Optimal use of 3.9 GHz spectrum

Additional option to change the frequency of UK Broadband's 3.9 GHz licence from 3925-4009 MHz to 3800-3884 MHz

Consultation

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Contents

Section

Annex

1. Overview

1.1 As part of our aim to improve spectrum access and efficiency, this document puts forward an additional option to change the 3.9 GHz licence by modifying its permitted frequencies, further to a consultation earlier in the year.

1.2 The 3.9 GHz licence[1] is held by UK Broadband Limited, owned by Hutchison 3G Limited (H3G).[2] In May 2024, in response to a request from H3G, we consulted on changes[3] to the 3.9 GHz licence that would enable H3G to use 5G technology for its Fixed Wireless Access (FWA) broadband service. We also consulted on changes to improve the sharing of spectrum between H3G's FWA use and other spectrum users under our Shared Access framework.

1.3 In our May 2024 consultation we did not consider that changing the frequencies authorised under the 3.9 GHz licence to 3.8 GHz (a "frequency move"[4]) would be proportionate to its benefits. The 3.8 GHz frequencies are currently used by Shared Access users, Satellite Earth Stations and Fixed Links.

1.4 However, in light of stakeholder responses (including from H3G) on the possible benefits of such a move, we are now seeking further feedback on the option of a frequency move. This additional option, if implemented, could potentially support continued growth in innovative spectrum uses, complementing the updates we've recently made to our Shared Access framework. Such a move might be combined with the other changes outlined in our May 2024 consultation.

What we are proposing – in brief

Alongside the changes previously outlined in our May 2024 consultation, we are seeking views on an additional option to vary the terms of the 3.9 GHz licence by changing the permitted frequencies from 3925-4009 MHz to 3800-3884 MHz. This could potentially deliver more efficient use of the radio spectrum by:

- increasing the total amount of useable spectrum for Shared Access users by reducing the number of boundaries with high power users; and
- reducing fragmentation in the 3.8-4.2 GHz band, so that Shared Access users wanting to use higher bandwidths are more likely to be able to get a licence for the channel width they require.

To support efficient use of the band, we would ask Shared Access licensees currently overlapping with all or part of the 3800-3884 MHz frequency range to retune their equipment to alternative frequencies above 3884 MHz. This is in line with the condition in all Shared Access licences which enables Ofcom to change the frequency authorised and our guidance requiring Shared Access users to be frequency agile (i.e. licensees in the 3.8-4.2

[1] The permitted frequency block authorised for use within the 3.9 GHz licence is currently 3925-4009 MHz.
[2] For simplicity we refer only to H3G in the rest of this document.
[3] Optimal use of 3.9 GHz spectrum: UK Broadband's application for licence variation and proposals to promote efficient use of 3 .9 GHz spectrum, May 2024 ("the May 2024 consultation")
[4] By "frequency move", we are referring to a possible variation of the 3.9 GHz licence which would change the permitted frequency block authorised for use within the licence, from 3925-4009 MHz to 3800-3884 MHz.

GHz band should deploy equipment that can tune across the entire band). We would identify suitable alternative frequencies for these licensees and allow 18 months for the move.

1.5 Fixed Links and Satellite Earth Stations in the 3800-3884 MHz frequency range should not be unduly affected by the frequency move (if implemented) as we envisage removing H3G assignments that could cause interference with these licensees.[5]

1.6 We have not yet reached a view on the initial changes relating to the 3.9 GHz licence set out in our May 2024 consultation. Before doing so we wish to invite feedback on this additional frequency move option along with any further comments that stakeholders wish to make on our initial changes, including any new or amended comments they wish to make on those in light of the frequency move proposed in this document. Stakeholders do not need to repeat their feedback to the initial consultation if their comments are unchanged.

1.7 In response to our earlier consultation, some stakeholders raised concerns about our proposed changes to the out-of-block (OOB) emissions limits on the 3.9 GHz licence. As these considerations may be relevant to stakeholders' views on the frequency move, we are separately publishing supporting technical analysis about the effect of changing the OOB emissions mask on Shared Access users. This analysis ('Changes to the 3.9 GHz licence out-of-block emission limits') shows that interference is dominated by the selectivity performance of the Shared Access receiver rather than the OOB emissions mask, taking into account the proposed changes.

1.8 Following consideration of feedback on both consultations, we will publish decisions on all the available options relating to the 3.9 GHz licence in Spring 2025.

The overview section in this document is a simplified high-level summary only. The overall proposals and various options we are consulting on and our reasoning are set out in full in this document and in our May 2024 consultation.

[5] We set out further details in Annex 4 of how we have determined how many H3G assignments need to be removed, including how we will co-ordinate H3G's proposed active antenna system (AAS) base stations.

2. Introduction

2.1 The 3.9 GHz licence[6] held by UK Broadband Limited (UKB), owned by H3G, authorises use of the 3925-4009 MHz frequency range ("3.9 GHz spectrum"). The 3.9 GHz licence can only be used for fixed services, including Fixed Wireless Access (FWA). It sits within the wider 3.8-4.2 GHz band where our established policy under our Shared Access framework is for spectrum to be accessed on a shared and first-come-first-served basis (see paragraphs 3.3 - 3.4 below).

2.2 In our May 2024 consultation, we consulted on a range of options to make changes to the 3.9 GHz licence. This followed a request from H3G for a variation of the licence which would facilitate the use of 5G technology to expand its 5G FWA offering. A summary of those options is outlined below (paragraphs 2.11-2.17). We also mentioned the possible option of changing the frequency of the 3.9 GHz licence to 3.8 GHz but did not consider it would be proportionate to its benefits.

2.3 We provide a high-level summary of the key themes that stakeholders raised in response to our May 2024 consultation in Annex 3.

2.4 In response to our consultation, H3G requested we consider a frequency move to 3.8 GHz and set out mitigations they could take to reduce the impact on other users. Some Shared Access users also supported a frequency move in their responses as they considered it could lead to more efficient use of the spectrum.

2.5 Having considered stakeholders' support for a frequency move, H3G's request, and our duty to promote efficient use of spectrum, we have decided to seek views on an additional option to change the frequency of the 3.9 GHz licence. We set out further details in the next section.

2.6 As noted above, the 3.9 GHz licence can only be used for fixed services and therefore these changes have been considered in light of H3G's plans to expand its FWA offering. Were we to receive any future variation requests for this licence, we would need to consider them in the context of the market and technology conditions at that time.

2.7 We have not yet reached a view on the range of options outlined in our May 2024 consultation and remain open to further comments on them, along with any comments stakeholders have in relation to this additional option. In reaching a final decision, we will take account of stakeholder feedback to our May 2024 consultation and any further or amended comments stakeholders wish to make. There is no need for stakeholders to resubmit their comments if they consider they do not need to be changed.

2.8 We recognise that different stakeholders may be affected by the various options set out in our May 2024 consultation if we proceed with changing the frequency of the 3.9 GHz licence to 3.8 GHz, and/or that stakeholders who responded to our first consultation may wish to submit an amended response because of the frequency move option.

