



Vodafone Response to Ofcom's Consultation:

Variation of UK Broadband's Spectrum Access Licence for 3.6GHz spectrum



0. Executive Summary

Vodafone objects to Ofcom granting the licence variation as set out in the consultation.

Rather than looking at the issue of granting a licence variation in the context of its duties, Ofcom has simply looked at UKBB's request and decided to consult on a simple question. If Ofcom is minded to revisit the allocation of spectrum in the 3.6GHz band, there are a wider set of options which should be assessed and consulted on in order for it to properly fulfil its regulatory duties.

Vodafone accepts that there is a balancing act between Ofcom's regulatory duties, in particular between securing an outcome that promotes spectrum efficiency and one that promotes competition. However, by giving undue emphasis to one duty - spectrum efficiency - and not carrying out an adequate competition analysis, Ofcom could critically damage the nascent 5G marketplace. Ofcom risks a failure against both duties.

Granting the proposed variation would yield an attractive amount of contiguous spectrum for the forthcoming 3.6GHz auction. However, that variation could be enacted at any time up to the time of the auction. Granting this variation *now* would provide Three¹ with every opportunity and incentive to delay that auction to its competitive advantage, and would effectively remove any possibility of a replan of the band to yield contiguous blocks for all mobile operators. As such, granting the variation fails the hurdles of promoting competition, and, on a wider basis, of achieving spectrum efficiency.

We are willing to work with both Ofcom and other industry stakeholders to agree a better way forward, but must ask that the variation be rejected in its current form.

¹ Whilst the variation is to a licence held by UKBB, it is the associated operator Three that would gain the competitive advantage in the mobile market.



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1. Introduction

Vodafone welcomes the opportunity to comment on Ofcom's consultation on UK Broadband's (UKBB's) request to vary licence 0823615, amending both the applicable frequencies and technical characteristics.

It is unfortunate that in mechanically considering the "variation", Ofcom has locked itself into a binary decision of whether or not the proposal is acceptable, rather than considering what outcome best fulfills its regulatory duties. As this response will set out, neither the proposal, nor the counterfactual of the status quo, is likely to represent the best outcome for either UK consumers or efficient use of UK spectrum.

In this response we will first consider whether the request can be correctly described as a licence variation. We will then set out that if granted as requested, the variation will result in a competitive distortion that presents a windfall gain to UKBB that can be conservatively estimated at tens of millions of pounds. Finally, we will highlight other approaches that Ofcom could have considered, and should now explore with industry stakeholders.

2. Is the request a variation?

Both UKBB's request, and Ofcom's consultation about it, refer to the proposed changes as a "licence variation". Regardless of whether UKBB's request can be classified as a "variation" in the narrow sense, Ofcom has not (to-date) licensed UKBB to use the frequencies 3600-3605MHz under the Wireless Telegraphy Act, nor indeed has it licensed anyone to use these frequencies. To do so would mean awarding the rights to use these frequencies; Ofcom has not been through that exercise.

Far from being a simple variation, the proposed changes could be depicted as;

- An award of the usage of the frequencies 3600-3605MHz to UKBB;
- A variation of the technical characteristics of the 3605-3680MHz licence; and
- UKBB giving up its licence to use the frequencies 3680-3689MHz.

This difference is key: under Article 9 of the Framework Directive, there is a requirement that Member States²;

*"...ensure that spectrum allocation used for electronic communications services and issuing general authorisations or individual rights of use of such radio frequencies by competent national authorities are based on **objective, transparent, non-discriminatory and proportionate criteria.**"*

² https://ec.europa.eu/digital-single-market/sites/digital-agenda/files/140framework_5.pdf Article 9(1)



The Wireless Telegraphy Act acknowledges this, requiring that³

In imposing terms, provisions or limitations on a wireless telegraphy licence, OFCOM may impose only those that they are satisfied are—

(a) objectively justifiable in relation to the networks and services to which they relate;

(b) not such as to discriminate unduly against particular persons or against a particular description of persons;

(c) proportionate to what they are intended to achieve; and

(d) in relation to what they are intended to achieve, transparent.

Furthermore, Ofcom when undertaking its functions⁴

“must also have regard, in particular, to the desirability of promoting—

(a) the efficient management and use of the part of the electromagnetic spectrum available for wireless telegraphy;

(b) the economic and other benefits that may arise from the use of wireless telegraphy;

(c) the development of innovative services; and

(d) competition in the provision of electronic communications services.”

