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# Three's response to Ofcom's Call for Inputs on making more spectrum in the 1.4GHz band available for mobile services

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## Non-confidential

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# Executive Summary.

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Three welcomes the opportunity to respond to Ofcom's Call for Inputs on making more spectrum in the 1.4GHz band available for mobile services. In our response, we have provided our initial view on key areas such as the timing of the auction, certain aspects of the auction design and on the proposed co-ordination measures to protect adjacent satellite users. We note that Ofcom plans to publish a subsequent, more detailed Consultation containing proposals for making the spectrum available, and we will provide a fuller response at the time.

In Section 1, we explain that Ofcom must balance timely access to spectrum with conducting the auction at a time when bidders have sufficient certainty on their requirements and valuations, which is crucial to an efficient auction. We are concerned that Ofcom has not ruled out a 1400MHz auction prior to the CMA's merger decision, which is in obvious contrast to Ofcom's decision on the upcoming mmWave auction.

Due to the large uncertainty associated with the proposed merger, we consider that holding the auction before the CMA's decision on the proposed merger creates a significant risk of an inefficient auction. We consider that delaying the auction until after the CMA's merger decision would likely only result in a short delay, if any, and such delay is insignificant compared to the obvious risk of an inefficient auction held prior to the CMA's decision.

In Section 2, we argue that Ofcom should conduct a multiple round ascending auction, rather than a sealed-bid, single round auction, and provide information on aggregate demand after each round. We also explain that Ofcom should set reserve prices materially lower than potential market value and auction the spectrum as five lots of 5MHz to maintain flexibility and allow the auction to determine the optimal spectrum allocation. In the event that Three wins additional spectrum, Ofcom should automatically assign it next to Three's existing holding, to minimise fragmentation in the band and guarantee contiguity.

In Section 3, we ask Ofcom to limit any co-ordination requirements to areas in which interference with adjacent satellite users is likely, to minimise any adverse impact on MNOs' 1400MHz deployments. We ask Ofcom to conduct a more detailed analysis for each port and airport in its subsequent Consultation and to propose more targeted measures. We also urge Ofcom to maintain consistent power limits through the 1492-1517MHz band at 68 dBm/5MHz.

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# 1. Ofcom should conduct the auction after the CMA's decision on the proposed Three-Vodafone merger.

## Executive Summary

In this Section, we explain that Ofcom must balance timely access to spectrum with conducting the auction at a time when bidders have sufficient certainty on their requirements and valuations, which is crucial to an efficient allocation of spectrum. We are concerned that Ofcom has not ruled out a 1400MHz auction prior to the CMA's merger decision, which is in obvious contrast to Ofcom's decision on the upcoming mmWave auction.

Second, we explain that holding the auction before the CMA's decision on the proposed merger creates a significant risk of an inefficient auction. In the event Ofcom were to hold the 1400MHz auction prior to the CMA's decision, the vast degree of uncertainty regarding spectrum requirements and valuations would [×].

Last, we explain that delaying the auction until after the CMA's merger decision would likely only result in a short delay, if any, to the 1400MHz auction. We consider any small delay to be insignificant compared to the obvious risk of an inefficient auction, were it to be held prior to the CMA's decision. We therefore urge Ofcom to confirm, in its subsequent Consultation, that the 1400MHz auction will not be held until the CMA's decision on the proposed Three-Vodafone merger is published.

## **Ofcom must balance timely access to spectrum with allowing bidders to have sufficient certainty on their requirements and valuations**

Ofcom must decide the optimal timing of the auction, balancing on one hand timely access to valuable spectrum, and on the other the need for potential bidders to have sufficient certainty on their spectrum requirements and valuations. Given Ofcom's duty to ensure the efficient use of spectrum, we consider that Ofcom should place greater emphasis on achieving the efficient allocation and that any potential short delays to the auction are relatively insignificant.

