



T-Mobile and Orange Joint Venture response to Ofcom consultation document:

Digital dividend: 600 MHz band and geographic
interleaved spectrum, Consultation on potential uses,
issued on 18th February 2010

28th April 2010

Digital dividend: 600 MHz band and geographic interleaved spectrum

Executive summary

This response is submitted on behalf of the Orange and T-Mobile Joint Venture. The respondee will be referred to as the Joint Venture in the response.

The Joint Venture welcomes the opportunity to respond to Ofcom's consultation, "Digital dividend: 600 MHz band and geographic interleaved spectrum".

There are on-going international discussions regarding the creation of a second sub-band for mobile below 790 MHz. This issue has been discussed at various meetings including the recent EU Spectrum Summit held 22-23rd March and at the EC presentation on 9th September 2009 on: "Exploiting the Digital Dividend: a European approach". The Joint Venture strongly supports the view expressed at the EU Spectrum summit that *'the digital dividend policy strategy should be ambitious, including addressing delicate questions such as whether it is appropriate to also consider freeing-up a second spectrum sub-band of the digital dividend for new uses'*.

The Joint Venture proposes that the 600 MHz spectrum and geographic interleaved spectrum should be reserved to facilitate a harmonised solution suitable for mobile use in the future. It seems unlikely that the 600 MHz band can itself be harmonised but it would facilitate further clearance in another part of the spectrum below 790 MHz (such as 698-790 MHz).

Further harmonised spectrum will be needed in the future for mobile broadband communication. Globally, data traffic grew 280 percent during each of the last two years, and is forecast to double annually over the next five years. Mobile data traffic surpassed voice traffic for the first time in December 2009. Traffic in 3G networks surpassed that of 2G networks during the same period.

The Federal Communications Commission (FCC) presented its National Broadband Plan to Congress on 16th March 2010 where it has proposed making available 500MHz of new spectrum in the next 10 years (of which 300 MHz should be made available for mobile use in five years) to expand mobile broadband coverage across the USA. The UK should also be actively seeking spectrum for mobile broadband. We believe that Ofcom should work in Europe to support the development of a second European harmonised sub-band for mobile services. Without such harmonisation, we do not foresee a high value for mobile services at 600 MHz.

The discussions on harmonising a second sub-band will no doubt take a long time and be extremely difficult. However it has been shown consistently that harmonising spectrum for mobile provides economic benefits for the UK and EU. Mobile spectrum provides significant economic benefits to the UK as demonstrated by a number of studies including:

- Analysis Mason for the European Commission 'Exploiting the Digital Dividend: a

- European approach'¹.
- Spectrum Value Partners 'Getting the most out of the digital dividend'²
 - SCF Associates 'Economic impacts of alternative uses of the digital dividend'³.
 - Ofcom consultation: Digital dividend: clearing the 800 MHz band, 2nd February 2009

Response to Consultation Questions

We have limited our response to Questions 1, 2, 7 and 11.

Question 1: Do you have any comments on the application of the protection clause to all new licences for the 600 MHz band and geographic interleaved spectrum?

The Joint Venture is keen to find acceptable wording for the protection clause insofar as it relates to the 800 MHz band although it is unclear whether Ofcom will impose the same protection clause wording for both the 600 MHz and 800 MHz awards. Whatever wording is used it must be so chosen as to equate, within context, the level of protection afforded to DTT for the 600 MHz and 800MHz bands. The impact of the protection clause needs to be clearly known before the awards of both the 600MHz & 800MHz spectrum.

The Joint Venture understands that the application of the protection clause involves complex technical, regulatory and economic issues. We were pleased that Ofcom held a workshop devoted to this issue on the 14th April 2010 and intends to have regular conference calls to progress the many detailed issues.

We have a number of concerns regarding the application of the protection clause. Many of the Joint Venture concerns were raised in the Orange and T-Mobile responses to Ofcom's consultation in August 2008 'Digital Dividend Review: 550-630 MHz and 790-854 MHz'. As requested at the workshop on the 14th April, we will be writing separately to Ofcom regarding the 800 MHz protection clause.

Question 2: Do you have any comments on our approach to technical licence conditions for the 600 MHz band and geographic interleaved spectrum?