[6] We refer to the licence as the "3.9 GHz licence" throughout this document (although the frequency move option, if implemented, means the permitted frequency would change to 3.8 GHz spectrum). Use of this term is consistent with how we refer to the licence in the May 2024 consultation.

2.9 Therefore, we welcome stakeholder feedback on both:

- the additional option to change the frequency authorised by the 3.9 GHz licence from 3925-4009 MHz (3.9 GHz) to 3800-3884 MHz (3.8 GHz) – as set out in this document, and
- the original range of options (if any further comments) set out in our May 2024 consultation.

2.10 We have noted stakeholders' concern about our proposed changes to the out-of-block (OOB) emissions limits on the 3.9 GHz licence and have published a separate document about the effect of changing H3G's OOB emission mask on Shared Access users.[7]

May 2024 options

2.11 The options we outlined in our May 2024 consultation are summarised below.

Proposed technical changes to implement H3G's licence variation request

In-block power level (non-AAS and AAS)

2.12 The current 3.9 GHz licence permits a power level of 53dBm/MHz EIRP (equivalent isotropically radiated power). We proposed the following changes to the technical conditions:

- Express power as 60dBm/5 MHz in the licence. This does not represent a change to the non-AAS power level.
- Add power limit conditions for AAS base stations, which are expressed as Total Radiated Power (TRP), based on the non-AAS EIRP value minus 21 dBi assumed antenna gain.
- Amend the licence to show the maximum power levels for base stations and terminals in dBm/5 MHz.

Out-of-block emission limits (non-AAS and AAS)

2.13 As per the H3G request, we proposed to:

- Define the OOB emission limits for base stations in the same way as in the 3.6 GHz licence.
- Amend the licence to set out a permissive mask that can be used when base station transmissions align with the requirement of frame structure A (a 3:1 frame structure), as well as a restrictive mask that must be used with transmissions compatible with frame structure B. H3G has told us it will be compatible with frame structure A.

Implementation in the licence

2.14 The technical changes under consideration would mean that the current Interface Requirement IR 2015, which has the effect of limiting the licence to fixed services, would no longer be applicable. To ensure this limitation remains, we have suggested inserting a clause with this effect to the licence itself.

[7] The technical update document: 'Changes to the 3.9 GHz licence out-of-block emission limits'.

Proposed changes to promote efficient use of the spectrum

2.15 To promote efficient use of the 3.9 GHz spectrum, we are considering the following changes:

- Updating the terms of the UKB licence to align with our first-come-first-served sharing policy by introducing a requirement to use assignments (a 'use clause').
- Introducing technical changes to how we coordinate H3G's use of this spectrum with Shared Access users, to enable us to authorise different users more closely together. Specifically, we are considering the following options:
    i) A modified approach when coordinating H3G with Shared Access users, to assume that co-channel Shared Access users are also compatible with H3G's 3:1 frame structure.
    ii) Coordinating Shared Access base stations to H3G assignments on a co-channel basis only (rather than within 2.5x of the assignment bandwidth either side of the centre frequency).

2.16 We also considered whether changing the frequency of the 3.9 GHz licence to start at 3.8 GHz could be proportionate to promote more efficient use of the wider 3.8-4.2 GHz band. Our initial view was that while we recognised there were benefits (an increase in the amount of usable spectrum and possible removal of fragmentation in the band for Shared Access users), a frequency move would make some H3G assignments incompatible with existing Fixed Links in SE England and a significant number of Shared Access users. Therefore, we did not propose this in our May 2024 consultation.

Shared Access framework

2.17 We have considered options for the 3.9 GHz licence in light of our aims for the Shared Access framework, which includes the 3.8-4.2 GHz band, in which the 3.9 GHz licence sits.

2.18 In 2019, we took the decision to make Shared Access licences available across the 3.8-4.2 GHz band, on a coordinated basis alongside other spectrum users (including H3G). Our aim was to encourage the development of new uses which will benefit both businesses and consumers and to facilitate access to spectrum to enable that innovation to take place.[8]

2.19 We have recently concluded a review of our Shared Access framework, and our 2024 Statement reiterated these aims and our intention to support more opportunities for innovation and growth.[9] We have observed many innovative new spectrum uses under this framework, including 5G cameras to broadcast large events, increased monitoring and automation of logistics and industrial sites, and 5G Fixed Wireless Access. In total, Ofcom has around 1,000 Shared Access licences currently on issue, more than half of which sit in the 3.8-4.2 GHz band.

[8] See Statement: Enabling wireless innovation through local licensing, July 2019.
[9] See Enhancing the Shared Access framework Statement on further measures to support licensees and enable new use cases, December 2024.

Structure of the document

2.20 **Section 3** considers the additional option of moving the frequency of the 3.9 GHz licence from 3.9 GHz to 3.8 GHz to support our policy objectives.

2.21 **Section 4** sets out our impact assessments and how we have met relevant legal tests.

2.22 **Section 5** sets out our next steps.

2.23 The following annexes are provided:

- Annex 1 – Legal Framework
- Annex 2 – Draft licences
- Annex 3 – Summary of consultation responses
- Annex 4 – Technical analysis of the impact of the frequency move on H3G assignments
- Annex 5 – Responding to this consultation
- Annex 6 – Ofcom's consultation principles
- Annex 7 – Consultation coversheet
- Annex 8 – Consultation questions

3. Option to change the frequency of the 3.9 GHz licence to start at 3.8 GHz

Summary

3.1 This section sets out the additional option to change the frequencies permitted under the 3.9 GHz licence, from 3925-4009 MHz to 3800-3884 MHz. This includes corresponding changes to the frequencies of the existing assignments under that licence. Some assignments will need to be removed where they are likely to cause harmful interference to existing users that remain in the band (Fixed Links and Satellite Earth Stations).

3.2 In addition, in line with the terms of all Shared Access licences and the guidance for Shared Access licensees[10], we would require all Shared Access users with licences that cover all, or part, of the 3800-3884 MHz frequency range to retune their equipment to alternative spectrum above 3884 MHz within 18 months, to support an overall more efficient use of the band.

Option to change permitted frequencies

Current configuration of the 3.8–4.2 GHz band

3.3 The 3.8-4.2 GHz band is shared on a first-come-first-served basis between the 3.9 GHz licence, Shared Access users, Satellite Earth Stations and Fixed Links. The current arrangement of the band (see Figure 1) means that there are *three* boundaries between low / medium power Shared Access users and higher power users – one at the bottom of the band (3800 MHz), and two at the edges of the 3.9 GHz licence. Each of these boundaries introduces some inefficiencies in spectrum use due to the separation needed between users to minimise interference.

- At the bottom of the band there is a 5 MHz guard band (3800 – 3805 MHz) to protect Shared Access users from high-power mobile below 3.8 GHz.
- At the edges of the 3.9 GHz licence (3925 MHz and 4009 MHz), we currently coordinate H3G assignments in the band with any Shared Access users (in both directions) that are within 2.5 times the channel bandwidth either side of the channel centre. As indicated in Ofcom's Shared Access Statement, we have decided to limit adjacent band coordination with H3G to the first 5 MHz.[11]

3.4 The current configuration also means that the spectrum accessible to Shared Access users is fragmented by the presence of the 3.9 GHz licence in the middle of the band. This means

[10] Shared Access Licence - Guidance document

[11] See paragraphs 3.35 to 3.38 of the Expanding Access to Shared Spectrum Statement, July 2024. In this Statement we noted that as part of our decision on the separate H3G variation proposal, we will consider whether a 5 MHz separation remains sufficient or may need adjusting. Also see our updates on implementation timelines for Shared Access Licensing.

that in locations where H3G has assignments (currently across most of the country) Shared Access users can access a maximum of two 100 MHz contiguous channels - one below the 3.9 GHz licence (below 3925 MHz) and one above it (above 4025 MHz).

