 dBm / carrier (up to 3 MHz)[20] (EIRP per cell)	24 dBm / carrier (up to 20 MHz) (EIRP per cell)	27 dBm / carrier for carriers ≤ 20 MHz; or 21 dBm / 5 MHz for carriers > 20 MHz (EIRP per cell)	25 dBm / 200 MHz (TRP)

[19] We expect 20 MHz channels (covering 2320-2340 MHz) will be available shortly, but this is not available at the time of publication.

[20] This power will only be available over 3 MHz of the 3.3 MHz bandwidth as existing power density requirements restrict the power in the first 200 kHz and last 100 kHz of the bandwidth

Condition	Parameters (by band)			
	1800 MHz shared spectrum	*2300 MHz shared spectrum*	*3.8-4.2 GHz*	*26 GHz band*
Maximum terminal station (TRP for mobile/nomadic; EIRP for fixed)[21]	23 dBm	25 dBm[22]	28 dBm[23]	23 dBm
Frame structure requirements	N/A	3:1 structure for all outdoor deployments in 2390-2400 MHz, excluding deployments in Northern Ireland	N/A (but see 3.19 below)	N/A

The tables on the following pages outline the out of channel and in band / out of band emissions limits for the four Shared Access bands. You need to ensure your equipment complies with these limits.

Table 2: 1800 MHz shared spectrum base station in band emission limits

Frequency offset from the lower frequency of the band edge	Maximum mean EIRP density
0 to 0.05 MHz	-33.6 + 153.3 x Δ_{FL}* dBm / kHz
0.05 to 0.1 MHz	-26 + 60 x (Δ_{FL}*- 0.05) dBm / kHz
0.1 to 0.2 MHz	-23 + 230 x (Δ_{FL}*- 0.1) dBm / kHz
0.2 to 3.2 MHz	24 dBm / carrier
3.2 to 3.3 MHz	-23 + 230 x (3.3 - Δ_{FL}*) dBm / kHz

* Note: Δ_{FL} in MHz is the offset from the lower edge of the permitted frequency band at 1876.7 MHz (it has values in the range 0 to +0.2 MHz and +3.2 to +3.3MHz)

[21] The maximum mean power relates to the EIRP of a specific piece of Radio Equipment irrespective of the number of transmit antennas.
[22] The authorisation will list this as 25 dBm **including** a 2 dB tolerance consistent with the European harmonisation.
[23] The authorisation will list this as 28 dBm **including** a 2 dB tolerance consistent with the European harmonisation.

Table 3: 1800 MHz shared spectrum base station out of band emission limits

Frequency offset from the lower frequency of the band edge	Maximum mean EIRP density
-6.2 to -3.2 MHz	-55 dBm / kHz
-3.2 to 0 MHz	-45 + 10 x (Δ_{FL}*+ 0.2)/3 dBm / kHz
Frequency offset from the upper frequency of the band edge	**Maximum mean EIRP density**
0 to 0.05 MHz	-23 - 60 x Δ_{FH}* dBm / kHz
0.05 to 0.1 MHz	-26 - 153.3 x (Δ_{FH}* - 0.05) dBm / kHz
0.1 to 2.8 MHz	-45 - 10 x (Δ_{FH}* + 0.2)/3 dBm / kHz
2.8 to 5.8 MHz	-55 dBm/ kHz

* Note: Δ_{FL} in MHz is the offset from the lower edge of the permitted frequency band at 1876.7 MHz (it has values in the range -3.2 to 0 MHz)

Δ_{FH} in MHz is the offset from the upper edge of the permitted frequency band at 1880 MHz (it has values in the range 0 to 2.8 MHz)

Table 4: 2300 MHz shared spectrum base station out of channel emission limits

Frequency offset	Maximum mean EIRP density
-5 to 0 MHz offset from lower channel edge 0 to 5 MHz offset from upper channel edge	(Pmax - 40) dBm / 5 MHz EIRP per antenna
-10 to -5 MHz offset from lower channel edge 5 to 10 MHz offset from upper channel edge	(Pmax - 43) dBm / 5 MHz EIRP per antenna
Out of block baseline power limit (BS) < -10 MHz offset from lower channel edge > 10 MHz offset from upper channel edge	(Pmax - 43) dBm / 5 MHz EIRP per antenna

Pmax is the maximum mean carrier power for the base station in question.

Table 5: 2300 MHz shared spectrum base station out of band emission limits

Frequency	Maximum mean EIRP density
2400 to 2403 MHz	(Pmax - 40) dBm / 5 MHz EIRP per antenna
Above 2403 MHz	-17 dBm / 5 MHz EIRP*

* The maximum mean power relates to the EIRP of a specific piece of Radio Equipment irrespective of the number of transmit antenna.

Pmax is the maximum mean carrier power for the base station in question.

Table 6: 3.8-4.2 GHz base station out of channel emission limits

Frequency offset	Maximum mean EIRP density
-5 to 0 MHz offset from lower channel edge 0 to 5 MHz offset from upper channel edge	(Pmax - 40) dBm / 5 MHz EIRP per antenna
-10 to -5 MHz offset from lower channel edge 5 to 10 MHz offset from upper channel edge	(Pmax - 43) dBm / 5 MHz EIRP per antenna
Out of block baseline power limit (BS) < -10 MHz offset from lower channel edge > 10 MHz offset from upper channel edge	(Pmax - 43) dBm / 5 MHz EIRP per antenna

Pmax is the maximum mean carrier power for the base station in question.

