

## Cover sheet for response to an Ofcom consultation

### BASIC DETAILS

Consultation title: Developing a framework for the long term future of UHF spectrum bands IV and V

To (Ofcom contact): Marco Marini

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Representing (self or organisation/s): Everything Everywhere

Address (if not received by email):

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Name Robyn Durie

Signed (if hard copy)

## Introduction

*Everything Everywhere* is pleased to have the opportunity to provide input to Ofcom's consultation on the framework for future decisions relating to UHF spectrum bands IV and V. This consultation is timely. We think Ofcom is right to have put the award of the 600 MHz spectrum released by Digital Switchover (DSO) on hold, in order to consider the future of the UHF band strategically and for the long term.

This response covers the following themes listed in Ofcom's call for inputs (although not necessarily in the order listed by Ofcom):

- demand and supply of services that are based on UHF spectrum (and also how these link to developments on fixed communications networks;
- technological developments that will influence UHF spectrum usage;
- international developments; and
- potential costs and benefits to citizens and consumers from different uses of UHF spectrum.

Like Ofcom's decision making this response is an initial view which will be informed in the light of developments in relation to 800 MHz and 2.6 GHz spectrum.

## Future of the DTT platform

DTT is very popular in the UK, mainly due to the success of the Freeview platform and driven by public service broadcast content. Alongside Spain, the UK has the highest take up of DTT in Europe.<sup>1</sup> This has created healthy multi-channel platform competition between DTT, satellite, cable and IPTV, which has produced benefits to consumers and citizens. However, the DTT success story so far and the tremendous amount of work that has gone into achieving significant spectrum efficiencies through DSO should not mask what we see as fundamental long term challenges to the DTT platform.

These challenges relate to High Definition TV (HDTV) and 3D as well as Video on Demand (VOD). We expect viewers will increasingly demand TV content in HD and the DTT platform will have to respond to competition from satellite where more and more content is shown in HD. Broadcast technologies such as DVB-T2 and compression technologies have the potential to create more capacity within a given amount of bandwidth. Already we have seen the BBC/ITV/C4 implement DVB-T2 on one multiplex as a way of providing HDTV services within their existing capacity on the public service multiplexes. DTT broadcasters will no doubt request access to more bandwidth in the UHF bands in order to provide more services in HD, in the extreme so that they could provide all their channels in HD. In addition, we believe that TV in 3D will also become the norm in some years to come and this will require further bandwidth.

In addition, we have seen a surge in popularity of VOD over the recent years. A quarter of UK consumers (24%) watch TV on the internet each week, more than in any other country surveyed by Ofcom.<sup>2</sup> The BBC iPlayer has been particularly successful in driving traffic and changing viewer habits. Regardless of the fact that broadcasting capacity is much less of an issue on satellite, Sky also offers Sky Anytime+, whereby its customers can access broadcast content via their broadband connection on demand, i.e. at time that suits them. BT markets its BT Vision service over its broadband network and has showed how serious it is about this platform in its fight to get access to premium sports content. The establishment of Project Canvas (now Youview) shows that this is not just about pay TV, but that free to air broadcasters are also concerned about retaining their relevance by developing further VOD services. We believe that this trend of viewers wanting to be able to view TV programmes at times to suit them rather

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<sup>1</sup> See, Ofcom, "International Communications Market Report 2010", Dec. 2010

<sup>2</sup> Ibid.

than broadcast times defined by the broadcasters is here to stay and can only grow stronger.

*In summary, these two trends – demand for more content in HD and 3D as well as changed viewer habits would seem to have the potential to have a profound impact as far as DTT broadcasting is concerned. No amount of UHF spectrum will be able to accommodate future demands for HDTV and VOD and for that reason there is a fundamental question about the extent to which the DTT platform can and should be developed further to accommodate future viewer demands. It seems quite inevitable that in the longer term, the case for IPTV will become much stronger, whether this is on a pay TV basis or as a free to air platform. This has certainly been the case elsewhere in Europe.*