Figure 1: Current 3.8–4.2 GHz band plan

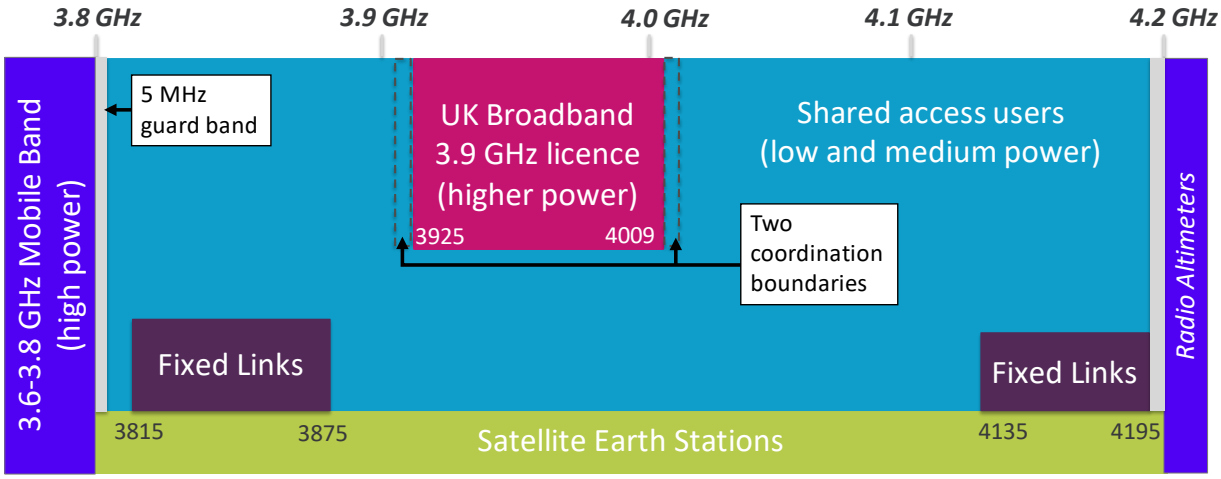
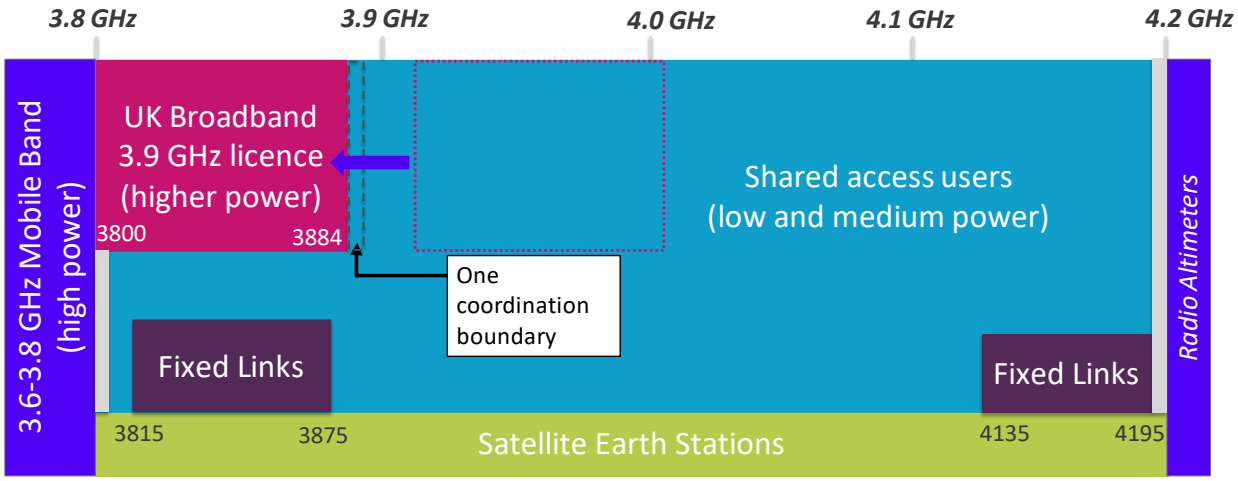


Figure 2: Proposed 3.8–4.2 GHz band plan if the frequency move is implemented



Spectrum efficiency benefits of changing the frequency of the 3.9 GHz licence

3.5 We did not propose changing the frequency of the 3.9 GHz licence to 3.8 GHz in our May 2024 consultation, but in their responses three stakeholders indicated their support for such a change:

- H3G, who requested that we reconsider the frequency move, noted that it would potentially lower its equipment costs,[12] and offered mitigations to minimise the impact the move would have on incumbent users.

[12] Included in H3G's confidential response to our May 2024 consultation. H3G has given permission for Ofcom to disclose this information.

- The BBC and Neutral Wireless (both Shared Access users) supported the move, citing how it would increase spectrum availability and efficiency, offering more contiguous spectrum, with only one spectrum boundary for Shared Access users rather than three. Neutral Wireless considered that these benefits outweigh the challenges to the move, and suggested how H3G could assist in the cost of moving incumbent Shared Access users out of the 3.8 GHz spectrum.[13]

3.6 On the basis of this request and feedback, we have reconsidered the potential frequency move, in line with our duty to secure optimal use of spectrum. Our view is that changing the frequency of the 3.9 GHz licence to start at 3.8 GHz would improve efficient spectrum use of the wider 3.8–4.2 GHz band and support continued growth in innovative spectrum users, such as Shared Access users. The band plan incorporating the frequency move option is set out in Figure 2.

3.7 Specifically, the move would improve spectrum efficiency because:

- It would result in only one boundary between Shared Access use and higher power base stations (those authorised by the 3.9 GHz licence or mobile base stations below 3.8 GHz) – rather than the three boundaries that currently exist. Eliminating the boundaries would make an additional 10 MHz of spectrum directly available.
- Each boundary introduces some inefficiencies (fragmentation) in spectrum use. Reducing the number of boundaries also decreases fragmentation, freeing up additional spectrum for Shared Access use through tighter packing. Furthermore, Shared Access users would then be adjacent to H3G at 60dBm/5 MHz rather than mobile at 65dBm/5 MHz as they are currently.
- Finally, this defragmentation would create 311 MHz of contiguous spectrum accessible by Shared Access users (where no Fixed Links or Satellite Earth Stations are present) so that up to 3 x 100 MHz channels of Shared Access use can be accommodated in areas where H3G has assignments, compared to up to 2 x 100 MHz channels at present. This would particularly benefit Shared Access users needing higher bandwidths.

3.8 We consider these benefits could be achieved without imposing disproportionate costs on incumbent users for the reasons set out below.