Table 7: 3.8-4.2 GHz base station out of band emission limits

Frequency	Maximum mean EIRP density
3795 MHz-3800 MHz 4200 MHz-4205 MHz	(Pmax - 40) dBm / 5 MHz EIRP per antenna
3760 MHz-3795 MHz 4205 MHz-4240 MHz	(Pmax - 43) dBm / 5 MHz EIRP per antenna
Below 3760 MHz Above 4240 MHz	-2 dBm / 5 MHz EIRP per antenna

Pmax is the maximum mean carrier power for the base station in question.

Table 8: 24.25-26.5 GHz base station and terminal station out of channel and out of band emission limits

Condition	Parameters
Maximum base station out of channel power (TRP)	Up to 50MHz below or above channel edge: 12dBm /50MHz Beyond 50MHz below or above channel edge: <4dBm /50MHz
Maximum terminal station power in the frequency range 23.6-24.0 GHz (TRP)	Initial limit before 1 January 2024: -29 dBW /200 MHz Final limit from 1 January 2024: -35 dBW /200 MHz

Synchronisation

3.12 Synchronisation is not mandated up front in the 1800 MHz shared spectrum; the 2300 MHz shared spectrum for indoor deployments; the 3.8-4.2 GHz band; and the 26 GHz band.

2300 MHz shared spectrum

3.13 Synchronisation is required in the 2390-2400 MHz portion of the 2300 MHz shared spectrum for any permitted outdoor deployments, excluding deployments in Northern Ireland. (We note that this is not permitted as standard today, but provide this detail here for users' information, should options be made available in future).

3.14 For these outdoor deployments, you will need to make sure your transmissions are synchronised with those of the adjacent user in the 2350-2390 MHz band (this is Telefónica). You will need to use the frame structure in the diagram below and Coordinated Universal Time (UTC) as the common reference time. A new frame should start at the start of the UTC 1 second boundary.

Figure 6: Frame structure for 2300 MHz shared spectrum[24]

DL/UL ratio	Subframe number									
	0	1	2	3	4	5	6	7	8	9
3:1	D	S	U	D	D	D	S	U	D	D

3.15 This frame structure means:

i) timeslots (or subframes) 0, 2 to 5 and 7 to 9 must be allocated to Downlink (D) or Uplink (U) transmissions as indicated or may be left with no transmissions;

ii) the licensee must ensure that the special subframe (S) in timeslots 1 and 6 has a structure that is compatible with TD-LTE special subframe configuration 6, also known as 9:3:2;

iii) all timeslots must be 1 millisecond in duration and the frame must start at a common reference time so that frames are aligned with Telefónica and transmissions synchronised; and

iv) TD-LTE frame configuration 2 (3:1) is compatible with this frame structure. Other technologies are permitted provided that the requirements are met.

3.16 If you have an indoor-only deployment, or a deployment in Northern Ireland, this does not normally have to be synchronised. However, there may be instances where, if users in this band are located very close to each other and are using overlapping or adjacent channels within the band, they may interfere with each other. If other users (including Telefónica in the 2350-2390 MHz band, Emergency Services Network in 2340-2345 MHz, as well as other users in the 2300 MHz shared spectrum) report that they are receiving interference, we may require you to transmit using a specified frame structure. If the interference is to Telefónica, then the frame structure specified will be that described above. There may be a different requirement for interference to other users.

3.17 If Telefónica requests a variation of its licence to change the way it transmits, and you are licensed for outdoor use in the 2390-2400 MHz, you will also need to have your licences varied and ensure that your transmissions still synchronise with Telefónica's. If this needs to happen, we will consult on this at the same time we consult on any proposed variation to Telefónica's licence, and licensees in the 2300 MHz shared spectrum will be notified so they can have their say.

[24] We refer to this as Frame Structure A in our 2019 Statement.

3.8-4.2 GHz

3.18 We're not planning on imposing a synchronisation requirement in the 3.8-4.2 GHz band.[25] However, we reserve the right to impose local level interference management measures (including requiring specific frame structures to be adopted where appropriate).

3.19 This means there's a small chance that if you operate in very close proximity to another licensee using overlapping or adjacent channels within the band, you may interfere with each other. In these situations, we'd encourage both parties to work together and reach a mutual agreement on how to avoid this. Measures to avoid interference might include users synchronising their transmissions.

3.20 If the licensees can't come to a mutual agreement to avoid interference within a reasonable time, say, within a few months, we may require the licensees to adopt a synchronisation regime which we consider to be appropriate in the circumstances. The factors that we may take into account when deciding an appropriate synchronisation regime may include which user deployed first in an area, and the size/extent of networks that have been deployed – though we may also consider other factors depending on the circumstances of each case.

3.21 There's also a chance that if you use spectrum at the lower end of the band, you could possibly experience interference from users in the adjacent 3.6-3.8 GHz band. If you do have a problem with this, you may want to consider adopting the synchronisation requirement which we have outlined for users of the 3.6-3.8 GHz band.[26] You could also consider other methods of protecting yourself from interference, such as screening your site from unwanted transmissions.

3.22 Since it's possible that you might have to synchronise with other users, or adopt a different synchronisation regime in the future, we would recommend that you bear this in mind when procuring your radio equipment.

[25] Note we are assuming that users are synchronised for coordination purposes as outlined in our July 2024 statement.

[26] This is outlined in paragraphs 11.32-11.36 of the consultation on the award of the 700 MHz and 3.6-3.8 GHz spectrum (https://www.ofcom.org.uk/__data/assets/pdf_file/0019/130726/Award-of-the-700-MHz-and-3.6-3.8-GHz-spectrum-bands.pdf) and in conditions 12 and 13 of the draft 3.6-3.8 GHz licences (https://www.ofcom.org.uk/__data/assets/pdf_file/0014/130730/Annexes-19-26-licences-and-licence-procedures.pdf)

4. The medium power Shared Access licence

4.1 The medium power licence will authorise a single base station and any connected terminal stations. Additionally, mobile terminal stations in the 1800 MHz will be licence exempt. The same applies to terminals in 2300 MHz shared spectrum if this medium power use becomes applicable.

