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## **Improving consumer access to mobile services at 3.6GHz to 3.8GHz**

Update on timing of spectrum availability

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# About this document

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In October 2017, we confirmed our intended approach to expanding spectrum access for future mobile services in the 3.6GHz to 3.8GHz band in order to enable citizens and consumers across the UK to benefit from future mobile services including 5G.

We therefore commenced the statutory process to propose:

- revocation of fixed links licences in the 3.6GHz to 3.8GHz band; and
- variation of licences and grants of recognised spectrum access for satellite earth stations such that Ofcom would no longer take registered satellite earth stations with a receive component in the 3.6GHz to 3.8GHz band into account for frequency management purposes.

This document provides an update on when we expect spectrum in the 3.6GHz to 3.8GHz band to become available, following the decisions we have taken as part of that process.

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# 1. Executive summary

- 1.1 In July 2017, we set out our intention to make the 3.6GHz to 3.8GHz band available for mobile use as soon as possible.<sup>1</sup>
- 1.2 In October 2017 we published a statement<sup>2</sup> confirming our approach to existing registered users of the band, and began the statutory process to propose:
- revocation of fixed links licences in the 3.6GHz to 3.8GHz band with a notice period of five years; and
  - variation of licences and grants of Recognised Spectrum Access (RSA) for satellite earth stations such that, from 1 June 2020, Ofcom would no longer take registered satellite earth stations with a receive component in the band into account for frequency management purposes.
- 1.3 Licensees had one month to make representations on our proposals for their licence(s) or grant(s) of RSA. We carefully considered each licensee's representations before reaching our final decision in relation to individual licences and grants.
- 1.4 In all but one instance we decided to revoke or vary the licence or grant as proposed.
- 1.5 We have therefore:
- issued notices to revoke all fixed links licences in the band as proposed, with an effective date of 23 December 2022;
  - varied 12 Permanent Earth Station licences and three grants of RSA as proposed, with an effective date of 1 June 2020; and
  - varied one grant of RSA with an effective date of 1 September 2020.
- 1.6 The effect of our decisions, in line with the proposed approach we set out in the October statement, is that spectrum will be available to enable future mobile services in the 3.6GHz to 3.8GHz band to be deployed in many areas from June 2020, but not necessarily nationwide before the end of 2022. We will aim for fixed links operations to migrate to alternative frequencies or technologies by June 2020 where possible.
- 1.7 We plan to award the spectrum not already assigned for electronic communications services in 2019. We will consult later this year to prepare for this award.

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<sup>1</sup> Ofcom, *Improving consumer access to mobile services at 3.6GHz to 3.8GHz*, Statement and Consultation, 28 July 2017 [https://www.ofcom.org.uk/data/assets/pdf\\_file/0017/103355/3-6-3-8ghz-statement.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0017/103355/3-6-3-8ghz-statement.pdf)

<sup>2</sup> Ofcom, *Improving consumer access to mobile services at 3.6GHz to 3.8GHz*, Statement, 26 October 2017 [https://www.ofcom.org.uk/data/assets/pdf\\_file/0019/107371/Consumer-access-3.6-3.8-GHz.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0019/107371/Consumer-access-3.6-3.8-GHz.pdf)