3.9 We therefore believe changing the frequency of the 3.9 GHz licence would support growth in Shared Access use of the 3.8-4.2 GHz band and the aims of our Shared Access framework (as discussed at paragraphs 2.17-2.20).

Consideration of incumbent users

3.10 We have considered the appropriate approach to the different incumbent users in the 3800-3884 MHz frequency range, if we were to change the permitted frequencies in the 3.9 GHz licence.

[13] The full responses to our May 2024 consultation can be found here.

Table 1: Existing licensees in 3800-3884 MHz

Service	Current licensees
Shared Access	226 licences held by 41 licensees* 2 largest licensees (Dense Air + Boldyn) are ~37% of licences; 4 largest are 55%. Includes wide range of users from rural FWA to private networks.
Satellite Earth Stations	131 assignments over 19 unique sites.
Fixed Links (in 3815-3875 MHz only)	9 Optiver / 1 Wholesailor (financial sector)

**This number fluctuates as licences expire and new licences are issued.*

Proposed approach for existing Shared Access users

3.11 All Shared Access licences contain a condition enabling Ofcom to change the frequency of the licence[14] and for this reason the Shared Access licensing guidance states that licensees should deploy equipment that can be tuned across the entire band (in this case the 3.8-4.2 GHz band).[15] This frequency agility is important for efficient management of the Shared Access framework, and for efficient spectrum management more generally. It enables a band to be reorganised quickly and at low cost by taking advantage of frequency agile equipment.

3.12 If we were to proceed with changing the permitted frequencies of the 3.9 GHz licence, to support efficient use of the 3.8-4.2 GHz band, we would ask existing Shared Access licensees in 3800-3884 MHz to move to alternative frequencies above 3884 MHz. This approach would create a more spectrally efficient outcome overall compared to leaving Shared Access users in 3800-3884 to share with the relocated 3.9 GHz licence. This is because Shared Access users (using medium and low power) share better with each other than with H3G assignments using higher power. The separation distances needed between two different Shared Access users (medium or low power) are generally less than the separation needed between a Shared Access user and a (higher power) H3G assignment.

3.13 We currently expect we can make alternative frequencies available for most Shared Access users who are asked to retune. Most would likely be relocated to the 3.9 GHz spectrum vacated by H3G. In the exceptional case where we cannot find a new frequency for a Shared Access licensee, we envisage the licensee staying in 3.8 GHz until we find a new frequency – with H3G being required to protect them for that period.

3.14 Given that we expect equipment authorised by Shared Access licences can tune across the band (see above), we anticipate retuning should be easy and low cost in practice, as it would likely only require a software change.

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[14] Condition 5 of Schedule 1 to the licence: *"5. The Licensee must comply with any change to the Permitted Channel Centre Frequency notified by Ofcom within the timescale indicated in the notification."*

[15] Shared Access licence - Guidance document Paragraphs 2.41-2.42 – *"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. 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."*

3.15 We are aware that historically some Shared Access users have specifically asked for spectrum below 4 GHz due to limitations on equipment availability (whilst noting that we also have a significant volume of licences on issue for equipment operating above 4 GHz). In cases where a strong preference for sub-4GHz spectrum remains, we expect to be able to accommodate this by moving licensees into the 3.9 GHz spectrum vacated by H3G.

3.16 To allow a reasonable transition period for Shared Access users, we propose to identify alternative frequencies and give licensees up to 18 months to retune to those frequencies. H3G would not be able to deploy assignments that would cause harmful interference (i.e. would fail our coordination checks) to existing Shared Access users in 3800-3884 MHz until this period expires, or Shared Access users have moved.

3.17 If a Shared Access user, for which we have found alternative frequencies, wishes to remain in 3.8 GHz after this date, they will be unprotected from H3G assignments (when H3G deploys them) and will have to accept the risk of interference from H3G or reach a separate agreement with H3G on how their use will co-exist.[16] In such a case, spectrum that has been reserved for the Shared Access user in other parts of the band will be released for other potential users.

Proposed approach for Satellite Earth Stations and Fixed links

3.18 We are proposing that H3G protects Satellite Earth Stations and Fixed Links in 3.8 GHz spectrum by removing assignments or putting in place appropriate mitigations, were we to proceed with changing the permitted frequencies of the 3.9 GHz licence. This is because moving Satellite Earth Stations out of 3800-3884 MHz would have a significant impact, as the frequencies they require are dependent on those used by satellites, which the Satellite Earth Station operator cannot always dictate.

3.19 For Fixed Links, there is no alternative spectrum available within the 3.8-4.2 GHz band and although other bands are available, if they moved to a different band this would require new equipment.

3.20 We have also considered how many H3G assignments would need to be removed or modified if we required H3G to take measures to appropriately protect existing Satellite Earth Stations and Fixed Links in the 3.8 GHz spectrum from harmful interference.

3.21 Our modelling[17] shows that H3G will need to remove or make changes to 1,625 of its current assignments (6.4% of its 25,000 assignments) – to ensure these pass our coordination checks. This total is comprised of:

- 1,530 / 6% of assignments to protect Fixed Links; and
- 95 / 0.4% additional assignments to protect Satellite Earth Stations.

3.22 As only a relatively small number of H3G assignments are likely to be affected, we consider it reasonable for H3G to remove or modify these assignments given the benefits to H3G of a frequency move, in addition to the wider benefits for Shared Access users.

[16] This could be recorded through the new user-led coordination process for Shared Access users.
[17] In our analysis, we have included a worst-case reduction factor in the link budget when we coordinate with other users in the band. This better accounts for the way AAS base stations form beams within the overall envelope pattern of the antenna. See Annex 4 for further details.

3.23 We separately note there is a question as to whether Fixed Links will continue to be needed in the 3.8-4.2 GHz band given the availability of alternative bands, and we may therefore look to review their use in the future.

Proposed implementation

3.24 If we decide to proceed with changing the permitted frequencies in the 3.9 GHz licence, we would make corresponding changes to the frequencies of the existing assignments under that licence. We would also remove any H3G assignments that would cause harmful interference to any Satellite Earth Station or Fixed Link in the 3.8 GHz spectrum.

3.25 If the frequency of the 3.9 GHz licence is changed, H3G would be able to apply for new or modified assignments (e.g. with reduced bandwidth, reduced power or other local site engineering) and these would be subject to coordination checks by Ofcom. These checks and any future coordination of Fixed Links and Satellite Earth Stations with H3G assignments would include a worst-case reduction factor (F_{WCR}) of 6dB.[18]

3.26 In addition, we would confirm our planned alternative frequencies for each Shared Access licence currently in 3.8 GHz as soon as possible after issuing our Statement.

3.27 As noted in paragraph 3.14, we expect to be able to relocate the vast majority of incumbent Shared Access users in 3800-3884 MHz to other parts of the 3.8-4.2 GHz band, most likely in the 3.9 GHz spectrum which H3G would vacate. We would protect incumbent Shared Access users in the 3.8 GHz spectrum up to the point that they are required to move out (we have proposed 18 months after we have requested them to move). We therefore propose that we would not grant assignments in the 3.8 GHz spectrum that would impact incumbent Shared Access users until such users have migrated. If H3G wishes to deploy assignments in 3.8 GHz that are compatible with incumbent Shared Access users in 3.8 GHz we will enable this.