Ofcom is aiming to make the upper block of the 1.4GHz band available for mobile use in 2025, after fixed links vacate the band at the end of 2024. We note that Ofcom has not yet confirmed when the auction will take place, but we are concerned that Ofcom has not ruled out an auction prior the CMA's decision on the proposed Three-Vodafone merger.

We note that this is in obvious contrast to Ofcom's decision on the upcoming mmWave spectrum auction. In its September 2023 Statement on the mmWave spectrum auction, Ofcom stated that *"after careful consideration, given these specific circumstances, to avoid the risk of an inefficient allocation of spectrum, we have decided to delay commencing*

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*the auction process” until “the CMA has taken its decision on the proposed merger”.<sup>1</sup>*

An efficient auction requires that all potential bidders sufficiently understand their spectrum requirements and valuations, [§]. It is for this reason that Ofcom has decided to delay the mmWave spectrum auction, and we are not aware of any reason which could lead Ofcom to adopt a different approach regarding the 1400MHz spectrum. Due to its propagation characteristics, the 1400MHz spectrum is likely to be significantly more valuable than the mmWave spectrum, and as such it is even more vital that Ofcom holds the auction at the correct time, with informed bidders.

### **Holding the auction before the CMA’s decision on the proposed merger creates a significant risk of an inefficient auction**

In the event Ofcom were to hold the 1400MHz auction prior to the CMA’s decision, the vast degree of uncertainty [§]. Holding the auction prior to the CMA’s decision would therefore necessarily prevent an efficient auction, running contrary to Ofcom’s duties.

[§].

### **Delaying the auction until after the CMA’s merger decision would likely only result in a short delay, if any**

In this initial Consultation, Ofcom discusses the potential auction format and aspects of auction design in only one page. However, Ofcom explains that it plans to publish a subsequent, more detailed Consultation in due course.<sup>2</sup> This is something we strongly support, noting that Ofcom has previously published much more comprehensive Consultations ahead of spectrum auctions.<sup>3</sup>

Given the likely timings to consider responses to this Call for Inputs, prepare and publish a more detailed Consultation, allow time for responses and engagement with industry and then publish a Decision, we would not anticipate much delay, if any, were Ofcom to confirm the auction will be held after the CMA’s decision.

Even in the event a small delay arose, we consider this would be insignificant compared to the obvious risk of an inefficient auction held prior

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<sup>1</sup> [Statement: Enabling mmWave spectrum for new uses \(ofcom.org.uk\)](#), para 1.6

<sup>2</sup> [Call for Inputs: Making more spectrum in the 1.4 GHz band available for mobile services \(ofcom.org.uk\)](#), para 2.10.

<sup>3</sup> For example, in its March 2023 Statement and Consultation on the mmWave spectrum auction, Ofcom provided a detailed consideration on auction design.

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to the CMA's decision. We believe that the risks associated with conducting the auction prior to the CMA's merger design greatly outweigh the benefit of slightly-early access to the spectrum. We therefore urge Ofcom to confirm, in its subsequent Consultation, that the 1400MHz auction will not be held until the CMA's decision on the proposed Three-Vodafone merger is published.

## 2. Comments on proposed auction design.

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### Executive Summary

In this Section, we provide some initial comments on several aspects of auction design. We note that Ofcom plans to publish a subsequent, more detailed Consultation, and will provide a fuller response at that time.

First, we explain that Ofcom should conduct a multiple round ascending auction and provide information on aggregate demand after each round, as this is more likely to result in an efficient allocation of spectrum than a sealed bid, single round auction.

Second, we explain why Ofcom should set reserve prices materially lower than potential market value, to reduce risk of unsold spectrum, encourage participation in the auction and provide more opportunities for price discovery.

Third, we explain our view that Ofcom should auction the spectrum as five lots of 5MHz to maintain flexibility and allow the auction to determine the optimal spectrum allocation, rather than preventing certain outcomes via larger lot sizes.

Last, we argue that if Three wins additional spectrum, Ofcom should automatically assign it next to Three's existing holding, to minimise fragmentation in the band and guarantee contiguity.