The Joint Venture is concerned that Ofcom is proposing a guard band of at least 8 MHz to protect DTT from mobile services irrespective of the power levels involved, whether the spectrum is used for downlink or uplink, or which mitigation techniques are used.

For FDD downlink transmissions, CEPT Report 22 concluded that

¹ This study was commissioned by the European commission. It is available at : <http://www.analysismason.com/Consulting/Services/Strategy-consulting/Spectrum-management/Digital-dividend/Exploiting-the-digital-dividend--a-European-approach/Final-report-for-the-European-Commission/>

² This study was commissioned by Ericsson, Nokia, Orange, Telefónica and Vodafone. It is available at: <http://www.spectrumstrategy.com/DigitalDividend.pdf>

³ This study was commissioned by Deutsche Telecom / T-Mobile. It is available at: www.digitaldividend.eu

“even without guard bands, the risk of adjacent channel interference (downlink) exists only in close vicinity of the interfering mobile/fixed base station, located within the broadcasting coverage area. Generally speaking, in order to avoid/minimize interference from IMT downlink into DVB-T reception some mitigation techniques as described in CEPT Report 21 can be applied together with careful planning of transmitter sites where the channel adjacent to the mobile/fixed downlink transmission is used for broadcasting. Where suitable and efficient mitigation techniques are not applicable, a guard band may be required for the DVB-T protection from fixed/mobile downlink paths”.

Furthermore CEPT Report 31 decided that the frequency separation should be 1 MHz (from 790 – 791 MHz) to allow extra base station filtering to meet the Block Edge Mask out-of-block EIRP limits.

For the case of mobile terminals, CEPT Report 23 concluded that

“guard band widths to protect DVB-T fixed reception from IMT uplink interference on an adjacent channel, as suggested by studies using SEAMCAT simulation tool, are around 8 MHz.

We do not support guard bands in excess of those provided in the CEPT reports and hence would urge Ofcom to re-consider the guard band requirements to protect DTT.

Question 7: Do you have any comments on our assessment of the most likely uses of the 600 MHz band and geographic interleaved spectrum? Are there any potential uses we have not mentioned that should be considered?

The 600 MHz band is not currently harmonised for mobile use. Without harmonisation, vendors will not be able to produce mobile terminals using the 600 MHz band for the mass market to an acceptable cost. Vendors, operators and administrations are currently concentrating on the bands 790 – 862 MHz and 698-806 MHz which are available in a number of countries worldwide.

There are discussions on-going internationally regarding creating a second sub-band for mobile below 790 MHz. This issue has been discussed at various meetings including the recent EU Spectrum Summit held 22-23rd March and at the EC presentation on 9th September 09 on: “Exploiting the Digital Dividend: a European approach”. The Joint Venture strongly supports the view expressed at the EU Spectrum summit that ‘the digital dividend policy strategy should be ambitious, including addressing delicate questions such as whether it is appropriate to also consider freeing-up a second spectrum sub-band of the digital dividend for new uses’ .

As explained earlier, the Joint Venture believes that the 600 MHz spectrum and geographic interleaved spectrum should be reserved to facilitate a harmonised solution suitable for mobile use in the future. It seems unlikely that the 600 MHz band can itself be harmonised but it would facilitate further clearance in another part of the spectrum below 790 MHz (possibly 698-806 MHz).

Question 11: What information can you provide on packaging and award design considerations?

As stated in our response to Question 7, the Joint Venture believes that Ofcom needs to reserve this spectrum to facilitate a harmonised solution for the future.

Harmonising spectrum use is a long and complex process. However it has been shown consistently that harmonising spectrum for mobile provides economic benefits for the UK and EU. The discussions on harmonising a second sub-band will no doubt take a long time and be difficult. It is certainly not possible to resolve this in the near future and hence there should certainly be no consequential impact to the timing of the 800 MHz award. The award of the 600 MHz/ interleaved spectrum should be completely separate from the 800 MHz award. As stated in our response to Q1, protection clause obligations should be equated, within context, between the releases of 600 MHz and 800 MHz taking into account the level of protection afforded to DTT for these bands.

28th April 2010