(Vodafone emphasis)

Awarding the rights to usage of 3600-3605MHz to a single stakeholder therefore requires a comprehensive assessment of issues such as the level of demand for the spectrum and the (competitive and technical) impact on other stakeholders to ensure that they are not unduly discriminated against. Without conducting a comprehensive assessment of this type, Ofcom is in no position to determine whether accepting the proposed variation would be transparent or non-discriminatory and whether the new conditions will be objectively justifiable or proportionate. Nor can it be paying due regard to competition, even if UKBB is offering to give up the rights to use 3680-3689MHz in return.

Because this variation is essentially an award of previously unused spectrum, we find it difficult to understand how Ofcom *could* undertake the type of comprehensive assessment that would be required to discharge its duties, and we consider that any variation of this type would necessarily need to be considered at the same time as a broader approach to allocation in the band. Nevertheless, for the remainder of this response we take the counterfactual that Ofcom is somehow able to undertake the type of analysis required to justify a variation, notwithstanding that this is essentially an award of previously unused spectrum.

³ Section 9(7)

⁴ Section 3(2)



3. Impact on competition

Ofcom is required to have regard to promoting competition in the provision of electronic communications services when carrying out its duties under the Wireless Telegraphy Act⁵. Paras 4.30-4.47 purport to analyse the impact upon competition of allowing the variation. However, it is notable that Ofcom's prime concern seems to be one of spectrum efficiency, and that the subsequent competition analysis runs to a mere four pages with little consideration of the impact on consumers or the longer-term strategic impact on other stakeholders, in contrast to the approximate 330 pages that was dedicated to analysis of competitive impacts of awarding 3.4GHz spectrum⁶. This comparison is key because the core questions as to the competitive effect of the proposed variation apply in what Ofcom termed the Second Transitional Period in its earlier analysis – this is the period from when 3.4GHz becomes available to when 3.6GHz is fully usable. Ofcom was sufficiently concerned about competitive distortions – albeit not by Three – that it imposed competition measures in that earlier analysis, in the form of spectrum caps.

At a time when the largest usable holding by any other stakeholder is 50MHz, the effect of the variation is to permit Three to launch 5G services using 100MHz of contiguous spectrum, subject to the 3.6GHz band being commercially usable. While Vodafone recognises that the 3.6GHz band will not be universally usable until 2022, such a statement is insufficiently granular. A more detailed analysis shows that satellite usage of the band will have cleared by 2020 (and in reality potentially earlier, as ground station operators seek to migrate in a timely manner), leaving only some fixed link point-point usage. It is notable that:

1. Satellite usage is clustered to the top of the band whereas UKBB's usage licence is at the bottom, so the pre-2020 restriction is to a large extent illusory, and
2. The fixed link usage affects only certain geographies. While some of these are important – south east England for example – there would be no limitation, post variation, in Three launching services in population centres in the south west, midlands and north of England, Wales and probably the central belt of Scotland.

We understand that there is little difference in the timelines for availability of ecosystem for the 3.4GHz and 3.6GHz band. There is therefore every reason to expect that Three could use the licence variation to launch 5G services before other stakeholders have access to the band.

This variation represents a competitive windfall gain for Three, the impact of which has not been assessed. 100MHz is important. It is viewed by vendors as the bedrock of spectrum requirements⁷. Yet until the

⁵ Section 3(2)(d)

⁶ 21 pages in the main consultation plus around 327 pages in Annexes 1-11. <https://www.ofcom.org.uk/consultations-and-statements/category-1/award-of-the-spectrum-bands>

⁷ See for example "Making 5G NR a commercial reality" by Qualcomm at [slide 10](#) "Outdoor macro and small cell, carrier bandwidth, e.g. 100MHz" and "5G public policy position" by Huawei at [page 2](#) "The C-band (3300-4200 and 4400-5000 MHz) is emerging as the primary frequency band for the introduction of 5G by 2020, providing an optimal balance between coverage and capacity for cost efficient implementation. The availability of at least 100 MHz channel bandwidth per 5G network with the adoption of massive MIMO will boost peak, average and cell edge throughput with affordable complexity."



auction of the remainder of the 3.6GHz band, only Three will have access to such large amounts of contiguous spectrum. Whilst all four national mobile wholesalers will have the ability to launch 5G services, Three uniquely will have a 100MHz block of spectrum which could allow it to launch headline 5G services ~~3~~. There is a real prospect that Three will have a monopoly in the provision of ultra-high speed/ultra-high bandwidth services, which will have been created solely by being awarded privileged access to spectrum that is unavailable to its competitors.