3.28 For those cases where we cannot immediately find alternative spectrum for a Shared Access user currently in 3.8 GHz, we would not ask that user to move until an alternative frequency becomes available and H3G would be required to protect them from harmful interference until they move.

3.29 We are not proposing to make any other changes to how users access spectrum in the 3.8-4.2 GHz band, which will continue to be on a first-come-first-served basis.

Proposed licence changes

3.30 Our proposed amendments to the terms of the 3.9 GHz licence to change the frequencies permitted from 3925-4009 MHz to 3800-3884 MHz – in addition to the initial changes outlined in the May 2024 consultation – are set out in markup in the link provided in Annex 2.

3.31 Annex 2 also sets out in markup the necessary changes to the terms of a Shared Access licence, if the frequency move option is implemented and the licensees are required to move.

[18] See footnote 17.

Question 1: Do you have any views on the additional option we outline to change the frequencies permitted under the 3.9 GHz licence from 3925-4009 MHz to 3800-3884 MHz?

Question 2: Do you have any comments on our proposed 18-month transition period for Shared Access users?

Question 3: Do you have any comments on our proposed approach to protecting Fixed Links and Satellite Earth Stations in 3800-3884 MHz?

Question 4: Do you have any other comments for us to consider in relation to the topics raised?

We would be grateful if stakeholders also let us know if they have further comments in relation to the initial changes we consulted on in May 2024 (although there is no need to resubmit the same comments).

Please provide evidence in support of your views.

4. Impact assessments and legal framework

Impact assessment

4.1 Section 7 of the Communications Act 2003 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.

4.2 Impact assessments provide a valuable way of assessing different policy options and considering the potential effects of our proposals. They form part of best practice policy making.

4.3 We have assessed how the range of options we're considering may affect the relevant stakeholders which include H3G, existing users of the 3.8 GHz spectrum, possible future users in the 3.8-4.2 GHz band, citizens and consumers, and Ofcom. We have also considered how these options may impact competition, investment and innovation (in line with our statutory duties, which are set out in the Legal Framework, in Annex 1).

4.4 Overall, we consider that these options are consistent with our statutory duties and are objectively justified, proportionate, non-discriminatory and transparent.

Impact of our proposals on existing users

4.5 We have considered the impact of the frequency move option on the existing users of the relevant spectrum, specifically:

- H3G;
- Shared Access users that are currently operating in 3.8 GHz;
- Satellite Earth Stations that are currently operating in 3.8 GHz; and
- Fixed Links that are currently operating in 3.8 GHz.

Impact on H3G

4.6 H3G says it would benefit from the frequency move due to potential savings in equipment costs, because it could ask its Radio Access Network vendor to make minor hardware changes to its existing commercial product to support 3.8 GHz.[19]

4.7 On the other hand, our proposed protection of the Satellite Earth Stations and Fixed Links incumbents in 3.8 GHz, and any remaining Shared Access users that cannot be moved to alternative spectrum, will affect some of H3G's assignments, as H3G would need to remove these assignments or apply other mitigations (for example reducing bandwidth). This could affect H3G negatively, when compared to the status quo, as it could reduce H3G's ability to deploy FWA in some local areas.

[19] Included in H3G's confidential response to our May 2024 consultation. H3G has given permission for Ofcom to disclose this.

4.8 However, as explained in paragraphs 3.21-3.23, our analysis shows that the number of H3G assignments affected is relatively small. H3G could also potentially apply appropriate mitigations in such cases (as noted in paragraph 3.5 and 3.23) to enable these assignments to be deployed, while protecting existing licensees from harmful interference. In addition, although it is possible that we cannot identify alternative spectrum for some Shared Access users, who might then need to continue to be protected by H3G in 3.8 GHz, we consider this would likely only affect a small number of H3G assignments if it did.

4.9 As such, the net impact on H3G is likely to be positive.

Impact on Shared Access users in 3.8 GHz

4.10 We recognise that if the frequency move option is implemented, current Shared Access users in 3.8 GHz would need to relocate to an alternative frequency range within the 3.8-4.2 GHz band.

4.11 As set out in paragraph 3.15, our expectation (reflecting the conditions of Shared Access licences), is that Shared Access users have equipment that can easily be re-tuned to an alternative frequency, as it would likely only require a software change. Where that is the case the costs to them are likely to be low.

4.12 We also note that there is likely to be sufficient alternative spectrum for Shared Access users, and in any case Shared Access users will only be required to move when we identify alternative frequencies for them (see paragraph 3.14). As such, a lack of available alternative spectrum will not prevent Shared Access users from operating.

4.13 Finally, we are proposing to give Shared Access users 18 months to move frequency, which should help with implementing the transition. However, we will encourage each user to migrate to their new frequency as soon as possible to ensure the most efficient use of spectrum.

Impact on Satellite Earth Stations and Fixed Links in 3.8 GHz

4.14 As we are proposing that H3G protects the Satellite Earth Stations and Fixed Links in 3.8 GHz spectrum by removing assignments or putting in other appropriate mitigations, we do not expect there to be any undue negative impact on these incumbents.

Impact on future users

4.15 If implemented, we expect the frequency move option to have a positive impact on any future Shared Access users by increasing the available spectrum through reducing the number of boundaries between Shared Access users and higher power base stations, and by creating the potential for more 100 MHz channels.[20]

4.16 We note that assignments made under the 3.9 GHz licence (which under the frequency move option would be changed to 3800-3884 MHz) cover much of the UK. This is likely to mean that there could be little opportunity for additional fixed links or earth stations to access this band in the future. However, we note that there has been very little new demand for fixed links and earth stations at these frequencies in recent years, and therefore we anticipate that this constraint will have very little, if any impact in practice.

[20] See paragraph 3.7 above for more detail.

Other impacts

Impact on the efficient use of spectrum

4.17 As set out in paragraph 3.7 above, we consider that the frequency move option could have a positive impact on the efficient use of the spectrum by increasing the total amount of useable spectrum for Shared Access users by reducing the number of boundaries with high power users; and by reducing fragmentation in the 3.8-4.2 GHz band, so that Shared Access users can more efficiently access the band and those wanting to use higher bandwidths are more likely to be able to get a licence for the channel width they require.

Impact on consumers and citizens

4.18 Although the frequency move option would not have an easily measurable direct benefit on consumers and citizens, we consider that the overall effect is likely to be positive.

4.19 By reducing the costs to H3G, there may be an indirect benefit to consumers and citizens as H3G may be able to roll out and improve its FWA service faster with the frequency move.

4.20 The improvement in spectrum efficiency would also indirectly benefit consumers and citizens, as more future Shared Access users would be able to access spectrum they need to provide innovative services to them.

Impact on competition, investment and innovation

4.21 We do not consider that the frequency move option would have a detrimental impact on competition.

4.22 This is because moving the frequency of H3G's existing license within the same band should not directly impact the competition between H3G and its competitors in the provision of FWA services, although we note H3G could benefit from a reduction in its equipment costs.