4.2 The medium power licence is available for in 1800 MHz, 3.8-4.2 GHz and low density areas of the 26 GHz band, but it's not available in the 2300 MHz Shared Spectrum band (reflecting the need to protect certain MOD systems).

4.3 We think that this licence could be suitable for users who need a longer transmission range from their base station, but don't expect to need to change the locations of base stations once they're deployed. This could suit providers of Fixed Wireless Access (FWA) services in rural areas, along with industrial or enterprise users with sites spread over a larger area, such as ports, agriculture or forestry. It could also be suited to providing mobile coverage extension schemes in rural areas (for example in the 1800 MHz band).

4.4 Users will not be permitted to deploy wide area networks in the 3.8-4.2 GHz band; this includes national or regional mobile networks.

Availability in urban areas

4.5 In our 2019 Shared Access statement, we said that Medium Power in urban areas would only be accessible via an 'Exceptions' process (for a definition of urban areas, please see paragraph 4.16). We expected that, if we allowed medium power users to deploy in urban areas, the resulting sterilisation area could risk other users suffering from limited or no availability of spectrum.

4.6 In our December 2024 statement, we confirmed that we are altering our exceptions framework, following improvements we confirmed for our coordination methodology. We said that Medium Power will now be available as standard in urban areas (up to an antenna height of 10m, and where the application passes coordination), save for Greater London, where exceptions are still required. Applications for antenna heights above 10m in urban areas or (in the case of 1800 MHz applications above 10m in rural areas) would still be considered as exceptions.

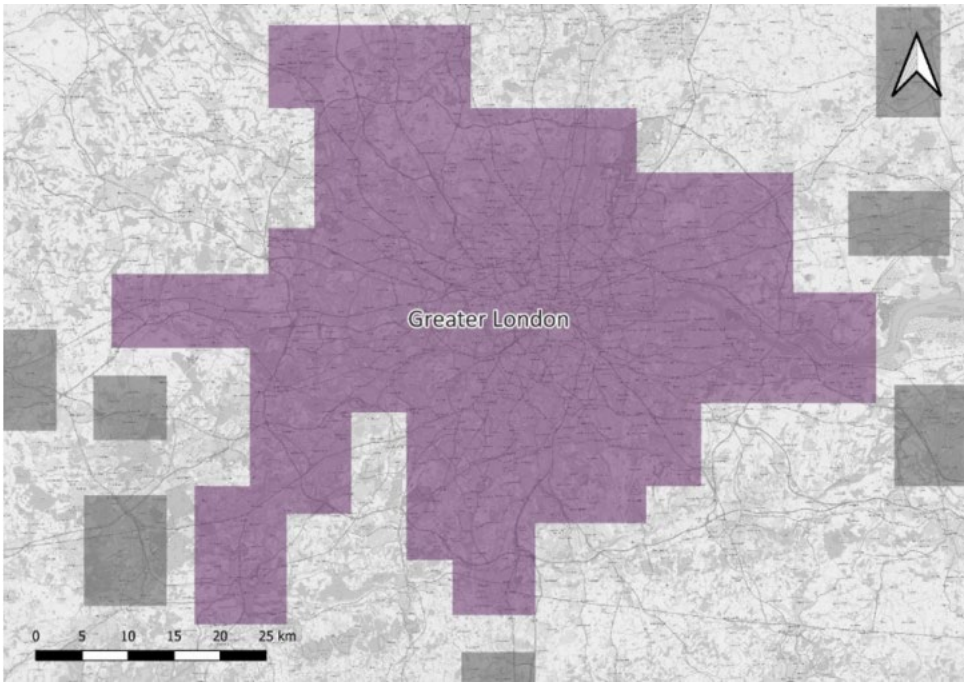
4.7 Therefore, we will only consider exceptions requests in the following circumstances:

a) If a user wishes to use Medium Power in 1800 MHz or 3.8-4.2 GHz at any antenna height in the Greater London area;
b) If a user wishes to deploy Medium Power with an antenna exceeding 10m in:

i) an urban area in the 3.8-4.2 GHz band; or
ii) in an urban or rural area in the 1800 MHz band.

4.8 Figure 7 shows our definition of the Greater London area. For a more detailed definition, please see our website.

Figure 7: Greater London Area



4.9 When assessing whether to allow a medium power licence application in Greater London (or other urban areas where the antenna height is above 10m) we will apply a 'premises sterilisation' test.

4.10 For this test, we will assess if the number of premises denied by the proposed deployment (according to our coordination rules and software) is less than number of premises set out below. If so, we will grant the exception request.

Spectrum Band	Premises sterilised
1800 MHz	57,000
3.8 – 4.2 GHz	44,200

3.8-4.2 GHz band 100 MHz spectrum limit in urban areas

4.11 Although the maximum bandwidth available under a Shared Access licence in the 3.8-4.2 GHz band is 100 MHz, it has previously been feasible for a user to seek to acquire more than 100 MHz in one location by acquiring multiple licences in close proximity. In the case of Medium Power in urban areas, we did not want to risk a single user in a particular location exhausting the spectrum supply and so foreclosing the issues for other users.

4.12 Therefore, we will be applying a 100 MHz limit to the amount of spectrum that can be used by any one user within 500m of an urban Medium Power base station that they already hold a licence for.

