

## Communications Consumer Panel and ACOD response to Ofcom's consultation on the Public Sector Spectrum Release (PSSR): Technical coexistence issues for the 2.3 and 3.4 GHz award

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### Introduction

The Communications Consumer Panel and Advisory Committee on Older and Disabled People (ACOD) welcome the opportunity to comment on Ofcom's consultation on the Public Sector Spectrum Release (PSSR): Technical coexistence issues for the 2.3 and 3.4 GHz award.

The Panel works to protect and promote people's interests in the communications sector. We are an independent body, established by the Communications Act 2003. The Panel carries out research, provides advice and encourages Ofcom, Government, the EU, industry and others to look at issues through the eyes of consumers, citizens and micro businesses. The Panel pays particular attention to the needs of older people and people with disabilities, the needs of people in rural areas and people on low incomes, and the needs of micro businesses, which face many of the same problems as individual consumers. Individual members of the Panel represent the interests of consumers in England, Northern Ireland, Scotland and Wales respectively.

Following the alignment of the Advisory Committee on Older and Disabled People with the Panel, the Panel is more alert than ever to the interests of older and disabled consumers and citizens.

### Introductory comments

As a general observation, whilst the Panel recognises the increase in mobile device ownership we are unsure about demand predictions - the reliability of which cannot be certain. So we urge caution overall when considering reallocation of spectrum that might have an adverse impact on consumers and citizens and we are pleased that Ofcom is consulting on this proposal.

That said, the Panel appreciates and understands the benefits that the allocation of the 2.3 and 3.4 GHz bands to mobile services would bring - but we would encourage very careful consideration be given to the potential impact on existing users of adjacent frequencies.

As the consultation notes, Wi-Fi is the most widespread use of spectrum within the licence exempt band adjacent to the 2.3 GHz award band. It is deployed in 17.5 million UK households to access the internet via a broadband connection. It also provides coverage to commercial and independent 'hotspots' at a wide range of public locations, both indoors and outdoors. Ofcom's technical analysis confirms a risk of interference, in specific circumstances, to both Wi-Fi routers/access points and to client devices. The main source of likely interference has been identified as LTE base stations. Interference is most likely in urban environments where there may be a dense deployment of both LTE base stations and Wi-Fi networks. In the very worst cases, customers would not be able to use Wi-Fi services - but it is much more likely they will experience a drop in Wi-Fi performance, unless mitigations are applied.

The consultation suggests that around 0.1% of households with Wi-Fi are at risk of interference (based on central assumptions) - potentially around 17,400 households - assuming there was a full GB wide roll-out of LTE in the 2.3 GHz band. For public Wi-Fi, Ofcom's testing suggests that interference may affect around 6.8% of the 4,000 postcode locations where outdoor networks are established. Certain parts of the 78,000 indoor public Wi-Fi locations (around 1.4%) and the 680,000 self-contained enterprise networks in large and medium sized organisations (around 1.2%) may be affected.

We welcome that Ofcom has undertaken detailed technical analysis of the potential impact of the 2.3 and 3.4 GHz award. The consultation acknowledges that there are likely to be some co-existence issues, however states that these are currently not considered likely to be serious enough to justify significant intervention (or halting of the award). We are pleased to note that Ofcom's judgement is that these issues and their impact is limited, as its technical tests suggest the scale and extent of interference is low in most cases - and in almost all cases, appropriate mitigations can be applied through expected market developments. However we have concerns both about some of the assumptions that have been made and certain proposed mitigations.

## Response

We have some concerns around the projections previously mentioned. First, whilst relocating this spectrum will bring benefits it would perhaps be perverse if at the same time it brought disadvantages in respect of quality of coverage elsewhere. Quality of coverage and service is already an issue - so mitigations will need careful thought. Second, whilst the absolute number and percentage of households and businesses at risk of interference is low, for those within that number the impact could be high. Third, we believe that implementing successful mitigations for a small but dispersed number of consumers could be a major challenge and would welcome more detail in respect of how those likely to be affected could be identified.