## 2. Introduction

### Current users of the 3.6GHz to 3.8GHz band

- 2.1 Frequencies in the 3.6GHz to 3.8GHz band are currently authorised for fixed links, fixed satellite services (to receive space-to-Earth transmissions) and wireless solutions (provided by UK Broadband).<sup>3</sup>
- 2.2 There are currently 26 fixed links licences in the 3.6GHz to 3.8GHz band, two of which will expire on 28 November 2019. These links are used to convey voice or data traffic wirelessly between specified geographic locations. They support a variety of applications, including connections to broadcasting sites, mobile backhaul, and high frequency trading. Of the 24 licences in the band (excluding those expiring in 2019), six are in London and the south east, one connects Portsmouth to the Isle of Wight, and 17 are in northern Scotland.
- 2.3 Satellite earth stations use the 3.6GHz to 3.8GHz band for satellite downlink for a number of services, including broadcasting contribution and distribution from overseas, and data communications.
- 2.4 The ‘receive’ components of satellite earth stations are authorised under licence exemption regulations.<sup>4</sup> Ofcom also coordinates the band based on frequency management criteria to provide benchmark spectrum quality for satellite earth station receivers registered for specific frequencies through two regulatory products:
- Permanent Earth Station (PES) licences under the Wireless Telegraphy Act 2006 (the ‘**WT Act**’), under which we also authorise transmission at given frequencies; and
  - Grants of Recognised Spectrum Access for Receive Only Earth Stations (RSA for ROES).
- 2.5 There are currently 12 sites with satellite earth stations registered with a receive component in the 3.6GHz to 3.8GHz band under PES licences, and four sites with satellite earth stations registered with a receive component in this band under grants of RSA for ROES (one of which is also registered under a PES licence).<sup>5</sup>
- 2.6 An 84 MHz block within the 3.6GHz to 3.8GHz band is already used for electronic communications networks (which includes mobile and fixed communications). It is currently licensed to UK Broadband.

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<sup>3</sup> UK Broadband is now a wholly owned subsidiary of Hutchison 3G.

<sup>4</sup> The Wireless Telegraphy Apparatus (Receivers) (Exemption) Regulations 1989 (SI1989/123), January 1989, <http://www.legislation.gov.uk/uksi/1989/123/contents/made>

<sup>5</sup> The figures for registered satellite earth stations in this document exclude ✕.

## Making the 3.6GHz to 3.8GHz band available for mobile services

2.7 In our October 2016 consultation, *Improving consumer access to mobile services at 3.6 to 3.8GHz* (the '**October 2016 Consultation**'),<sup>6</sup> we explained that we consider this band a high priority band for future mobile use, and consulted on making the spectrum not already assigned for electronic communications services<sup>7</sup> available for future mobile services including 5G.

2.8 This band is particularly suitable for future mobile services including 5G because:

- the large bandwidth can support higher data rates and provide increased capacity to support large numbers of connected devices, and enable higher speeds to concurrently connected devices;
- it can support mobile services including 5G across wide areas, as it can be deployed using macrocells over existing grids; and
- it has already been harmonised for mobile and identified as part of the primary band for introducing 5G in Europe by the RSPG, with potential for devices to become available as early as 2019-20, and economies of scale for these.

2.9 In July 2017, having carefully considered stakeholders' responses to the October 2016 Consultation, we published a statement confirming our intention to make the 3.6GHz to 3.8GHz band available for mobile use including 5G as soon as is practicable (the '**July 2017 Document**').<sup>8</sup>

2.10 In addition to confirming our decision to make the band available for mobile use as soon as practicable, in the July 2017 Document we consulted on our proposed approach to existing authorisations in the band. We explained that, in order to facilitate deploying future mobile services including 5G in the band across the UK, our preferred approach to existing users of the band would be to:

- revoke current authorisations for fixed links with a notice period of 5 years, whilst aiming for these operations to migrate to alternative frequencies by 1 June 2020 where possible; and
- vary existing authorisations for receiving satellite earth stations operating under PES licences and grants of RSA such that, from 1 June 2020, we would no longer take registered satellite earth stations with a receive component in this band into account for frequency management purposes.

2.11 Having carefully considered responses to the July 2017 Document, in October 2017 we published a statement, *Improving consumer access to mobile services at 3.6GHz to 3.8GHz*

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<sup>6</sup> Ofcom, *Improving consumer access to mobile services at 3.6 to 3.8 GHz*, Consultation, 6 October 2016 [https://www.ofcom.org.uk/data/assets/pdf\\_file/0035/91997/3-6-3-8ghz-consultation.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0035/91997/3-6-3-8ghz-consultation.pdf)

<sup>7</sup> complying with European Commission Decision 2014/276/EU

<sup>8</sup> Ofcom, *Improving consumer access to mobile services at 3.6GHz to 3.8GHz*, Statement and Consultation, 28 July 2017 [https://www.ofcom.org.uk/data/assets/pdf\\_file/0017/103355/3-6-3-8ghz-statement.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0017/103355/3-6-3-8ghz-statement.pdf)

(the ‘**October 2017 Statement**’),<sup>9</sup> in which we confirmed that we would commence the statutory process to begin to implement this approach to existing users of the band.

