
Three response to Ofcom's consultation on 'Improving consumer access to mobile services at 3.6 to 3.8 GHz'

Non-confidential

15 December 2016



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1. Three supports Ofcom's proposals to make 3.6GHz spectrum available for mobile under its 'remove' option

In October 2016, Ofcom issued a consultation proposing to make spectrum in the 3.6GHz band available for mobile.

Three welcomes Ofcom's proposal to make more spectrum available for mobile.

It is widely accepted that mobile traffic is growing at a rapid rate; in its Mobile Data Strategy update earlier this year, Ofcom quoted mobile data volume increases of around 60% a year in the UK, an eight-fold increase between 2011 and 2015.¹ This rapid growth is forecast to continue; potential data growth scenarios considered by Ofcom in its Mobile Data Strategy update imply an annual growth rate of 25%, 33% and 42% between 2014 and 2025. Therefore, a regular supply of spectrum re-purposing for mobile is needed in order to meet this demand. This is essential for MNOs as spectrum is a key input for providing mobile access.

The 3.6GHz band is a good option for making more available for mobile use:

- It is harmonised for mobile use in the EU, giving confidence that the band will be used for mobile in at least most of this region in the future;
- It has been identified for 5G use by the RSPG and it is an attractive band for this use, when it develops, given the large amount of spectrum it contains; and
- It is relatively lightly used compared to alternative options for spectrum re-purposing for mobile access.

Three supports Ofcom's 'remove' option for making 3.6GHz spectrum available for mobile.

In its October 2016 consultation, Ofcom proposes two alternative options for making spectrum in the 3.6GHz band available for mobile:

- **Retain:** Under this proposal, existing fixed link and satellite users would maintain their spectrum usage rights in the band. Mobile licensees would be introduced into the band, and would be required to prevent undue interference to existing users. Under this option, Ofcom would adjust fees for existing users to reflect the opportunity cost of their use of this spectrum. It

¹ Ofcom, *Mobile Data Strategy update*, June 2016

appears that the process underlying this option would be that, over time, revised ALFs would encourage existing users to migrate services to alternative spectrum bands, increasing the potential usability of this spectrum for mobile access.

- **Remove:** Following an appropriate notice period for existing users groups, Ofcom would (i) revoke fixed link licences and (ii) revoke grant of RSA or vary WT licences held by satellite users, with the effect that they could still receive signals but would no longer be subject to interference protections. Following the end of this notice period, this spectrum would be useable UK-wide for mobile.

Three supports Ofcom's 'remove' proposal. Both proposals will imply a long lead time before this spectrum can be used widely and intensively for mobile access. However, only the 'remove' option guarantees that the benefits for consumers of intensive use of this spectrum for mobile will be realised with high certainty.

It will take a substantial amount of time for this spectrum to be intensively usable for mobile in practice under both of Ofcom's proposed licensing options.

Ofcom's 'remove' option seems relatively straightforward in practical terms. Following its decision to adopt this option, Ofcom would:

- issue appropriate notice to existing users;
- auction this spectrum for mobile use prior to the end of this notice period; and
- allow mobile licensees to use this spectrum when the notice period for all existing users has finished.

Under this option, this spectrum will be available for mobile when the notice period of existing users has expired.

Ofcom's 'retain' option will also take time to make spectrum available for mobile on a restricted basis, and longer still for widespread geographic usability to evolve:

- Ofcom recognise that under its 'retain' option, the usability of this spectrum by mobile operators in the near future would be severely limited by the requirement to protect existing users.²

² Ofcom, *Improving consumer access to mobile services* *Improving consumer access to mobile services at 3.6 to 3.8 GHz at 3.6 to 3.8 GHz*, October 2016, paragraph 1.7 notes that "large separation distances between mobile and existing users in the 3.6 to 3.8 GHz band would be

- To implement this option, Ofcom would need to issue a statement on its preferred option, consult and conclude on the appropriate level of ALFs and auction this spectrum. On this:
 - ALF-setting will take a significant amount of time, and it is only when ALFs reflecting the opportunity cost of mobile are implemented that existing users will be properly incentivised to consider alternative options for their spectrum uses. This will delay the improvement of 3.6GHz spectrum usability.
 - Design and implementation of mobile spectrum auctions also take a substantial amount of time.

Further, the benefit of early spectrum usability under the 'retain' option, if any, will be limited by lack of compatible devices.

The 'remain' option involves the unacceptable risk that this spectrum will not be intensively usable for mobile in the future.

In its 3.6GHz consultation, Ofcom notes that "satellite earth station operators often have limited and/or indirect control over frequencies that their clients demand access to. It is typical for many frequencies in the 3.6 to 3.8 GHz band to be used at a single satellite earth station and they require benchmark spectrum quality across a greater spread of frequencies within the band than is normal for fixed links".³ This highlights a material risk that some satellite earth station licensees will continue to license spectrum in this band under the 'retain' option despite increased ALFs. Similarly, the migration of fixed links out of this band in response to increased ALFs cannot be guaranteed.

Given the location of existing users, and the exclusion or restriction zones that they would impose on mobile use, the prolonged existence of even a small sub-set of these users could have a substantial negative effect on the usability of this band for mobile access. Therefore, Ofcom's objectives should point to releasing this spectrum for mobile outright once existing users have been cleared.

required to prevent undue interference to existing users", and "this option would likely deny access to this band to mobile users over large areas across the UK."

³ Ofcom, *Improving consumer access to mobile services* *Improving consumer access to mobile services at 3.6 to 3.8 GHz at 3.6 to 3.8 GHz*, October 2016, paragraph 4.26

The uncertainty linked to the 'remain' option risks inefficient allocation of this spectrum.

While there is a reasonable degree of confidence that this spectrum will become usable for mobile from a harmonisation and devices perspective, there is a high level of uncertainty surrounding the timing of usability of this spectrum in practice. The usability of this band for mobile is highly dependent on the timing of migration of existing users out of the 3.6GHz band. Under the 'remain' option, when this will happen – or if it will happen at all – will not be known with certainty at the time that this spectrum is being auctioned. Therefore, there is a real risk that this spectrum will be allocated not to those with the best use cases for it, but to those with the most optimistic view of when existing users will vacate the band.

The inclusion of this band in the Mobile Spectrum Trading Regulations appears premature.

Given the developing nature of policy in this band, it seems prudent to include this band within the Mobile Spectrum Trading Regulations later. It would seem more appropriate to include this band in the Regulations in the run-up to an auction of 3.6GHz spectrum. Alternatively, this band could be included in the Mobile Spectrum Trading Regulations at the same time as the inclusion of 700MHz spectrum, if reasonable certainty had developed around the use of 3.6GHz spectrum for mobile by then.