Virgin Media O2 response to Ofcom's Call for inputs:

Making more spectrum in the 1.4 GHz band available for mobile services:

Call for inputs on Ofcom's coexistence analysis

January 2024

INTRODUCTION

Virgin Media O2 ("VMO2") welcomes the opportunity to respond to Ofcom's Call for inputs on making more spectrum in the 1.4 GHz band available for mobile services.[1] Our response focusses on Ofcom's specific questions.

RESPONSE TO SPECIFIC QUESTIONS

Question 1: Do you have any comments on the coexistence analysis we have carried out?

We have no general comments to make on the co-existence analysis itself. We do have one specific observation, which is that current 1.4 GHz transmissions will be from tower top Remote Radio Units, with feeder losses in the 0.5 dB range. In Table 1 of the Call for inputs, feeder losses are assumed to be 3 dB, implying the power amplifier is at the bottom of the tower, which won't normally be the case.

Question 2: Do you have any comments on the proposed sizes and implementation methods for the PFD limited and coordination zones, both individually and as hybrid options?

We note that at 3.37 in the Call for inputs, Ofcom highlights that the proposed coordination zone sizes of a 30 km radius around ports and an 8 km radius around ports, mean that a significant portion of the coastal areas, as well as some highly populated urban areas, would fall into the coordination zones. We believe that mobile deployment is therefore likely to be significantly restricted. However, given the results established from Ofcom's detailed modelling, these proposed sizes are to be expected.

Regarding the PFD limited zones, these should relate to the locations where the vulnerable satellite receivers are located. Therefore, it would seem logical to make this a complex polygon. By doing so, the spectrum owner can check that signal levels are within target levels within the complex polygon. However, coordination zones normally define areas outside which no coordination is required. Circles are a good option for setting coordination zones. If new sites fall within the circles, then specific tests should be carried out to check the levels of interference towards vulnerable satellite receivers located within the complex polygon areas.

Question 3: Do you consider that PDF limited/coordination zones defined using complex polygons would make deployment of this spectrum for mobile more complex than zones which are defined by simple shapes?

See our previous answer to question 2.

Question 4: Do you have any other suggestions for how we might make the 1492-1517 MHz block available for mobile while protecting satellite use of the adjacent band?

[1] https://www.ofcom.org.uk/__data/assets/pdf_file/0032/269753/Call-for-inputs-on-Ofcoms-coexistence-analysis.pdf

The main issue relates to older satellite receivers with poor selectivity. Rather than waiting for these to be upgraded, a timeline for replacing those receivers should be signalled, after which the risk of interference moves to the satellite receiver user (i.e. it becomes their choice if they wish to use old equipment and so the future licence holder of the spectrum to be awarded, will from that time onwards, only coordinate against modern satellite receivers).

In relation to this, we wish to highlight that in Ofcom's 2021 Statement, Supporting the UK's wireless future: Our spectrum management strategy for the 2020s, Ofcom made the following statements in about receiver performance.

> *"We believe it is essential to encourage spectrum users to be more resilient to interference, noting it is not actually possible to guarantee spectrum will be interference-free. We wish to signal to operators that we will not generally expect to take action on interference if it is a result of the poor performance of receivers or wider systems."*[2]
>
> *"We will adopt a pragmatic approach, prioritising the coexistence analysis that offers the most opportunities for increased spectrum use – and least risk of disruption to existing users (where this risk is not exacerbated by poor receiver performance)."*[3]
>
> *"One aspect of the 'good neighbours' programme is encouraging spectrum users to ensure their equipment is as resilient to interference as possible. As such, we will continue our work with equipment manufacturers and users to raise awareness of the impact of receiver performance. This will be especially important as we continue to share spectrum and the users in neighbouring bands could change."*[4]

We also note that Ofcom's Spectrum Roadmap, published in 2022, included within its Project and Programme of work, a work item on "Improving receiver resilience"[5] and Ofcom also stated:

> *"Our work on improving propagation models, measuring spectrum utilisation and improving our understanding of active antenna systems and more resilient receivers will be taken forward and embedded within existing projects and our ongoing programme of international activities."*[6]

