Three response to Ofcom consultation on securing long term benefits from scarce spectrum resources.

Non - confidential

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Ofcom's proposals strike the right balance between protecting DTT and enabling mobile operators to meet future demand for data services.

Summary

Three strongly supports Ofcom's proposal to clear the 700MHz band for mobile broadband whilst reserving the 600MHz band for DTT services.

We believe Ofcom has struck the right balance between protecting and enabling the development of DTT services whilst recognising the pressing need for more spectrum to support mobile broadband.

The research commissioned in support of this consultation reaffirms, in some detail, the distinct advantages of sub-1GHz spectrum. Ofcom is correct in concluding that that sub-1GHz has some critically important qualities that cannot be replicated by higher frequencies. These attributes make additional sub-1GHz an important component in the ability of mobile operators to support future demand.

This response addresses the specific questions posed by Ofcom in the consultation document.

Question 1: Do you agree that meeting the future growth in demand for mobile broadband capacity will deliver significant benefits to citizens and consumers?

We strongly agree with this conclusion.

It is an uncontroversial fact that demand for mobile data services is already growing rapidly and is predicted to explode in the near future. Section 4 of our response to Ofcom's recent consultation on the 4G auction discusses in detail our views on the types of services that will develop in the coming years and the importance of better coverage and capacity in delivering them[1].

Over the top service providers (e.g. Microsoft, Facebook, Google) design nearly all new products in way which enables them to be consumed through mobile devices because the increasing preference of consumers is to access content via this medium.

[1] http://stakeholders.ofcom.org.uk/binaries/consultations/award-800mhz/responses/Three.pdf

Additionally, TV catch up services, such as BBC Iplayer, now offer versions that are optimised for use via mobile devices, many on demand video products also offer products for this market. This momentum will increase in the coming years.

Ofcom's research attests to the fact that an increasing number of consumers value the ability to access data and video services while on the move. This demand can only grow during the period with which this consultation is concerned and Ofcom is right to start planning now for future needs.

Question 2: Do you agree that additional harmonised mobile broadband spectrum will play an important role in meeting the future growth in demand for mobile broadband capacity? What are your views on the overall quantity of harmonised spectrum that will be required to meet future demand? How does this compare with the expected increase in spectrum for mobile use discussed in this section?

We are very encouraged by the efforts being made by both UK and European government to make more spectrum available for mobile services. As Ofcom's research demonstrates additional spectrum is a critical component in meeting demand and makes it possible for mobile operators to deliver services to consumers at a reasonable price.

The other mechanisms discussed in this consultation, such as small cells, increased sectorisation and Wi-Fi offload play a role but, as demonstrated by the Real Wireless report, have a limit beyond which they become uneconomic and impractical.

All the forecasts show that this limit will be breached by demand for data services which leaves a simple choice between constraining their growth or releasing additional spectrum. Government and Ofcom are right to choose the latter option because of the significant economic and social value associated with supporting the development of these products. Releasing 500MHz of additional spectrum (as proposed by the government) is the right quantity to be aiming for.

Ofcom is right to recognise that a key consideration is the harmonisation of this spectrum to enable economies of scale in the production of ecosystems able to leverage it.

So whilst in theory the gross volume of spectrum available is encouraging, the mass market mobile devices that will drive most future traffic will, in reality, only operate on a narrower range of frequencies.

Some of the more "niche" frequencies still have some value and may enable lower cost products such as mobile broadband dongles and routers, but the lion's share of traffic will be seen on a core range of bands.

Another key consideration is the equitable distribution of spectrum between competitors, highly asymmetric assignment of spectrum, particularly sub-1GHz, can lead to dominance by an oligopoly of incumbent providers which reduces innovation and increases prices[2].

Moreover the spectrum being made available is primarily above 2GHz, which for reasons of load balancing and consumer experience, benefits significantly from being used in conjunction with low frequency spectrum, such as 900MHz, 800MHz and 700MHz.

Question 3: Do you agree that additional harmonised spectrum provided by the 700 MHz band could play an important role in meeting the future growth in mobile broadband capacity?