4.13 This restriction applies where:

i) the licensee is granted a Medium Power licence in the 3.8-4.2 GHz band;

ii) the same licensee holds another 3.8-4.2 GHz Medium Power licence(s) in an urban area within 500m of the base station(s) authorised by their existing licence;
iii) the same licensee also holds another 3.8-4.2 GHz Medium Power licence(s);
iv) that other licence(s) authorises a base station(s) that is located in an urban area and is within 500m of the base station authorised by the first-mentioned licence;
v) the frequencies authorised by the licences, taken together, exceed 100 MHz of the 3.8-4.2 GHz band;

4.14 Where the restriction applies, the licensee would not be able to use the base station authorised by the licence.

4.15 An "Urban Area" means an area which is not:

i) A location in England or Wales in an ONS 2011 Census Output Area which falls into categories D1, D2, E1, E2, F1 or F2 (i.e. "town and fringe", "villages" and "hamlets and isolated dwellings"); [27]
ii) Any location in Scotland which falls into categories 3-8 based on the Scottish Government's 8-fold Urban Rural Classification;[28]
iii) any location in Northern Ireland which falls into bands E-H of the Northern Ireland Statistics and Research Agency's settlement classification bands; or[29]
iv) any location in the UK's territorial seas.

4.16 We intend to carry out periodic audits to identify circumstances in which this restriction is engaged.

4.17 In the event that we find that this restriction has been breached, there will be an opportunity for the licensee to request to vary one of more its licences so that they are no longer be in breach. We could also exercise our power under the licence to require the licensee to change its frequency within a timescale that we specify, or consider exercising our power under the licence to revoke one or more of the licensee's licences.[30]

Using the licence at sea

4.18 Any locations which are at sea and fall inside the limits of the UK's territorial seas will also be treated as a rural area.

4.19 For any location further out to sea than this, you should consider a different licence product, such as a Spectrum Access Offshore licence. Any equipment installed on a ship may also have to be recorded on a separate Ship Radio licence. You can find more information about these on the Ofcom website.[31]

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[27] Office of National Statistics, "2011 Rural/Urban Classification", https://www.ons.gov.uk/methodology/geography/geographicalproducts/ruralurbanclassifications/2011ruralurbanclassification

[28] Scottish Government, "Scottish Government Urban Rural Classification", https://www.gov.scot/Topics/Statistics/About/Methodology/UrbanRuralClassification

[29] Northern Ireland Statistics and Research Agency, "Urban-Rural Classification", https://www.nisra.gov.uk/support/geography/urban-rural-classification

[30] In considering this we would have regard to our policy position that a single licensee holding rights to more than 100 MHz of the 3.8-4.2 MHz band under Medium Power licences in a single urban location may limit access for others and risk exhausting spectrum supply.

[31] Ofcom, Manage your Licence.

Technical conditions

4.20 Table 9 below outlines the technical licence conditions for the medium power Shared Access licence. You should consult the licence for the full technical conditions.[32]

Table 9: Technical licence conditions for the medium power Shared Access licence (greyed out parameters are not available at time of publication).

Condition	Parameters by band			
	1800 MHz shared spectrum	*2300 MHz shared spectrum*	*3.8-4.2 GHz*	26 GHz
Permitted deployment	All locations in the UK aside from Greater London available via a standard application process. Greater London available via exceptions process only. Antenna heights exceeding 10m available via exceptions process only.	*Unavailable at the time of publication*	All locations in the UK aside from Greater London available via a standard application process. Greater London available via exceptions process. Antenna heights exceeding 10m available in urban areas via exceptions process only.	All areas outside of those identified as a High Density area in the UK. (AAS) outdoor base stations when transmitting each antenna shall normally transmit only with main beam pointing below the horizon.
Authorised bandwidth	2 x 3.3 MHz	10 MHz	10, 20, 30, 40, 50, 60, 80, 100 MHz	50, 100, 200, 400 MHz
Maximum base station power (EIRP per cell)	42 dBm / carrier (up to 3 MHz)[33]	42 dBm / carrier (up to 10 MHz)	42 dBm / carrier for carriers ≤20 MHz; or 36 dBm/5 MHz for carriers > 20 MHz	36 dBm/200 MHz

[32] Ofcom, *Enabling wireless innovation through local licences: Annexes 6-10,* 25 July 2019,

[33] This power will only be available over 3 MHz of the 3.3 MHz bandwidth as existing power density requirements restrict the power in the first 200 kHz and last 100 kHz of the bandwidth.

Condition	Parameters by band			
	1800 MHz shared spectrum	*2300 MHz shared spectrum*	*3.8-4.2 GHz*	26 GHz
Maximum terminal station (TRP for mobile/ nomadic or EIRP for fixed/ installed)[34]	23 dBm	25 dBm[35]	28 dBm[36] TRP 35 dBm / 5 MHz EIRP[37]	23 dBm TRP
Frame structure requirements	Not applicable	3:1 structure for all deployments, excluding deployments in Northern Ireland	Not applicable (but see notes below)	Not applicable

26 GHz transmitter elevation restriction

4.21 To ensure coexistence with space station receivers, a condition of the licence is that when deploying Active Antenna System (AAS) outdoor base stations, licensees transmitting in 24.45-27.5 GHz, shall ensure that each antenna is normally transmitting only with main beam pointing below the horizon and in addition the antenna shall have mechanical pointing below the horizon except when the base station is only receiving.

Emission Limits

4.22 The following tables outline the out of channel and in band/ out of band emissions limits for the three bands available under the medium power Shared Access licence.

[34] The maximum mean power relates to the EIRP of a specific piece of Radio Equipment irrespective of the number of transmit antennas.
[35] The authorisation will list this as 25 dBm **including** a 2 dB tolerance consistent with the European harmonisation.
[36] The authorisation will list this as 28 dBm **including** a 2 dB tolerance consistent with the European harmonisation.
[37] For fixed terminals only.