*This will stimulate the demand for residential high speed fixed broadband access, which also ties in with the European Union's Digital Agenda aspirations of all Europeans having access to broadband of at least 30Mbps by 2020 and 50% of households subscribing to broadband at 100Mbps. The Digital Agenda so far seems focused on the supply side but IPTV has great potential to be the demand stimulus that is needed in order for this policy to turn into reality.*

## **Demand for mobile data indoors**

*Demand for mobile broadband has soared recently and will continue to grow over the coming years. For example, Cisco forecasts that mobile data will grow at a compound annual growth rate (CAGR) of more than 90% to 2015.<sup>3</sup> Moreover, we expect demand for mobile data speed to grow – again Cisco forecasts that by 2015, average mobile network connections speeds in the UK will be 6Mbps.<sup>4</sup> This creates a general demand for bandwidth in any of the spectrum bands allocated to mobile and we expect that overall, spectrum for mobile will suffer greater scarcity than we see today.*

*However, as we have explained in our recent response to Ofcom's consultation on the Combined Award of 800 MHz and 2.6 GHz, it is not just a general increase in demand for spectrum but a particular crunch for sub-1GHz spectrum. This is because a significant proportion of mobile data traffic is originated indoors (more so than voice) and there is a given proportion of indoor traffic that can only be served with sub-1 GHz spectrum. This is the case not only for the consumer segment but also for business to business including machine to machine communications, cloud computing and online storage. Hence all mobile operators will need access to increasing amounts of sub-1 GHz spectrum in order to be able to compete.*

*Critically, this is not just about indoor coverage but also about capacity and performance deep indoors. A mobile network operator will need to hold sufficient sub-1 GHz spectrum in order to provide capacity for the data sessions originated deep indoors, or customers in these locations would experience congestion. Equally MNOs will need significant allocations of sub-1 GHz spectrum for performance reasons - because the data speed that can be provided with new mobile broadband technologies is proportional to the bandwidth held (e.g. 2x10 MHz can provide twice the data speed of 2x5 MHz) MNOs will need a significant amount of sub-1 GHz spectrum to offer good mobile data speeds deep in-building. If the proportion of sub-1 GHz spectrum an MNO holds in its overall spectrum portfolio is much less than the share of its traffic that needs to be carried on sub-1GHz spectrum, sub-1 GHz spectrum will become congested before higher frequency spectrum and data speeds will be lower when customers are served by sub-1 GHz spectrum only. Consequently, an MNO will not be able to offer a good in-building customer experience. As far as the interests of citizens and consumers are concerned, providing additional sub-1 GHz spectrum would appear to be essential and more economically efficient than providing further subsidised spectrum to DTT broadcasters.*

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<sup>3</sup> Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010–2015, February 2011

<sup>4</sup> Ibid.

## Rural broadband

*Using wireless broadband to solve broadband not-spots, as supported in the proposal for the first common European Radio Spectrum Policy Programme,<sup>5</sup> will require bandwidth. As you may be aware, Everything Everywhere and BT recently launched a joint trial in Cornwall.<sup>6</sup> This aims to test further the practicability and commercial aspects of a fixed/mobile hybrid solution for rural broadband not-spots whereby BT will push its fibre access network as far as possible and Everything Everywhere will then deploy LTE in 800 MHz to serve the households that would still not have been reached with a fixed solution.*

*A key finding to date from the Cornwall trial is that 2x10 MHz is the absolute minimum quantity of sub-1 GHz spectrum necessary for the commercial viability of wireless access as a solution for mobile broadband. Otherwise, the percentage of not-spots covered to the right performance level is so limited that it no longer justifies the significant investment involved. Based on existing spectrum holdings, only Vodafone and O2 would be able to engage in such projects. We are hopeful that this might not be the case after the upcoming Combined Award of 800 MHz and 2.6 GHz but this is by no means guaranteed with Ofcom's current proposal for that award. In our view, this does not make for a competitive situation and we are concerned that the Government will fail to achieve value for money when using public funds for such projects whether through Broadband Delivery UK procurement or that undertaken by the devolved administrations or local authorities.*