US commentators, operators and regulators have described the 700MHz band as "beach front property" because of its superior balance of capacity and propagation characteristics.

Given its spectral attributes and the fact that 700MHz now has an established ecosystem in the US, UK commentators, operators and regulators might, in the future, describe this band as "beach front property with the best view"[3].

The 2 largest US operators with access to large volumes of this spectrum[4] are growing at a significant rate and delivering a far superior quality of service when compared with their competitors. Whilst there are a number of causative factors beyond just spectrum, consumers clearly place great value on the characteristics of the 700MHz band and its ability to support LTE services.

This correlates with Ofcom's consumer research which shows that people would be willing to pay more for a mobile broadband service that represents an improvement in both coverage and capacity. Sub-1GHz spectrum, including 700MHz, is capable of delivering an improvement in both and would therefore be highly prized by consumers. We also note

[2] The US market provides a prime example of this situation in practice, 2 operators (AT&T and Verizon) hold large amounts of spectrum and hold nearly all the 700MHz band. Prices in the US are significantly higher than in the UK.
[3] We recognise that the band is slightly different in the US.
[4] AT&T and Verizon

that this research represents the attitudes of today, before the true explosion in demand for mobile data services. It seems likely that this value will only increase as these services become even more ubiquitous.

We strongly agree with Ofcom that sub-1GHz spectrum is very scarce in the UK. The highly valued 900MHz is monopolised by 2 incumbent operators[5] and is unlikely to be more equitably distributed during the period with which the consultation is concerned. These operators will almost certainly acquire yet more sub-1GHz in the coming 4G auction (under current proposals).

This has relevance to this consultation because the other two UK operators[6] will have considerably less (perhaps no) capacity at sub-1GHz[7]. This spectrum is likely to fill up quickly because many of the locations in which people tend to consume mobile data services require coverage from sub-1GHz. We agree with Real Wireless[8] that, even with a variety of technical measures, the special attributes of sub-1GHz spectrum means that it will play a role, disproportionate to its relative total quantity, in servicing predicted demand.

To maintain a competitive market the operators who are capacity constrained at sub-1GHz will require supplementation within a relatively short period of time compared to those with significant holdings at 900MHz and additional spectrum granted to them at 800MHz.

Not only does sub-1GHz provide better coverage of hard to reach locations and indoors, it also provides a more consistent and reliable service in a variety of environments. We strongly believe this consistency and quality will be highly valued by consumers.

700MHz, as Ofcom concludes, offers an ideal solution, provided it is distributed in a manner which addresses the competitive asymmetries that will develop in the intervening period.

[5] Telefonica and Vodafone.
[6] Three and Everything Everywhere.
[7] We believe that an operator without low frequency is unlikely to remain competitive in the long term and therefore will exit the market or be acquired by a larger operator with sub-1GHz holdings.
[8] http://www.ofcom.org.uk/static/uhf/real-wireless-report.pdf

Question 4: Do you agree that the value of the role played by the 700 MHz band in meeting the future growth in mobile broadband capacity would be greater if it becomes available before other capacity enhancing techniques have been exhausted at existing mobile sites?

We agree with this conclusion.

The Real Wireless report commissioned by Ofcom provides a useful indication as to the benefits of adopting this strategy, it rightly identifies the significant advantage that sub-1GHz spectrum provides over higher frequencies in ensuring network costs are reduced.

Waiting until capacity is exhausted before releasing more spectrum is a high risk strategy. Not least because of the inevitable time lag between the availability of a band and the penetration of devices able to utilise the spectrum. We strongly favour the earlier release of additional frequencies to enable a more gradual movement of data volume onto new bands, thereby maintaining the best consumer experience.

The combination of well managed network costs and a competitive market (where all operators have low frequency spectrum and can therefore benefit) means that consumers will continue to enjoy lower prices and more innovation in the UK.

It is reasonable to argue that the ability to access data services on the move will become a critical utility for most consumers and businesses within the next 3-5 years and therefore maintaining a quality mobile network experience and competitive pricing will become increasingly important to the UK economy. Low frequency spectrum will play a pivotal role in this.