Table 10: 1800 MHz shared spectrum base station in band emission limits

Frequency offset from the lower frequency of the band edge	Maximum mean EIRP density
0 to 0.05 MHz	-33.6 + 153.3 x Δ_{FL}* dBm / kHz
0.05 to 0.1 MHz	-26 + 60 x (Δ_{FL}*- 0.05) dBm / kHz
0.1 to 0.2 MHz	-23 + 300 x (Δ_{FL}*- 0.1) dBm / kHz
0.2 to 3.2 MHz	42 dBm / carrier
3.2 to 3.3 MHz	-23 + 300 x (3.3 - Δ_{FL}*) dBm / kHz

* Note: Δ_{FL} in MHz is the offset from the lower edge of the permitted frequency band at 1876.7 MHz (it has values in the range 0 to +0.2 MHz and +3.2 to +3.3MHz)

Table 11: 1800 MHz shared spectrum base station out of band emission limits

Frequency offset from the lower frequency of the band edge	Maximum mean EIRP density
-6.2 to -3.2 MHz	-55 dBm / kHz
-3.2 to 0 MHz	-45 + 10 x (Δ_{FL}*+ 0.2)/3 dBm / kHz
Frequency offset from the upper frequency of the band edge	**Maximum mean EIRP density**
0 to 0.05 MHz	-23 - 60 x Δ_{FH}* dBm / kHz
0.05 to 0.1 MHz	-26 - 153.3 x (Δ_{FH}* - 0.05) dBm / kHz
0.1 to 2.8 MHz	-45 - 10 x (Δ_{FH}* + 0.2)/3 dBm / kHz
2.8 to 5.8 MHz	-55 dBm / kHz

* Note: Δ_{FL} in MHz is the offset from the lower edge of the permitted frequency band at 1876.7 MHz (it has values in the range -3.2 to 0 MHz)

Δ_{FH} in MHz is the offset from the upper edge of the permitted frequency band at 1880 MHz (it has values in the range 0 to 2.8 MHz)

Table 12: 2300 MHz shared spectrum base station out of band emission limits[38]

Frequency	Maximum mean EIRP density
-5 to 0 MHz offset from lower Permitted Channel edge 0 to 5 MHz offset from upper Permitted Channel edge	(Pmax - 40) dBm / 5 MHz EIRP per antenna
-10 to -5 MHz offset from lower Permitted Channel edge 5 to 10 MHz offset from upper Permitted Channel edge	(Pmax - 43) dBm / 5 MHz EIRP per antenna
< -10 MHz offset from lower Permitted Channel edge > 10 MHz offset from upper Permitted Channel edge	(Pmax - 41) dBm / 5 MHz EIRP*

* The maximum mean power relates to the EIRP of a specific piece of Radio Equipment irrespective of the number of transmit antenna.

Pmax is the maximum mean carrier power for the base station in question.

Table 13: 3.8-4.2 GHz base station out of channel emission limits

Frequency offset	Maximum mean EIRP density
-5 to 0 MHz offset from lower channel edge 0 to 5 MHz offset from upper channel edge	(Pmax - 40) dBm / 5 MHz EIRP per antenna
-10 to -5 MHz offset from lower channel edge 5 to 10 MHz offset from upper channel edge	(Pmax - 43) dBm / 5 MHz EIRP per antenna
Out of channel baseline power limit (BS) < -10 MHz offset from lower channel edge > 10 MHz offset from upper channel edge	(Pmax - 43) dBm / 5 MHz EIRP per antenna

Pmax is the maximum mean carrier power for the base station in question.

[38] Please note that we are not currently authorising medium power in the 2300MHz band at time of publication.

Table 14: 3.8-4.2 GHz base station out of band emission limits

Frequency	Maximum mean EIRP density
3795 MHz-3800 MHz 4200 MHz-4205 MHz	(Pmax - 40) dBm / 5 MHz EIRP per antenna
3760 MHz-3795 MHz 4205 MHz-4240 MHz	(Pmax - 43) dBm / 5 MHz EIRP per antenna
Below 3760 MHz	-2 dBm / 5 MHz
Above 4240 MHz	EIRP per antenna

Pmax is the maximum mean carrier power for the base station in question.

Table 15: 26 GHz base station out of channel emission limits

Frequency offset	Maximum mean EIRP density
0 to 50 MHz below or above an assigned Permitted Channel	12 dBm/50 MHz
Within 24.25-27.5 GHz	4 dBm/50 MHz
Within 23.6-24.0 GHz	-39 dBW/200 MHz (Base station) -35 dBW/200 MHz (Terminal station)

Synchronisation

4.23 Synchronisation is not generally required in the 1800 MHz shared spectrum, the 3.8-4.2 GHz and the 26 GHz band.

4.24 Synchronisation is required in the 2390-2400 MHz shared spectrum. There may be some circumstances where it is required in the 3.8-4.2 GHz band.

2300 MHz shared spectrum

4.25 Synchronisation is required in the 2390-2400 MHz shared spectrum for any permitted deployments, excluding deployments in Northern Ireland. For these deployments, you will need to make sure your transmissions are synchronised with those of the adjacent user in the 2350-2390 MHz band (this is Telefónica). You will need to use the frame structure in the diagram below and Coordinated Universal Time (UTC) as the common reference time. A new frame should start at the start of the UTC 1 second boundary.

Figure 7: Frame structure for 2300 MHz shared spectrum[39]

DL/UL ratio	Subframe number									
	0	1	2	3	4	5	6	7	8	9
3:1	D	S	U	D	D	D	S	U	D	D

[39] We refer to this as Frame Structure A in our 2019 Statement.