### **Ofcom should conduct a multiple round ascending auction and provide information on aggregate demand after each round**

Ofcom considers two potential auction formats, namely:

- a) A **sealed bid, single round auction**, where bidding would be conducted in a single round, with the largest bid or combination of bids selected as the winning bids. Winning bidders could, for example, pay fees based on a second-price rule); and
- b) A **multiple round ascending auction**, where bidding would be conducted over a number of rounds and prices would continue to rise while there is excess demand, e.g. a clock auction.

Ofcom considers that a sealed bid, single round would be faster and simpler. However, Ofcom must principally consider which auction format is more likely to result in the efficient allocation of spectrum, and put much less weight on a small difference in the auction duration.

Crucially, a multiple round ascending auction, where bidders are provided with information on total demand after each round, allows bidders to progressively refine their estimates of market value as the auction

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progresses, addressing common value uncertainty (i.e. where the value of spectrum is common but unknown to bidders).<sup>4</sup> This improves the likelihood that the auction delivers the efficient allocation of spectrum because, as Ofcom explains, this could help bidders in updating their bidding strategies.<sup>5</sup>

By contrast, in a sealed bid, single round auction, bidders would receive no such information from the auction itself. As a result, bidders that were overly optimistic or pessimistic in their spectrum valuations may inefficiently win too much or too little spectrum.

### **Ofcom should set reserve prices materially lower than potential market value**

As Ofcom explains in its mmWave Consultation, setting low reserve prices has several advantages: it reduces the risk of unsold spectrum, encourages participation in the auction, and provides more opportunities for price discovery when a multiple round auction format is used.<sup>6</sup>

Further, we note that the risk of setting reserve prices above or below potential market value is highly asymmetric: if reserve prices are set below market value, they will be bid up to market value, but setting them even slightly higher than market value results in unsold spectrum. There is also uncertainty about the potential value of the spectrum in the UK, which should lead Ofcom to be very conservative when setting reserve prices.

### **Ofcom should auction the spectrum as five lots of 5MHz to maintain flexibility and allow the auction to determine the efficient allocation**

As Ofcom stated in its mmWave Consultation, *“the lot size should be small enough to allow bidders the flexibility to bid for spectrum in quantities that they desire, and be large enough to reduce the risk that bidders win spectrum in amounts that are too small to be utilised”*.<sup>7</sup>

Ofcom considers auctioning the 25MHz of spectrum as either a single block of 25MHz or in smaller lot sizes, e.g. five lots of 5MHz each or as two lots (of 10MHz and 15MHz).

Ofcom’s objective of the auction is to efficiently allocate the spectrum. The efficient allocation of the spectrum is unknown, but could very plausibly involve several bidders winning spectrum, for example [∞]. A single lot of

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<sup>4</sup> Reducing common value uncertainty promotes well-informed bidding, increasing the likelihood of an efficient outcome.

<sup>5</sup> [Call for Inputs: Making more spectrum in the 1.4 GHz band available for mobile services \(ofcom.org.uk\)](#), para 4.4

<sup>6</sup> [Statement and consultation: Enabling mmWave spectrum for new uses \(ofcom.org.uk\)](#), para 9.108

<sup>7</sup> [Statement and consultation: Enabling mmWave spectrum for new uses \(ofcom.org.uk\)](#), para 9.19

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25MHz would preclude this, and would therefore contradict Ofcom's objective.

Therefore, we believe Ofcom should split the 25MHz into several lots. We consider that Ofcom should award the spectrum in five lots, each of 5MHz, to retain maximum flexibility and allow the auction to determine the efficient allocation, rather than limiting it via, for example, one lot of 10MHz and one lot of 15MHz.