Three may well claim that such effects would be short-lived and of relevance only to certain market segments, hence not be of concern to Ofcom. Yet it was precisely these same conclusions which led Ofcom to impose a restriction in the 3.4GHz auction rules, as a safeguard to ensure that neither BT-EE nor Vodafone could acquire the lion's share of that band and target segments desiring high data throughput in the period before more spectrum was available. Faced with a concern of a similar outcome of "temporary effects on a subset of market sectors", in a similar timeframe, Ofcom now concludes that *"it is unlikely that it would have a material adverse impact on competition to the detriment of consumers"*. Yet in each case, Ofcom faced the same question of whether a player could be able to secure an advantage in the launch of 5G services which could adversely affect competition. That Three has a lower market share than BT-EE in 3G/4G services should not distract Ofcom from looking at the impact of competitive distortion in the market for 5G services. Ofcom has failed to address the issue.

To take a contrarian view: if Three cannot secure competitive advantage by the licence variation being granted now, some 15-18 months prior to its competitors being able to acquire such rights, why does it require the variation now? Why not vary the licence at the point of auctioning the remainder of the spectrum? It is self-evident that Three is able to gain competitive advantage by this application to Ofcom, advantage that cannot be countered by other stakeholders because they cannot access the 100MHz of contiguous spectrum that this variation yields. That advantage must be fully assessed as with any other award of spectrum; it is not simply good enough to treat this as an administrative matter.

Further, any competitive advantage secured by Three is extremely unlikely to be short-lived.

The best case situation is that the auction of 3.6GHz spectrum occurs in Ofcom's projected timeline of 2019, and either as part of, or immediately subsequent to this award, there is an exercise to defragment the band so that at least one other operator secures 100MHz of contiguous spectrum⁸. Even in this best case scenario, the evidence is that Three's first-mover advantage would be prolonged: up to four years after being permitted to launch 4G services early using the 1800MHz band, BT-EE is able to claim a coverage advantage over those operators forced to await the auction of 800MHz⁹. There is every possibility that having a year's head start on its competitors in high bandwidth applications will allow Three to exert similar marketing advantage in the 5G marketplace.

⁸ Or perhaps two could achieve this – but given Three's holdings of 140MHz of spectrum, it would be impossible for all three other operators to achieve this goal absent a divestment by Three.

⁹ <https://ee.co.uk/why-ee/mobile-coverage> - "4G in more places than any other UK network"



Yet this is very much the best case situation. Three would have every incentive and opportunity to ensure that this best case scenario wasn't realised:

- Three has shown itself to be prepared to launch legal action against Ofcom's auction rules, indeed to challenge the findings of the High Court where it doesn't support Three's views. It is right and proper that stakeholders retain the opportunity to challenge Ofcom decisions that they don't believe have been properly considered. However, having acquired 100MHz of contiguous spectrum, Three would be incentivised to legally challenge every aspect of the 3.6GHz auction rules, in order to delay the day when its competitors could close the spectrum gap. Even a challenge that was dismissed by the courts would serve to achieve this delay; and
- Even when the remainder of the 3.6GHz band was auctioned, having been granted contiguous spectrum in the range 3580-3680MHz¹⁰, right in the centre of the band, Three would be in an ideal position to stifle any opportunity to replan the 3400-3800MHz band to allow its competitors to similarly acquire contiguous spectrum. Having secured its licence variation, Three would have no reason to move to different frequencies to assist its competitors in achieving similar contiguity of spectrum. ✂. Hence by enshrining Three's presence in the 3580-3680MHz frequencies, Ofcom is precluding defragmentation of the band, precluding any competitor achieving a similar 100MHz of contiguous spectrum and diminishing spectrum efficiency overall.

There is thus every chance that the advantage will be permanent, with no competitor able to acquire the 100MHz of contiguous spectrum which best suits 5G technology. The best that other operators could do would be to use carrier aggregation of smaller blocks, but:

- Our suppliers suggest that this creates a ✂ penalty when compared to operating the same amount of spectrum on a contiguous basis and
- ✂.

By varying the licence, Ofcom would be dramatically increasing its commercial value. The resultant possibly-permanent competitive advantage would have potentially huge financial benefits for Three, which are difficult to quantify. An absolute minimum estimate for the value of contiguity is that Three was prepared to pay £25M to have its 20MHz acquired in the 3.4GHz auction adjacent to its existing 20MHz holding¹¹, creating a 40MHz block. We would assert, however, that adding 20+80 to create a 100MHz block is likely to yield a benefit which is an order of magnitude higher than this. Creating such a windfall for a single stakeholder is clearly at odds with Ofcom's statutory duty to act in a non-discriminatory manner.