4.26 This frame structure means:

i) timeslots (or subframes) 0, 2 to 5 and 7 to 9 must be allocated to Downlink (D) or Uplink (U) transmissions as indicated or may be left with no transmissions;

ii) the licensee must ensure that the special subframe (S) in timeslots 1 and 6 has a structure that is compatible with TD-LTE special subframe configuration 6, also known as 9:3:2;

iii) all timeslots must be 1 millisecond in duration and the frame must start at a common reference time so that frames are aligned with Telefónica and transmissions synchronised; and

iv) TD-LTE frame configuration 2 (3:1) is compatible with this frame structure. Other technologies are permitted provided that the requirements are met.

4.27 If you have a deployment in Northern Ireland, this does not normally have to be synchronised. However, there may be instances where, if users in this band are located very close to each other and are using adjacent channels within the band, they may interfere with each other. If other users (including Telefónica in the 2350-2390 MHz band, Emergency Services Network in 2340-2345 MHz, as well as other users in the 2300 MHz shared spectrum) report that they are receiving interference, we may require you to transmit using a specified frame structure.

4.28 If Telefónica requests a variation of its licence to change the way it transmits, you will also need to have your licences varied and ensure that your transmissions still synchronise with Telefónica's. If this needs to happen, we will consult on this at the same time we consult on any proposed variation to Telefónica's licence, and licensees in the 2300 MHz shared spectrum will be notified so they can have their say.

3.8-4.2 GHz

4.29 We do not impose a synchronisation requirement in the 3.8-4.2 GHz band. However, we reserve the right to impose local level interference management measures (including requiring specific frame structures to be adopted where appropriate).

4.30 This means there's a small chance that if licensees in this band operating near each other happen to be using overlapping or adjacent channels within the band, they may interfere with each other, particularly if deploying antenna heights significantly above the surrounding clutter. In these situations, we'd encourage both parties to work together and reach a mutual agreement on how to avoid this. Measures to avoid interference might include users synchronising their transmissions.

4.31 If the licensees can't come to a mutual agreement to avoid interference within a reasonable time, say, within a few months, we may require the licensees to adopt a synchronisation regime which we consider to be appropriate in the circumstances. The factors that we may take into account when deciding an appropriate synchronisation regime will include which user(s) deployed first in an area (including whether some users deployed prior to our new coordination approach in July 2024), and the size/extent of networks that have been deployed – though we may also consider other factors depending on the circumstances of each case. We would also consider whether more downlink heavy users should move to a more balanced uplink/downlink transmission structure.

4.32 There's also a chance that if you use spectrum at the lower end of the band, you could possibly experience interference from users in the adjacent 3.6-3.8 GHz band. If you do

have a problem with this, you may want to consider adopting the synchronisation requirement which we have outlined for users of the 3.6-3.8 GHz band. You could also consider other methods of protecting yourself from interference, such as screening your site from unwanted transmissions.

4.33 Since it's possible that you might have to align your uplink and downlink transmissions with other users, or adopt a different synchronisation regime in the future, we would recommend that you bear this in mind when procuring your radio equipment.

5. Licence fees and non-technical licence conditions

Licence fees

5.1 We've set the fees for the Shared Access licence to be cost-based; this means the amount we charge has been calculated to make sure Ofcom recovers the costs of administering the licence.

5.2 The fees below are all applicable per licence – this means you'll pay for each low power area you have a licence for, and each medium power base station you have a licence for. The fees are payable annually.

5.3 When we introduced these licences, we committed to keeping fees under review as we gathered more evidence on the use of these licences. We noted we would consult on proposals to change fees if we believed there was evidence to do so.

5.4 In December 2024, we confirmed that the existing fees will double for medium power use in urban areas in the future (this applies to the 1800 MHz and 3.8-4.2 GHz bands and remains subject to consultation on our fees regulations). The new urban medium power fee framework is set out below. Licences in rural areas and low power licences in urban areas will remain at our current rate.

5.5 We currently define "rural areas" as:

i) any location in England or Wales in an ONS 2011 Census Output Area which falls into categories D1, D2, E1, E2, F1 or F2 (i.e. "town and fringe", "villages" and "hamlets and isolated dwellings");[40]

ii) any location in Scotland which falls into categories 3-8 based on the Scottish Government's 8-fold Urban Rural Classification;[41] and

iii) any location in Northern Ireland which falls into bands E-H of the Northern Ireland Statistics and Research Agency's settlement classification bands.[42]

iv) Any location in the UK's territorial seas.

5.6 If you are unsure if your prospective deployment location falls into one of these categories, our spectrum availability map enables applicants to check whether a location is urban or rural.

5.7 To implement this fee change, we will need to make changes in our licensing system and consult on fee regulations and, consequently, we will not immediately begin charging the revised price from December 2024 for current users or new applicants.

5.8 However, applicants should remain mindful of this planned fee increase when deciding what products (and bandwidth) to opt for.

[40] Office of National Statistics, "2011 Rural/Urban Classification",
[41] Scottish Government, "Scottish Government Urban Rural Classification"
[42] Northern Ireland Statistics and Research Agency, "Urban-Rural Classification",

5.9 We will publish any update on the timeframe for introducing this new fee on our website here.

5.10 We will also update this guidance to reflect the new pricing for Urban Medium power licences.

1800 MHz and 2300 MHz shared spectrum, and 3.8-4.2 GHz band

5.11 For the lower three shared access bands, we are charging fees based on the bandwidth used. These licence fees for the lower three shared access bands are shown in Table 15 below.