## The statutory process for revocation and variation of licences and grants of RSA

- 2.12 Schedules 1 and 2 of the WT Act set out the process which Ofcom must follow where it proposes to vary or revoke a wireless telegraphy licence or grant of RSA. In summary, Ofcom is required to take the following steps:<sup>10</sup>
- notify the licensee/granthead of the reasons for the proposed revocation or variation;
  - specify a period of at least one month in which the licensee/granthead may make representations about the proposal; and
  - decide whether or not to vary the licence/grant within one month of the end of that period.<sup>11</sup>
- 2.13 In accordance with the statutory process, on 26 October 2017, we wrote to individual licensees and grantheaders to notify them of our proposal to revoke or vary their licence(s)/grant(s). Licensees and grantheaders had a period of one month within which to make representations on our proposals for their licence(s) or grant(s) of RSA.
- 2.14 We considered each licensee or granthead’s representations before reaching our final decision in relation to individual licences and grants. In accordance with the statutory process, we wrote to the affected licensees and grantheaders within one month of the deadline for their representations to notify them of our final decision for their licence(s)/grant(s).
- 2.15 Section 3 of this document provides an update on when we expect spectrum in the 3.6GHz to 3.8GHz band to become available, following the decisions we have taken as part of that process.

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<sup>9</sup> Ofcom, *Improving consumer access to mobile services at 3.6GHz to 3.8GHz*, Statement, 26 October 2017 [https://www.ofcom.org.uk/data/assets/pdf\\_file/0019/107371/Consumer-access-3.6-3.8-GHz.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0019/107371/Consumer-access-3.6-3.8-GHz.pdf)

<sup>10</sup> See Schedule 1, paragraph 7 of the WT Act in relation to the revocation or variation of a wireless telegraphy licence, and Schedule 2, paragraph 6 of the WT Act in relation to the revocation or modification of a grant of RSA.

<sup>11</sup> Where a proposal to vary or revoke a wireless telegraphy licence or grant of RSA is made with the consent of the licensee/granthead, Ofcom is not required to follow the above process.

## 3. Summary of our decisions

### Outcome of decisions

- 3.1 We decided to vary or revoke the licences/grants as follows. We have:
- issued notices to revoke all fixed links licences in the band as proposed, with an effective date of 23 December 2022;
  - varied 12 Permanent Earth Station licences and three grants of RSA as proposed, with an effective date of 1 June 2020; and
  - varied one grant of RSA with an effective date of 1 September 2020 (instead of 1 June 2020, in light of representations made to us).
- 3.2 The effect of our decisions, in line with the proposed approach we set out in the October 2017 Statement, is that spectrum will be available to enable future mobile services in the 3.6GHz to 3.8GHz band to be deployed in many areas from June 2020, but not necessarily nationwide before the end of 2022.
- 3.3 We note that we will continue to maintain appropriate protections for registered band users until their respective notice periods have lapsed.
- 3.4 The locations of the earth stations and fixed links for which we have varied or revoked licences/grants are shown in Figures 1, 2 and 3 below.<sup>12</sup> Figure 1 also identifies the grant of RSA which we have varied with an effective date of 1 September 2020.
- 3.5 Fixed links licensees have a period of five years notice to vacate the band, in line with the terms of their licences. However, in order to facilitate early deployment of future mobile services including 5G in the band across the UK, we will aim for fixed links operations to migrate to alternative frequencies or technologies by June 2020 where possible.<sup>13</sup>
- 3.6 More detail about the licences in this band, including the specific frequencies that are authorised, is available in the Wireless Telegraphy Register. This can be found on Ofcom's open data site: <https://www.ofcom.org.uk/research-and-data/data/opendata>

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<sup>12</sup> For Satellite (Permanent Earth Station) licences, the licence can incorporate any number of permanent earth stations that are located within 500 metres of a nominated centre point for the licence.

<sup>13</sup> In the event that any such migration out of the band were to take place before 23 December 2022, we would update stakeholders accordingly.