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[2] 3.66, Supporting the UK's wireless future: Our spectrum management strategy for the 2020s, Ofcom statement, 19 July 2021. https://www.ofcom.org.uk/__data/assets/pdf_file/0017/222173/spectrum-strategy-statement.pdf

[3] A1.80, Supporting the UK's wireless future: Our spectrum management strategy for the 2020s, Ofcom statement, 19 July 2021. https://www.ofcom.org.uk/__data/assets/pdf_file/0017/222173/spectrum-strategy-statement.pdf

[4] p.58, Supporting the UK's wireless future: Our spectrum management strategy for the 2020s, Ofcom statement, 19 July 2021. https://www.ofcom.org.uk/__data/assets/pdf_file/0017/222173/spectrum-strategy-statement.pdf

[5] Table 1, p.4, Spectrum Roadmap: Delivering Ofcom's Spectrum Management Strategy, Ofcom, 10 November 2022. https://www.ofcom.org.uk/__data/assets/pdf_file/0025/247183/statement-spectrum-roadmap.pdf

[6] 2.18, Spectrum Roadmap: Delivering Ofcom's Spectrum Management Strategy, Ofcom, 10 November 2022. https://www.ofcom.org.uk/__data/assets/pdf_file/0025/247183/statement-spectrum-roadmap.pdf

Question 5: What are your views on the timescales for relaxing the PFD limits and coordination restrictions?

We note that at 3.29 and 3.50 in the Call for inputs, Ofcom highlights that ECC report 299 suggests that a period of 5-7 years may be suitable to change the limits and restrictions. Our view is that this may be rather optimistic. Equipment lifecycles for ships and aircraft are likely to be protracted and uncertain. An old satellite receiver is part of the infrastructure of a ship and is therefore likely to remain in service until the unit is required to be replaced, for example if it becomes faulty. See also comments in our previous answer to question 4.

Question 6: Do you have any initial views on how the coordination we are proposing should be carried out? In particular, do you consider this should be conducted by Ofcom or the licensee?

Once the principles of coordination are defined by Ofcom, our view is that it should be left to the licensee to implement the necessary coordination, with Ofcom assisting with promoting and driving the modernisation of satellite receivers to improve their performance, as a mitigation, where appropriate (see also our previous response to question 4 in this regard).

Question 7: Do you have any views on the potential impact of our proposed options, including impacts on specific groups of persons or more general impacts?

As we stated in our response to question 2, based on Ofcom's modelling and the resulting proposed PFD limited and coordination zones, we believe that mobile deployment is likely to be significantly restricted.

Question 8: Do you consider an auction would be an appropriate way to make the upper 1.4 GHz spectrum available for mobile use? If not, what other methods do you think Ofcom should consider for making this spectrum available for mobile use?

Yes, we consider that an auction would be the most appropriate way to make the upper 1.4 GHz spectrum available for mobile use.

Question 9: If you consider an auction is appropriate, do you have any initial views on whether a single round auction or a multiple round auction would be more appropriate?

Our view is that a multiple round auction format, such as a simple clock, would be more appropriate than a sealed bid, single round auction format. A simple clock format is more appropriate as it enables bidders to have access to demand information to realise price discovery, which we consider an essential feature for auctions of mobile spectrum. This is especially important given the level of uncertainty around the value of the spectrum for mobile use, due to the proposed restrictions and the uncertainty around when they may be relaxed.

Question 10: Do you have any views on the appropriate lot sizes for making this spectrum available?

Our view is that the spectrum should be auctioned as a single lot. At 25 MHz, it is a relatively small amount of spectrum, and with the top 5 MHz having a maximum EIRP 10 dB lower than the rest of the spectrum, it only comprises 20 MHz of 'full power' spectrum. Splitting the spectrum into small lots risks an inefficient allocation. Given the uncertainty around use of the spectrum, due to the proposed restrictions and the uncertainty around when they may be relaxed, smaller lots mean even greater value uncertainty for bidders.

Question 11: Do you have any views on the potential impact on consumers, citizens and/or other stakeholders of auctioning the spectrum or the different auction formats?

We have no further views.