Table 16: Current and future licence fees by bandwidth for the Shared Access licence

Channel size	Current price per annum	Future price for urban Medium Power per annum (3.8-4.2 GHz and 1800 MHz only)
2 x 3.3 MHz	£80	£160
10 MHz	£80	£160
20 MHz	£160	£320
30 MHz	£240	£480
40 MHz	£320	£640
50 MHz	£400	£800
60 MHz	£480	£960
80 MHz	£640	£1280
100 MHz	£800	£ 1600

26 GHz band

5.12 For the 26 GHz band, the fees are set out in Table 17.

Table 17: Licence fees by bandwidth for the Shared Access licence in 26 GHz

Channel size	Future price per annum
≤ 100 MHz	£80
200 MHz	£160
400 MHz	£320
800 MHz	£640

Non-technical licence conditions

5.13 Below is an overview of the main non-technical licence terms and conditions which are common to both the low power and medium power Shared Access licences.

5.14 It is your responsibility to ensure that you understand and can meet the licence obligations, and you should look at the example licences we have included in our 2024 Statement to see these and the other conditions in full.[43]

Licence duration and revocation

Duration

5.15 The Shared Access licence is indefinite; as long as you pay your licence fees each year and don't break any of the licence terms and conditions, you can keep it for as long as you like.

5.16 If, however, you would like a licence of less than one year, we can issue a short-term licence. This would mean you would not have to pay the full annual licence fee as we would charge you pro rata per month, based on how long you wanted the licence for. There is a minimum licence fee of £32 per licence if you do this, however, as we have to recover the cost to Ofcom of issuing and administering the licence.

Revocation, including for non-use

5.17 You should also be aware of the requirement in the licence to continue transmitting, which is in clause 6 of the Shared Access licence. This clause means that if you don't start transmitting within six months of getting your licence and remain operational after this, we can revoke your licence with one month's notice. We're including this condition so that new users aren't prevented from deploying their equipment by existing users who are no longer operational but have not surrendered their licences, or by users who acquired more spectrum than they needed in order to make it harder for other companies to compete.

5.18 We can also revoke your licence for spectrum management reasons. We normally only do this if we intend to change the way the band is used, and we currently do not have any plans to do this. Should we consider repurposing the band for alternative use, we will give a reasonable notice period. This will be longer than one month and would not occur without us first conducting a formal consultation, of which current users would be notified. The

[43] Ofcom, *Enabling wireless innovation through local licences: Annexes 6-10*, 25 July 2019, *Enhancing the Shared Access Framework: Annex 2*, 2 December 2024.

timing of any such process would be informed by an assessment of the impact of our decision.

5.19 Finally, if you break the terms of your licence, or if you're causing interference to other users and don't cooperate with us to stop the interference, we can also revoke your licence because of this. Again, you would be given one month's notice for this.

Keeping records and providing information to Ofcom

5.20 As part of Ofcom's duty to manage spectrum efficiently, our standard licence terms and conditions include a provision which says that licensees are required to provide information to us if we request it. The Shared Access licence includes this condition, and you'll therefore need to keep records of your deployments in case we ask you for them.

i) If you have a **low power licence** you'll need to keep a record of the address, antenna type and antenna height above ground for all base stations.
ii) If you're using **fixed terminals**, with either the low or medium power licence, you'll need to keep a record of the location (using the National Grid Reference system to 1m resolution), antenna type and antenna height above ground.
iii) *If you're using **mobile terminals in the 3.8-4.2 GHz band:***

- with the **medium power licence**, you'll need to keep a record of the number of terminals **regardless of whether they're connected to an indoor or outdoor base station**, and the address of the site or building where the terminals will be operating.

5.21 This is to make sure that mobile terminals are only used within the user's site, and are not used for regional or nationwide public mobile network, as the Shared Access licence is not intended for this. This requirement applies to the 3.8-4.2 GHz Shared Access band only, and only for medium power licences.[44]

5.22 Recording this information is important because if somebody has a problem with interference, it will help us narrow down the source if we need to investigate it.

5.23 Any commercially sensitive information which you give to us is subject to a number of different legal provisions which govern how we keep and use it. These provisions include the Wireless Telegraphy Act 2006, the Communications Act 2003, the Data Protection Act 2018, the Freedom of Information Act 2000 and the Environmental Information Regulations 2004.

Accessing, modifying and shutting down your equipment if something goes wrong

5.24 The Shared Access licence includes terms that allow Ofcom to instruct you to provide access to, modify or shut down your equipment – but we will only do this if there is a problem of some sort that we consider requires such action.

5.25 For example, we may need to do this in an emergency where we need to deploy some sort of equipment for public safety and your equipment could interfere with this.

5.26 Another example might be if your equipment is causing interference to another user. We might request that you modify your equipment parameters and change the way it transmits so that both you and the other user can transmit without interference. For instance, if we

[44] For the avoidance of doubt, we confirm that the TRR will not be included in all new Low Power licences (and may be removed from existing licences where a variation is requested) regardless of use case.

were to require users to synchronise their transmissions (we talk about this at the ends of Section 2 and 3), this provision allows us to do that.[45]

Changing frequency if we ask you to do so

5.27 In Section 2, we outlined that your Shared Access licence will also allow Ofcom to request that you change frequency from time to time. We may do this because we want to accommodate new users in the same area or on the same frequency, or if we need to deal with interference.

5.28 If we need to do this, we will email you the frequency you need to change to, and the time by which you will need to have changed frequency by. This means that you will have to deploy equipment that can be tuned across an entire band.

[45] See clause 18 in the low and medium power Shared Access licence, Ofcom, Enabling Opportunities for Innovation, 2019

6.Mobile Network Codes and telephone numbers

Introduction

6.1 For some mobile technologies to work, they may require the mobile network to be identified by a Mobile Network Code (MNC) and may require the use of telephone numbers.