For these reasons, Vodafone considers any granting of the variation as being highly discriminatory and potentially damaging to competition. We do not consider that Ofcom's competition analysis is sufficiently

¹⁰ As well as its holdings at 3560-3400MHz.

¹¹ <https://www.ofcom.org.uk/data/assets/file/0020/112934/Assignment-Stage-data.zip>



thorough, and urge Ofcom to revisit this process with the same rigour which was applied when Ofcom determined the 3.4GHz auction process.

4. Neglected alternatives

The proposed licence variation is unacceptable because it yields Three a potentially permanent, structural competitive advantage in the market at a time when mobile services are about to undertake a step change, and without Ofcom having undertaken a sufficient assessment of the impacts on competition and consumers. Conversely, the status quo isn't particularly desirable, because it leaves a stranded 5MHz block together with 111MHz of spectrum to be fought over in the 3.6GHz band, in contrast to the 120MHz contiguous yielded by the proposed variation (although it is a better option for now than introducing a permanent structural competitive advantage to one market player). However, Ofcom did not need to leave itself just two options: a binary decision between neglecting spectrum efficiency or neglecting competition aspects.

There are other alternatives that Ofcom, and more widely industry stakeholders, should consider. The following are examples, but barely scratch the surface of options Ofcom could consider further:

1. UKBB could be notified now that in principle its licence will be varied in the future so that the technical characteristics will be aligned with the rest of the band. As part of the 3.6GHz auction design, the Principal Stage could auction 110MHz of generic spectrum. There would then be an "Assignment Stage Plus". In this "Assignment Stage Plus", existing licensees – including UKBB – would be able to enter their whole 3.4-3.8GHz spectrum holdings with the aim of achieving contiguous blocks of spectrum. Further, if UKBB had chosen to participate, the additional 10MHz would form part of the exercise so as well as bidding for specific frequencies, the bidders would enter valuations for frequency combinations extended by 5MHz and 10MHz. Safeguard rules would ensure that no bidder had less contiguity in existing holdings than they had entering the exercise.
Or,
2. UKBB's licence could be varied at the point where the opportunity for all legal challenges to the 3.6GHz auction had passed (notionally spring-summer 2019). Rather than a variation that resulted in the licence being for frequencies 3580-3680MHz, it would instead be a shift to 3700-3800MHz. This would leave the other licensees/bidders in a better position to achieve contiguity either via the auction process (i.e. the Assignment Stage incorporated all of the 3400-3700MHz spectrum), or via an Ofcom-brokered negotiation.

Vodafone is willing to explore options on a multi-lateral basis with Ofcom and UKBB/Three, and other mobile industry stakeholders who we believe will be similarly interested.



5. Minimum conditions

Vodafone objects to Ofcom's approach to the award of new spectrum in response to the return of existing spectrum without wider competition analysis. It cannot be considered good practice and the reality is that there is likely to be considerable negative impact on the market and the subsequent 3.6GHz auction if Ofcom persists. If Ofcom is minded to grant the variation despite the objections of other stakeholders, then at the very least:

1. Although the licence variation could be approved in the short term, the enactment must not occur until after the point at which it is not possible for Three to legally challenge the detail of the 3.6GHz auction.
2. Annual Licence Fees (ALFs) reflecting full market value must be payable on all UKBB's holdings in the 3.4-3.8GHz band, from the point at which licence variation occurs. Ofcom has a good proxy for lump sum market value from the recent auction of 3.4GHz spectrum - £7.7M/MHz¹² and by the time of the grant of any variation, there should be consensus on at least the process to convert from lump sum to annual fee. In the event that the auction of 3.6GHz yields a materially different value, then the applicable ALFs could be varied at that time (and if UKBB is concerned about this uncertainty, then it has the option to await that auction).
3. A binding commitment is secured from Three to negotiate in good faith for any replanning of the 3.4-3.8GHz band after the auction.

6. Conclusions

Vodafone objects to the licence variation as currently proposed. It provides a significant windfall gain to Three, and Ofcom has carried out scant analysis of the effects on competition and on consumers. It provides the opportunity for Three to deprive other mobile operators of securing the 100MHz of contiguous spectrum which the technical standards push for.

Ofcom has erred in considering the question to be a binary decision. We urge Ofcom to examine the wider options, and we are fully willing to participate in multi-lateral discussions to determine an approach that meets the twin goals of being pro-competitive and spectrally efficient.

¹² Total base price £1.15Bn for 150MHz - https://www.ofcom.org.uk/data/assets/pdf_file/0018/112932/Regulation-111-Final-outcome-of-award.pdf