As an overarching point, the Panel would welcome further detail on the costs and benefits of the spectrum reallocation to mobile services; including the costs and benefits to consumers, bearing in mind the potential disruption. The level of potential disruption to consumers should be carefully considered in decisions about how to allocate these frequencies. Fundamentally, we believe that the costs associated with mitigation arising

from any change in spectrum allocation should not be borne by consumers - but by the businesses that are the beneficiaries of the allocation.

The consultation notes that LTE has already been deployed in the 2.3 GHz band in a number of other countries with no significant issues reported but acknowledges that the nature of these overseas deployments may not be directly comparable. Ofcom believes however that relevant concerns may have surfaced if there was a significant risk of interference. The Panel is not in a position to dispute this assumption but, for reasons we explain below, would urge caution about presuming that there had not been any consumer detriment.

The consultation also states that, if additional action is needed to upgrade routers or public access points, Ofcom believes ISPs will be able to include addressing the impact of 2.3 GHz LTE interference within their existing operational processes. For example, the consultation states that routers are often replaced by ISPs after around two years or so in line with network upgrades or in response to consumer concerns about performance. Similarly, public access points are regularly upgraded. The Panel would welcome further detail on this point - including the basis and confidence level on which Ofcom's belief is founded - as we are not aware of evidence relating to ISP's refresh rate of routers. We would also be interested to know the extent to which relevant consumer support and costs related to refreshing routers have been incorporated into ISP's planning. In other words, would a direct consequence of consumer problems arising from this reallocation be an extra cost burden on those consumers; or would such costs be covered and absorbed as part of ISP's planned spending? As stated earlier, we believe that the costs associated with any change in spectrum allocation should ultimately be borne by the benefitting businesses rather than by consumers.

The Panel considers that the digital switchover was well managed, especially for older and disabled people. We have also been impressed with the planning and, so far, the execution of work to mitigate potential interference at 800 MHz. We recognise that both of these projects were large scale but we hope that they will be used to inform how best to provide support to consumers following any re-allocation of 2.3 and 3.4 GHz.

The Panel welcomes the consultation's acknowledgment that any reallocation of 2.3 and 3.4 GHz is likely to have an impact on consumers, especially in terms of adjustment of existing equipment or new equipment that might be required. As some consumers may be required to buy and install new devices, it is important that Ofcom takes account of the needs of consumers as early as possible in the planning process, especially those who may be less able to understand what is required and/or carry out any work. To this end the Panel would highlight that vulnerable consumers will need particular consideration, information and support during any transition. The Panel is heartened by the advance planning that is taking place and would encourage Ofcom to make as early contact as possible with equipment manufacturers to ensure that sufficient and correct equipment is available and in place in advance of any reallocation.

We note that Ofcom believes that in almost all cases, if interference is experienced, appropriate mitigations are available. In some cases, Ofcom notes, moving equipment

might provide sufficient protection (such as moving routers away from a window or changing the position in which a mobile device is held). In other cases Wi-Fi equipment/devices may be able to access the alternative 5 GHz Wi-Fi band.

We welcome exploration of all possible mitigations. However, we do not believe that it is appropriate to include consumers having to move equipment to another location in their homes in order for it to function efficiently as a planned mitigation activity. Such mitigation assumes a number of factors:

- a) that the consumer identifies a degradation to their service
- b) that the consumer correctly identifies the degradation to their service as being a result of interference
- c) that the consumer is able to move their equipment/device to another location (for example that it is possible to move a router sufficiently far from the original wired point and that a room is sufficiently large for this to be done)
- d) that they are physically able, or confident to do so
- e) that the consumer is happy with equipment being situated in another part of his or her home

If the decision to reallocate this spectrum is taken, all of these factors argue for mitigation that has less impact and less reactive reliance on the consumer; and at the very least that it is proactive and focussed with a well defined support scheme and communication campaign that is appropriately funded.