6.2 It is Ofcom's duty to administer the UK's National Telephone Numbering Plan, including MNCs and telephone numbers. Allocations of numbers to communications providers for public network use is carried out via Ofcom's Number Management System (NMS).[46] Our policy is not to allocate an exclusive MNC or telephone numbers for use in private networks.

MNCs

6.3 For private networks needing to input an MNC, the International Telecommunications Union (ITU) has made available the Mobile Country Code (MCC) 999 for internal use within a private network.[47] Users are able to select any two- or three-digit code for their network. No interaction with ITU or Ofcom is required for using an MNC under this MCC for internal use within a private network. However, please note that as they are not subject to assignment, they are not unique.

6.4 Licensees wishing to deploy a public network and in need of an MNC should apply for allocation via NMS. Any questions may be directed to Ofcom's Numbering Team directly by emailing numbering@ofcom.org.uk.

Telephone numbers

6.5 Ofcom's NMS allows communications providers to apply for the allocation of numbers and to manage their existing resource. Communications providers are required to provide certain information when applying for numbers. Ofcom will only allocate numbers to communications providers and only for use in public networks.

6.6 For those companies wanting to provide telephony services using VoIP and/or WiFi, and for interconnection with other networks, various number ranges are available. We encourage providers to consider the number types available for allocation, including, for example, 056 Location Independent ECS numbers. We also allocate National Signalling Point Codes (NSPCs), if required. Further information is available on Ofcom's website.[48]

[46] https://ofcom.force.com/NMS_LoginPage
[47] ITU, Appendix III ITU-T E.212,
[48] https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/numbering

7. Contact details

Enquiries to **Spectrum Licensing Team**

Email: spectrum.licensing@ofcom.org.uk

Tel: 0300 123 1000 or 020 7981 3131

Website: Ofcom | Spectrum

Address: Spectrum Licensing, Ofcom, PO Box 1285, Warrington, WA1 9GL

8.Document history

This is a live document, and we may change it from time to time to update it with new information. Any changes that have been made on the document history is outlined at the table below.

Version	Date	Changes
1.0	July 2019	First published
1.1	September 2022	Revision of 26 GHz out of band limits and some editorial updates.
1.2	July 2024	Updates to reflect July 2024 statement decisions including introduction of user led coordination
1.3	September 2024	Minor revisions, including correcting table numbers
1.4	December 2024	Updated to reflect December 2024 statement positions
1.5	January 2025	Updated to reflect the inclusion of the extended 26 GHz band and Shared Access Review improvements.

A1. User Led Coordination Form

Shared Access User Led Coordination Form

Purpose

This Form sets out the process to agree and record the consent of existing licensees (in any Shared Access band) to the installation, operation and use of new radio equipment by the Applicant, in accordance with the technical parameters as set out in this form.

The User Led Coordination process

An Applicant's licence application may fail technical coordination because Ofcom's tools estimate that the Applicant's planned operations may cause some harmful interference to neighbouring users. Where the Applicant believes this interference will not occur, or not be harmful to them[49] they may seek the agreement of the existing Shared Access licensees to the proposed deployment on their planned parameters to 'override' the rejection.

Ofcom can override the rejection and proceed to authorise the application where the Applicant:

1. has notified each licensee in the Shared Access bands identified by Ofcom[50] which could experience interference from, or could cause interference to the Applicant's planned deployment;
2. has informed each relevant existing licensee of the technical details of their planned deployment as set out in the Table 1 and obtained their agreement to the planned deployment;
3. has submitted the completed Form within [21] days of Ofcom notifying the applicant of the licensees who could experience interference from the planned deployment[51]. The Applicant must copy in the lead contact email of all parties to this Form, to record their consent to the Applicant's planned deployment.

This process applies only where the applicant's proposed operations fall within the general conditions of Shared Access. For example, they shall comply with permitted heights and powers specified in standard licence conditions. It is for each existing licensee to satisfy themselves as to the risk of interference from an applicant's proposed deployment[52].

Once the agreement is made and a license is issued, each party to the agreement shall enjoy equal rights to their deployments.

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[49] Due to local geography, signal processing capabilities or quality of service requirements.
[50] Ofcom will provide the applicant with the details of each relevant organisation(s) for the purposes of completing the User-Led Coordination process.
[51] Agreements returned outside the 21 day period may not be accepted, and outside this period Ofcom reserves the right to have allocated spectrum rights to another applicant, to ensure that spectrum is not set aside.
[52] Should one user who is party to this agreement seek a subsequent licence variation that could impact other parties to this agreement, this shall only be agreed where Ofcom considers there is no interference impact, or where all parties agree to it.

Where parties cannot agree on the original application, but believe an agreement could be found for an amended application (e.g. different transmit power, antenna details or location) the Applicant must first submit a new application, with the relevant details, to Ofcom.

The Agreement

The following licensees have been informed by the Applicant of its intention to install and use radio equipment in accordance with the parameters set out below and have consented to the proposed deployment.

Table 1: Applicant

Company Name	
Lead Contact	
Company Address	
Ofcom reference number	

Table 2: Applicant's planned operations

Location	Easting and Northing
Shared Access Product	(Low Power/Medium Power)
Transmit Power	
Antenna Height	
Antenna Details	(Tilt, Azimuth, Gain, Vertical Beamwidth, Horizontal Beamwidth,)
Bandwidth	
Centre Frequency	

Table 3: Agreement 1

Company Name	
Licence Number(s)	(for relevant licences where this agreement applies)
Lead Contact Full Name	
Lead Contact Signature	
Lead Contact Email	

Agreement 2, Agreement 3, etc.