4.23 As discussed above, we expect Shared Access users to have equipment that can easily be re-tuned to an alternative frequency at low cost. If that is the case, we do not expect the frequency move to have an impact on competition in the markets that they operate in.

4.24 In relation to mobile competition, we do not consider that the frequency move option raises competition concerns. We note that the licence variations would not enable H3G to use its 3.9 GHz licence to provide public mobile services.

4.25 The improvement in spectrum efficiency should have an overall positive effect on investment and innovation among future Shared Access users, as future users would have access to more useable spectrum.

Impact on Ofcom

4.26 We recognise that there may be a cost to Ofcom in terms of implementation of the frequency move option but consider that this is small compared to the benefits of the move.

Equality impact assessment

4.27 We have given careful consideration to whether our proposals will have a particular impact on persons sharing protected characteristics (broadly including race, age, disability, sex, sexual orientation, gender reassignment, pregnancy and maternity, marriage and civil partnership, and religion or belief in the UK, and in Northern Ireland also dependents and

political opinion), and in particular whether they may discriminate against such persons or impact on equality of opportunity or good relations. This assessment helps us comply with our duties under the Equality Act 2010 and the Northern Ireland Act 1998.[21] We do not consider that the frequency move option, if implemented, would have equality implications under the 2010 Act or the 1998 Act.

Welsh language impact assessment

4.28 Ofcom is required to take Welsh language considerations into account when creating, revising and consulting on policies which are relevant to Wales (including proposals which are not targeted at Wales specifically but are of interest across the UK).[22]

4.29 We do not consider that our proposal impacts the ability to use the Welsh language or treat the Welsh language less favourably than the English language. We also do not think there are ways in which are proposal could be formulated to have, or increase, a positive impact, or not have adverse effects or decrease any adverse effects on the use of the Welsh language. This is because our proposals relate to a nationwide licence.

4.30 We note that Ofcom's current practice is to offer to produce spectrum licences in Welsh, and when requested it does provide licences in Welsh, in accordance with its obligations set by the Welsh Language Commissioner.[23] Ofcom will continue to take this approach in relation to this licence.

Question 5: Do you have any comments on our impact assessment?

Question 6: Do you have any comments on our equality impact assessment?

Question 7: Do you have any comments on our Welsh language impact assessment?

Please provide evidence in support of your views.

[21] Further detail is given in section 149 of the Equality Act 2010 and section 75 of the Northern Ireland Act 1998.

[22] See Standards 84 – 89 of Hysbysiad cydymffurfio (in Welsh) and compliance notice (in English). Section 7 of the Welsh Language Commissioner's Good Practice Advice Document provides further advice and information on how bodies must comply with the Welsh Language Standards.

[23] July 2016, paragraph 38. https://www.ofcom.org.uk/__data/assets/pdf_file/0034/96919/Hysbysiad-Cydymffurfio44-Y-Swyddfa-Gyfathrebiadau-en.pdf

5. Next steps

5.1 Following the consultation period, which will close on 25 February 2025, we will consider responses to this consultation in combination with responses received to our May 2024 consultation. We plan to publish a statement setting out our policy decisions in Spring 2025.

5.2 If we decide to proceed with any policies (proposed either in this consultation or our May 2024 consultation) that involve varying the 3.9 GHz licence, and if H3G does not consent to these changes, we will then follow the process set out in Schedule 1 of the Wireless Telegraphy Act 2006 (see paragraph A1.12 below). This will normally involve notifying H3G of the reasons for the proposed variation, allowing 30 days for representations, making a final decision within one month of the end of the period for representations and issuing a notification of our final decision.

5.3 If we decide to proceed with changing the permitted frequencies in the 3.9 GHz licence, we would also write to all Shared Access users with frequency allocations in the 3.8 GHz spectrum, notifying them that they are required to change frequency (the exact frequency will be specified) and the time by which they will need to have changed frequency. We will then update their licences accordingly.

5.4 If we decide to proceed with the technical changes first set out in the May 2024 consultation, we intend to update our coordination procedures in the 3.8–4.2 GHz band. In so doing we will take account of changes implemented as part of our review of the Shared Access Framework.

5.5 Prior to our decisions, there will be no changes to the spectrum that users can access in the 3.8-4.2 GHz band via our normal licensing procedures.

A1. Legal Framework

A1.1 This section provides an overview of the main legislative provisions relevant to spectrum licensing and to our proposed variation of the licence. The legal framework derives from Ofcom's duties and powers under the Communications Act 2003 (the "2003 Act") and the Wireless Telegraphy Act 2006 (the "2006 Act").

Ofcom's general duties

A1.2 Section 3 of the 2003 Act sets out Ofcom's general duties. Under section 3(1) it is the principal duty of Ofcom in carrying out its functions:

- 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.

A1.3 In doing so, Ofcom is required to secure, amongst other things (under section 3(2)):

- the optimal use for wireless telegraphy of the electro-magnetic spectrum; and
- the availability throughout the UK of a wide range of services.

A1.4 In performing its duties, Ofcom must have regard to, amongst others, the following matters:

- the desirability of promoting competition (section 3(4)(b));
- the desirability of encouraging investment and innovation (section 3(4)(d));
- the desirability of encouraging availability and use of high speed data transfer services throughout the UK (section 3(4)(e));
- the different needs and interests, so far as the use of the electro-magnetic spectrum for wireless telegraphy is concerned, of all persons who may wish to make use of it (section 3(4)(f)); and
- the different interests of persons in different parts of the UK (section 3(4)(l)).

A1.5 In performing its duties, Ofcom is required under section 3(3) of the 2003 Act to have regard in all cases to the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed, and to any other principles appearing to Ofcom to represent the best regulatory practice.

Ofcom's duties when carrying out spectrum functions

A1.6 Additionally, in carrying out its spectrum functions Ofcom has a duty under section 3 of the 2006 Act to have regard in particular to:

- the extent to which the spectrum is available for use, or further use, for wireless telegraphy;
- the demand for use of that spectrum for wireless telegraphy; and
- the demand that is likely to arise in future for such use.

A1.7 Ofcom also has a duty to have regard, in particular, to the desirability of promoting:

- the efficient management and use of the spectrum for wireless telegraphy;

- the economic and other benefits that may arise from the use of wireless telegraphy;
- the development of innovative services; and
- competition in the provision of electronic communications services.

A1.8 We have had regard to our duties when formulating our proposals to vary the 3.9 GHz licence.

Licence variation

Ofcom's spectrum management functions and licensing powers

A1.9 Parliament has conferred on Ofcom spectrum management functions in the UK, which are set out in the 2006 Act. These powers include (under sections 9 and 10) the general power to grant wireless telegraphy licences subject to such terms, provisions and limitations as Ofcom thinks fit, and to revoke or vary such licences, subject to any restrictions Ofcom has written into the relevant licences. Schedule 1 of the 2006 Act sets out a process for the variation of wireless telegraphy licences.

A1.10 Ofcom has a duty pursuant to section 9(7) of the 2006 Act to ensure that wireless telegraphy licence conditions are objectively justifiable in relation to the networks and services to which they relate, non-discriminatory, proportionate and transparent.