We note that, in respect of mobile devices, the consultation states that while many mobile devices (such as smartphones and tablets) are generally replaced by consumers after around 18 or 24 months (in line with network contracts) there may be an issue for legacy equipment purchased directly by the end user. The consultation also notes that users may need to understand how to implement certain mitigations (such as by using Ethernet wiring). Ofcom is conducting some further market research to assess the volume of legacy equipment which might be at risk of interference. It is also considering whether it might be practical and effective to support an information campaign for the consumers potentially affected.

This is potentially a very significant issue. We do not know the percentages of tablets that have been directly purchased, however we might speculate that it is significant. As Ofcom's recent media literacy research has shown, tablets have been influential in bringing a significant number of late-adopting users online - these people are unlikely to have the experience to easily diagnose and rectify interference issues. There is a risk that they are less likely to have developed a close affinity with the technology, given their shorter exposure to it, and so their reaction may be to abandon - rather than replace - expensive equipment which is performing at a sub-optimal level. Generally, and particularly given the government's 'digital by default' initiative, it would be unfortunate if interference worked to inadvertently undermine some users' online engagement.

We are further concerned that, in this wireless age, customers may well find themselves having to use a cable to restore their device to its previous level of efficiency. As well as involving a cost, this may be inconvenient or restrictive for consumers. And again, it may

serve to discourage people from inhabiting the digital world to a greater extent - in effect, widening rather than narrowing the digital divide.

Finally, in relation to medical monitoring devices, we welcome that the consultation refers to taking particular account of the potential impact for citizens and consumers in assessing the risk of harmful interference to devices associated with health/medical uses. This must, in our view, remain paramount. Relevant devices include routine monitoring equipment in hospitals; low data-rate communication by ambulance crews; assisted listening devices in schools and other institutions; and video monitoring devices (such as baby monitors). Ofcom's analysis suggests the risk of interference is low in all cases. However, it has recommended that hospitals work with relevant licensees to satisfy themselves that any proposed 2.3 GHz base station deployments on hospital premises do not cause unacceptable interference to critical hospital systems. Given the critical nature of these systems, the Panel would advocate a much more proactive approach than simply recommending that hospitals work with licensees and we would suggest that a well co-ordinated and proactive outreach campaign is undertaken in relation to these stakeholders.

We also welcome that Ofcom is offering use of its technical facilities to manufacturers of assisted listening devices so they can conduct their own testing to ensure devices are robust against interference.

## Summary

In summary, the Panel appreciates and understands the benefits that the allocation of the 2.3 and 3.4 GHz bands to mobile services would bring, but urges that careful consideration be given to the impact that this could have on existing users of adjacent frequencies. We are pleased to note that Ofcom's judgement is that interference issues are limited, but have some concerns about some of the assumptions that have been made in addition to certain proposed mitigations.

- We would welcome further detail on the costs and benefits of the spectrum reallocation to mobile services; including the costs and benefits to consumers.
- Fundamentally, we believe that the costs associated with any change in spectrum allocation should be borne by benefitting businesses rather than consumers.
- We would urge caution about presuming that there had not been any consumer detriment internationally.
- We would welcome further detail relating to ISP's refresh rate of routers and the extent to which relevant consumer support and costs related to refreshing routers have been incorporated into ISP's planning.
- We hope that the learnings from digital switchover and 800MHz will be used to inform support given to consumers following a re-allocation of 2.3 and 3.4 GHz.

- We would highlight that vulnerable consumers will need particular consideration, information and support during any transition.
- We consider that it is inappropriate to expect consumers to identify interference and move equipment to another location as a planned mitigation.
- If the decision is made to reallocate the spectrum, there should be a proactive support scheme with appropriate funding and an information campaign.
- We are concerned that interference may work to inadvertently undermine some users' online engagement.
- Given the critical nature of medical monitoring systems, the Panel would advocate an outreach campaign is actively undertaken in relation to medical stakeholders.

We look forward to working further with Ofcom on this issue and seeing the results of the consultation.