Figure 1: Locations of earth stations with varied licences/grants and fixed links with revoked licences

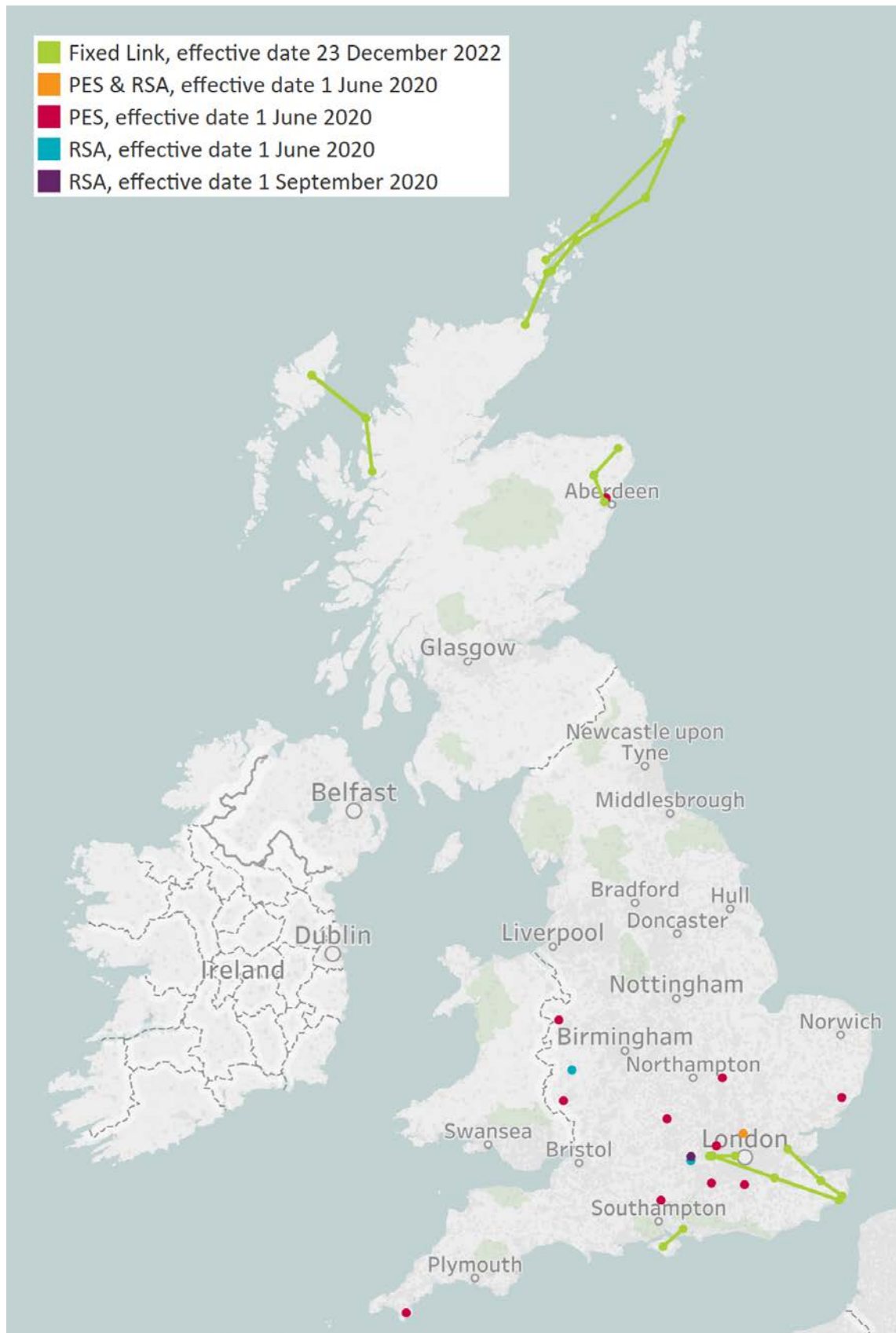


Figure 2: Locations of earth stations with varied licences/grants and fixed links with revoked licences: Scotland



Figure 3: Locations of earth stations with varied licences/grants and fixed links with revoked licences: south east