*This is in relation to current services providing services of 2Mbps but we believe (and the Government agrees) that higher speeds will be required in the future when rural households – like anyone else – will demand greater broadband speeds and will download more content. Looking into the future, rural households will need greater speeds and more capacity. Hence we think there would be a great benefit to citizens and consumers from making available more than the current 2x65 MHz<sup>7</sup> of sub-1 GHz spectrum for mobile broadband communications. This would enable a sufficient number of mobile network operators to provide broadband to rural locations with wireless technologies.*

## International co-ordination and economies of scale

*The deployment of mobile broadband depends on economies of scale in network equipment as well as in handsets or other receiving equipment. Although the UK is a large market in itself, UK mobile network operators are able to deploy services more cheaply if they are able to purchase off-the-shelf equipment from a number of international vendors.*

*The future availability of spectrum for wireless broadband is being discussed in several international fora. We are hopeful that in the long term, Ofcom will be able to find a 'second Digital Dividend' with a co-primary allocation for mobile in line with these discussions. We urge Ofcom to co-ordinate its efforts and not adopt any band plan unilaterally for the UK, in order for the UK to continue to benefit from such economies of scale in equipment.*

*We see a particular opportunity in extending the Digital Dividend at 790-862 MHz in ITU region 1 (Europe, Middle East and Africa) down to 698 MHz as identified for ITU region 3 (Asia Pacific). This would potentially allow UK consumers to benefit from enormous economies of scale reached in the Indian and Chinese equipment markets.*

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<sup>5</sup> See European Commission, "Proposal for a Decision of the European Parliament and of the Council establishing the first radio spectrum policy programme", COM(2010) 471 final, 20 Sept. 2010

<sup>6</sup> See Everything Everywhere press release of 25 May 2011, "Everything Everywhere and BT Wholesale to deliver the UK's first live customer trial of 4G high speed broadband technology.

<sup>7</sup> 2x35 MHz in 900 MHz held by Vodafone and O2 and 2x30 MHz in 800 MHz to be awarded in the upcoming Combined Award.

## White space and cognitive devices

*In formulating a long term strategy for UHF bands IV and V, we believe Ofcom should take the opportunity re-evaluate its proposals for cognitive device deployment in the band.<sup>8</sup> Whilst co-existence with DTT service by using white space may be possible, co-existence with other technologies such as mobile services will clearly be much more challenging. DTT white space device characteristics are not currently clearly defined and subject to ongoing discussion in international bodies. There is insufficient definition of cognitive systems requirements should the primary service change or upgrade its technology. ECC Report 159 for example, only considers existing DTT, PMSE and radio astronomy use in its analysis of system co-existence. It needs to be demonstrated that there would be no negative impact on current or future uses of the spectrum by allowing cognitive system deployment. Everything Everywhere would welcome a strategic review to ensure an effective framework for cognitive systems is put in place, which does not de-facto inhibit future change of primary use of the band.*

## Conclusion

*We welcome Ofcom's decision to put the award of its UK specific 'second Digital Dividend' at 600 MHz on hold in order to develop a long term strategy for the UHF bands VI and V in line with international developments. Whilst recognising that the DTT platform has been a great success so far, we believe that it faces some significant challenges over the next decade in terms of providing HDTV and TV in 3D as well as VOD, which no amount of UHF spectrum can solve. We question whether it would be economically efficient to dedicate more UHF spectrum to DTT broadcasting (or even retain the current allocation) as the benefits to consumers and citizens received from this use are diminishing. We believe that significant benefits for consumers and citizens can be achieved from making more UHF spectrum available for mobile broadband, both in terms of the specific impact it could have in providing broadband in rural areas and generally to meet the increasing demand for mobile broadband indoors. The high prices achieved in recent auctions of 800 MHz spectrum in Germany and Sweden has shown that sub-1 GHz spectrum is very valuable for mobile broadband and Ofcom should take such market mechanisms into account. We would therefore suggest that no further UHF spectrum should be devoted to DTT and once existing DTT licences come up for review, Ofcom should consider whether the spectrum can be used for mobile broadband.*

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<sup>8</sup> 'Implementing Geolocation' Ofcom, November 2010.