A1.11 Ofcom has a broad discretion under paragraph 6 of Schedule 1 of the 2006 Act to vary licences, subject to certain limitations:

- pursuant to paragraph 6A of Schedule 1 of the 2006 Act, any variation of a wireless telegraphy licence must be objectively justifiable;
- Ofcom has a general duty not to discriminate unduly between operators and to ensure that its interventions are proportionate, consistent and targeted only at cases in which action is needed (section 3(3) of the 2003 Act);
- Ofcom must act in accordance with its other statutory duties and general legal principles, including the duties to act reasonably and rationally when making decisions and to take account of any legitimate expectations.

The licence variation process

A1.12 Schedule 1 of the 2006 Act sets out a process for the variation of wireless telegraphy licences. In summary, Ofcom is required to take the following steps (paragraphs 6 and 7 of Schedule 1):

a) notify the licensee of the reasons for the proposed variation;
b) specify a period of at least 30 days in which the licensee may make representations about the proposal;
c) decide whether or not to vary the licence within one month of the end of that period; and
d) give the licensee a notification of its decision.

A1.13 In cases where a variation is proposed by the licensee, Ofcom is under no obligation (under the 2006 Act) to consult on the proposal. Notwithstanding this, we consider that the variation requested by H3G on 29 November 2023 is important for the purposes of section 7 of the 2003 Act. On that basis, we are publishing a further consultation on our proposal

to vary this licence in accordance with H3G's request (now with the additional frequency move option) – and our assessment of the likely impact of doing so, to give interested third parties an opportunity to make representations. We are also consulting on changes to the licence that have not been requested by H3G. We have developed these proposals in light of our statutory duties, which are summarised above.

Analytical framework

A1.14 In formulating our proposals we have taken account of our duties as set out above. In doing so, the factors we have considered include:

a) securing optimal spectrum use;
b) benefits for consumers and citizens;
c) the impact on spectrum users;
d) encouraging innovation and investment; and
e) promoting competition.

A2. Draft licences

A2.1 A marked-up version of the 3.9 GHz licence, which shows how it would appear in the event that we implement all of the options – i.e. the changes we outlined in the May 2024 consultation **and** the additional frequency move option set out in this document – can be found in the separate document 'Draft 3.8 GHz licence'.

A2.2 A marked-up version of an extract of Schedule 2 from the relevant Shared Access Licence showing the necessary changes, if the frequency move option is implemented and the licensees have to move can be found below in Table 2.

Table 2

Transmitter(s)	
Authorised Base Station Deployment Area	Area of 50 m radius from the following location: NGR [**xxx xxx**]
Station Name/Address	
Deployment location	[Indoor only/Indoor or Outdoor] NB. Indoors only does not permit the deployment of outdoor base stations and fixed/installed terminal devices.
Permitted Frequency Band	3805 – 4195 MHz
Permitted Channel Centre Frequency Tx	~~XXXX MHz [Existing frequency]~~ XXX MHz [New frequency]
Permitted Channel Centre Frequency Rx	~~XXXX MHz [Existing frequency]~~ XXX MHz [New frequency]
Permitted Channel frequency bandwidth	[10, 20, 30, 40, 50, 60, 80 and 100 MHz]
Antenna Height	maximum 10m outdoors

A3. Summary of consultation responses

Stakeholder feedback from our May 2024 consultation

Summary of feedback

A3.1 We received ten responses to our consultation, including four Shared Access users (BBC, On-Side, Neutral Wireless and University of Strathclyde), three mobile operators (H3G, VMO2 and BT), two satellite stakeholders (GSOA and Goonhilly), and one equipment vendor (Ericsson). Overall, whilst stakeholders expressed a wide range of views, there was general support for the majority of the options we set out in the May 2024 consultation. The paragraphs below provide a high-level summary of the key themes stakeholders raised in their consultation responses. [24]

Technical variation

Proposed technical changes to the licence

A3.2 Four stakeholders expressed support for this option, with one mobile operator stakeholder agreeing with our initial assessment that it would benefit the advancement of 5G technology while limiting potential interference for incumbent users in the band. We also received several responses noting that the proposed power levels create the potential for adjacent and co-channel interference. A smaller number of stakeholders also suggested that the option to relax the OOB emissions from -36dBm/5MHz to 13dBm/5MHz may lead to spectrum sterilisation over wide areas for Shared Access, and impact performance of other systems.

A3.3 Having noted stakeholder feedback, we have separately published supporting technical analysis ('Changes to the 3.9 GHz licence out-of-block emission limits') about the effect of changing the OOB emissions mask on Shared Access users.

Option to update coordination with Shared Access users to assume synchronisation

A3.4 We received overall support for our synchronisation option, with only one respondent seeking clarity on how our synchronisation assumption would be managed in practice.

Use clause

A3.5 Seven respondents were supportive of the option to introduce some type of use clause within the 3.9 GHz band, citing its role in reducing spectrum hoarding. Three respondents noted its importance for maintaining the innovation aspects of the 3.8-4.2 GHz band, while four respondents (including a mobile operator) did not raise any concerns with the timelines of the clause in its current state.

[24] The full responses to our May 2024 consultation can be found here.

Stakeholder suggestions on the use clause timelines

A3.6 Of those stakeholders who did raise concerns over the use clause option, only one requested an extension of the timeline, noting how a longer period would help with market demands and planning times.

A3.7 Otherwise, six stakeholders suggested that the use clause timeframe should be reduced. The feedback to reduce the timeline can be separated into two parts:

a) Seven responses indicated that the initial 'grace period' of 3.5 years before the 18-month use clause takes effect should be reduced. Stakeholder suggestions on revised timelines varied between 1.5 years and 3 years.
b) Six stakeholders suggested that the ongoing use requirement should be shorter than 18 months. The alternative proposed timelines varied from 18 months to 6 months.

Requests for clarification on how we would enforce the use clause

A3.8 Three respondents asked for clarification on how Ofcom would enforce the use clause, including how we would ensure an assignment is being "fully" rather than "partially" used; if H3G could apply for additional assignments during the use clause period; and the actions we would take if H3G asked for and maintained an assignment which it did not intend to use.

Feedback on how to utilise unused spectrum

A3.9 Building on the responses on the use clause, there were further suggestions on how we can ensure efficient use of spectrum.

Allowing short term Shared Access licence applications in unused spectrum

A3.10 Three Shared Access respondents raised concerns that spectrum which is currently sterilised by H3G may lie unused for 5 years before it is released. To avoid this scenario, the BBC, Neutral Wireless and ON-SIDE suggested that any spectrum lying fallow could be made available for short-term Shared Access applications during the initial and ongoing requirement to use period.

Areas previously coordinated for H3G should remain available for high power

A3.11 BT suggested that the 3.9 GHz band should be open for high-power Shared Access applications in areas where H3G has previously held – and then subsequently removed – assignments.

Clarify if H3G can lease spectrum

A3.12 BT also questioned if H3G would be able to engage in leasing / trading some of its 3.9 GHz assignments, allowing other stakeholders to make use of high-power FWA in locations H3G are not yet able to.