If one or more bidders required a minimum of two lots (10MHz), they should be able to manage the risk of winning only one lot (5MHz) were Ofcom to run a multiple-round auction and report exact aggregate demand after each round. We do not consider that this risk would be sufficient justification for Ofcom to assign lots larger than 5MHz, as this may preclude the efficient allocation of spectrum.<sup>8</sup>

**If Three wins additional spectrum, Ofcom should guarantee contiguity with Three's existing holding**

Currently, both Three and Vodafone hold 1400MHz spectrum, with Three's holding (1472-1492MHz) adjacent to the additional 1400MHz spectrum Ofcom plans to auction. Given this, we consider that if Three wins additional spectrum, Ofcom should automatically assign it next to Three's existing holding, to minimise fragmentation in the band.

[§].

We note that the Canadian regulator adopted this position in the 2015 auction of 2500MHz spectrum. It stated that "*A bidder that wins one or more licences in a product where they have an existing licence will have its new licence assigned as contiguous to its existing licence.*"<sup>9</sup> Given the obvious benefits of ensuring contiguity to Three, minimising further fragmentation [§], we ask that Ofcom explicitly considers this proposal in its subsequent, more detailed Consultation.

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<sup>8</sup> As a purely illustrative example, suppose [§].

<sup>9</sup> Industry Canada, "Licensing Framework for Broadband Radio Service (BRS) — 2500 MHz Band", Section 16, <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10730.html>.

# 3. Comments on Ofcom's co-existence analysis.

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## Executive Summary

In this Section, we explain our view that Ofcom should limit any co-ordination requirements to areas in which interference with adjacent satellite users is likely, to minimise any adverse impact on MNOs' 1400MHz deployments.

We ask Ofcom to conduct a more detailed analysis for each specific port and airport in its subsequent Consultation and to propose more targeted measures. We also urge Ofcom to maintain consistent power limits through the 1492-1517MHz band at 68 dBm/5MHz, instead of imposing a lower limit of 58 dBm/5MHz for 1512-1517MHz.

### **Ofcom should target co-ordination requirements where interference is likely and maintain consistent power limits across 1492-1517MHz**

Ofcom sets out its initial views on how to mitigate interference between mobile services and Inmarsat satellite terminals using the block adjacent to 1492-1517MHz. Ofcom proposes to:

- Require new mobile deployments to co-ordinate with satellite terminals to ensure power flux density (PFD) limits are not exceeded within a certain distance/radius of ports and airports; and
- Follow recommended EIRP limits given in ECC decision (17)06.<sup>10</sup>

We recognise the need for satellite protection around ports and airports, but given the large value of using the spectrum for mobile services, urge Ofcom to find a balanced solution, minimising the impact on mobile use.

We ask Ofcom to limit the co-ordination measures to specific ports and airports where Ofcom's analysis suggests interference is likely, to minimise any adverse impact on MNOs' deployments and therefore maximise spectrum efficiency. We ask that in Ofcom's subsequent Consultation, it conducts a detailed analysis for each port and airport, considering the potential for interference and proposing more targeted measures.

Ofcom has stated that it proposes to follow the recommended EIRP limits given in ECC decision (17)06, which recommends that the EIRP limit for:

- 1492-1512MHz should be 68 dBm/5MHz; and
- 1512-1517MHz should be 58 dBm/5MHz.

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<sup>10</sup> [ECO Documentation \(cept.org\)](http://eco.documentation.cept.org)

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Due to the proposed power limit in the 1512-1517MHz block, the effective power available for mobile services would be severely restricted. The proposed limit is inconsistent with the other parts of the band (1492-1512MHz) and also with the centre of the 1400MHz band (1452-1492MHz) which is currently held by Three and Vodafone.

If an MNO secures 10MHz in 1507-1517MHz, adopting an imbalanced power allocation between the initial 5MHz block (higher power) and the subsequent block (lower power) using the current RAN solution would prove challenging. As a result, the entirety of the 10MHz block would be utilised with restricted power, reducing the efficiency of the spectrum.

We therefore ask Ofcom to maintain consistent power limits throughout the 1492-1517MHz band at 68 dBm/5MHz. Ofcom is already suggesting specific co-ordination requirements to prevent interference from new mobile deployments to adjacent satellite receivers, and as such we consider that imposing stricter EIRP limits is unnecessary.