Frequency move

A3.13 As detailed in Section 3, H3G requested that we reconsider a frequency move and provided analysis of the mitigations that it could take. We also received support for a frequency move from two other stakeholders (see paragraph 3.5).

Other points

Mobile operator interest in the 3.8-4.2 GHz band for high-power mobile

A3.14 BT and VMO2 proposed that the 3.8-4.2 GHz band would be best used for high-power mobile (5G) and asked us to reconsider our current view of 3.8-4.2 GHz as an innovation band.

Pricing should be reviewed

A3.15 BT considered that the current fee is very low compared to the opportunity cost of the spectrum and Ofcom's costs in coordinating assignments, and therefore suggested that we amend our position not to consider pricing and carry out a review.

Location of available H3G sites

A3.16 BT, Neutral Wireless and ON-SIDE suggested that we should publish the locations of available H3G sites so third parties can better plan where to deploy.

A4. Technical analysis of the impact of the frequency move on H3G assignments

Summary

A4.1 Ofcom's standard approach to coordinating H3G with incumbent Fixed Link and Satellite Earth Station users in the 3.9 GHz band is in line with the Technical Frequency Assignment Criteria set out in OfW 590[25]. Using this standard approach, our analysis of the impact of the frequency move option shows that approximately 9.6 % of H3G's current assignments would not pass the coordination. These assignments would need to be removed or amended by H3G in order to protect the incumbent Fixed Links and Satellite Earth Stations.

A4.2 However, our standard approach to coordination assumes the use of non-AAS base stations; applying this approach to AAS base stations with an envelope pattern leads to an overly conservative outcome. We have therefore included a worst case reduction factor (F_{WCR}) of 6dB into the link budget which would reduce the number of assignments that fail coordination to around 6.4%. We consider that this is in line with our spectrum management approach to introduce realism into our methodologies.

A4.3 Detail of the factors we have taken into account when deriving the F_{WCR} is given below.

A4.4 We propose to include the 6dB F_{WCR} for coordination of H3G assignments (using AAS base stations) with Fixed Links and Satellite Earth Stations in our standard approach going forward.

A4.5 As mentioned above, H3G could reduce the impact of an assignment using local site engineering, reducing the power of the sector or reducing bandwidth. H3G could then resubmit the request for this assignment with the mitigation included, and we would reassess the request.

Our analysis

A4.6 As part of its request to enable 5G technology, H3G indicated its intent to deploy active antenna systems (AAS) equipment. AAS base stations direct transmissions (beams) towards individual users. The power transmitted in any given direction can therefore vary significantly over time, with peak powers often occurring for only short periods of time. The effect of beam pointing is reflected in our current coordination approach by using an envelope pattern for the antenna. This captures the highest possible antenna gain and radiated power for each direction, including considering that beams can point at or above the horizon. This can significantly overstate the risk of interference in a particular direction leading to much larger exclusion zones than would be needed in practice.

[25] OfW 590 Technical Frequency Assignment Criteria for Shared Access Radio Services.

Worst case reduction factor

A4.7 Coordinating AAS base stations using envelope patterns is likely to be overly cautious for a number of reasons. To increase realism in our coordination, we propose to introduce a F_{WCR} within our coordination approach.[26] This analysis is based on assuming an additional 6dB of loss within the link budget. The 6dB is based on the following factors:

- Typical network design includes antenna down tilt to constrain the cell coverage and avoid transmitting towards the horizon. This can reduce the gain towards the horizon by around 6dB. This is still the case when using AAS base stations, where beams are unlikely to be directed towards the horizon in practice.
- Where beams do point towards or above the horizon, this will typically be towards fixed wireless access (FWA) users. These will be in buildings which will also provide some shielding to incumbent systems located further away. These specific geometries may not be captured by the propagation models we use and could lead to several dB of additional path loss.
- AAS base stations can also transmit multiple beams covering different directions simultaneously. Base station resources (power and frequency) are split between those beams leading to a reduction in radiated power compared to the maximum possible with a single beam. H3G has told us that multiple beams is a valid configuration and, assuming two beams, would lead to around a 6dB reduction in maximum EIRP, in a given direction.

A4.8 In summary, using our standard coordination methodology, our analysis shows that 9.6% of H3G assignments would need to be removed or have their impact on incumbent users mitigated. However, taking into account the 6dB F_{WCR} described above reduces this to 6.4% of H3G sectors that would be impacted.

[26] We used a similar approach when considering which Fixed Link licences should be revoked as part of our preparations for the 26 GHz award: Enabling mmWave spectrum for new uses, April 2024.

A5. Responding to this consultation

How to respond

A5.1 Ofcom would like to receive views and comments on the issues raised in this document, by 5pm on 25th February 2025.

A5.2 You can download a response form from our web-page. You can return this by email or post to the address provided in the response form.

A5.3 If your response is a large file, or has supporting charts, tables or other data, please email it to liz.hall@ofcom.org.uk, as an attachment in Microsoft Word format, together with the cover sheet.

A5.4 Responses may alternatively be posted to the address below, marked with the title of the consultation:

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

A5.5 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.

A5.6 We will publish a transcript of any audio or video responses we receive (unless your response is confidential).

A5.7 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.

A5.8 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.

A5.9 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 8. 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.

A5.10 If you want to discuss the issues and questions raised in this consultation, please contact Liz Hall on 020 7981 3149, or by email to liz.hall@ofcom.org.uk.

Confidentiality

A5.11 Consultations are more effective if we publish the responses before the consultation period closes. 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.

A5.12 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.

A5.13 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.

A5.14 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.

A5.15 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

A5.16 Following this consultation period, Ofcom plans to publish a statement in Spring 2025.

A5.17 If you wish, you can register to receive mail updates alerting you to new Ofcom publications.

Ofcom's consultation processes

A5.18 Ofcom aims to make responding to a consultation as easy as possible. For more information, please see our consultation principles in Annex 6.

A5.19 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.

A5.20 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

A6. Ofcom's consultation principles

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

Before the consultation

A6.1 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

A6.2 We will be clear about whom we are consulting, why, on what questions and for how long.

A6.3 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.

A6.4 We will consult for up to ten weeks, depending on the potential impact of our proposals.

A6.5 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.

A6.6 If we are not able to follow any of these seven principles, we will explain why.

After the consultation

A6.7 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.

A7. 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 you selected 'Part of the response', please specify 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)?

Yes ☐ No ☐

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)

A8. Consultation questions

Question 1: Do you have any views on the additional option we outline to change the frequencies permitted under the 3.9 GHz licence from 3925-4009 MHz to 3800-3884 MHz?

Question 2: Do you have any comments on our proposed 18-month transition period for Shared Access users?

Question 3: Do you have any comments on our proposed approach to protecting Fixed Links and Satellite Earth Stations in 3800-3884 MHz?

Question 4: Do you have any other comments for us to consider in relation to the topics raised?

We would be grateful if stakeholders also let us know if they have further comments in relation to the initial changes we consulted on in May 2024 (although there is no need to resubmit the same comments).

Question 5: Do you have any comments on our impact assessment?

Question 6: Do you have any comments on our equality impact assessment?

Question 7: Do you have any comments on our Welsh language impact assessment?

Please provide evidence in support of your views.