Question 5: What timing of 700MHz release would maximise the benefits associated with its use for mobile broadband?

Whilst the availability of more low frequency spectrum would be extremely valuable now we recognise the international constraints that Ofcom must operate within.

We look forward to working with Ofcom and broadcasters to ensure that the momentum behind the release of 700MHz is maintained and strongly support the desire to begin clearance of the band in 2018.

Question 6: Do you agree that DTT will continue to play an important role in providing universal low cost access to PSB content over at least the next decade?

We agree with this conclusion, whilst we expect a migration toward more consumption of content through IP based services (often via mobile devices) the importance of DTT to consumers cannot be denied.

Question 7: Do you agree that, absent major changes in available spectrum, DTT would continue to remain attractive to viewers and deliver important benefits to citizens and consumers over at least the next decade?

Yes

Question 8: What are your views on the future technical evolution of the DTT platform? Are there other relevant factors affecting future DTT spectrum requirements that we should consider as we develop an approach to secure benefits from UHF band IV and V over the long term?

We note Ofcom's finding that there is significant scope for DTT services to use spectrum more efficiently, with the introduction of 2nd generation equipment.

Furthermore we note Ofcom's belief that with proper management, use of 600MHz for DTT services is unlikely to cause significant cost or inconvenience to consumers.

This potentially represents a win win situation for consumers, broadcasters and mobile operators. We agree that DTT should have the same volume of spectrum as is currently available but could move from 700MHz to 600MHz with some effort (albeit proportional and manageable).

We contend that broadcasters will want mobile operators to carry, without limitation, their linear, catch up and on demand content. Customers need consistent coverage to properly use these services, because, as the research shows, much of it will be consumed indoors or in other locations where the characteristics of sub-1GHz spectrum become important to its delivery.

Additionally video content already represents a significant proportion of the data traffic carried on mobile networks, and this is predicted grow over time. Mobile operators realise that they will play an increasingly important role in delivering what used to be exclusively broadcast content, but must be allowed more capacity and, most importantly, good coverage to do so.

In summary it seems to be in the shared interests of broadcasters and mobile operators to work cooperatively to use the 600MHz and 700MHz in the most efficient way possible so as to deliver broadcast content (and other online services) to the increasingly wide range of devices that consumers will use to access it.

Question 9: Do you agree that a longer term approach to secure benefits from UHF band IV and V should consider how to safeguard benefits delivered by the DTT platform?

Yes we agree that that this process must start now and a long term strategy must be implemented.

Question 10: Are there other material factors affecting the future requirements of PMSE that we should consider as we develop an approach to secure long term benefits from UHF band IV and V?

We have no comment on this point.

Question 11: Are there other material factors affecting the future requirements of Local TV that we should consider as we develop an approach to secure long term benefits from UHF band IV and V?

We have no comment on this point.

Question 12: Are there other material factors affecting the future requirements of WSD applications that we should consider as we develop an approach to secure long term benefits from UHF band IV and V?

We have no comment on this point.

Question 13: Aside from WSDs, are there other innovative ways in which to use UHF bands IV and V to deliver services and, therefore, material benefits to users

See our answer to question 18.

Question 14: Are there other material factors affecting the future requirements of emergency services applications that we should be aware of as we develop an approach to secure long term benefits from UHF band IV and V?

We have no comment on this point.

Question 15: Do you agree that the approach that is most likely to secure significant benefits from UHF band IV and V over the long term is one that enables the release of the 700 MHz band for mobile broadband whilst also ensuring the role of the DTT platform is safeguarded?

Yes – for the reasons stated above.

Question 16: Do you believe there is a material risk that the DTT platform will have insufficient spectrum to continue to deliver important benefits (including providing universal low cost access to PSB content) if is the 600MHz band is not used for DTT after change of use of the 700 MHz band?

Yes – for the reasons stated above.

Question 17: Do you believe that using the 600 MHz band for DTT after clearing the 700 MHz band would reduce the risk that DTT platform will not be able to continue to provide important citizen and consumer benefits?

Yes – for the reasons stated above.

Question 18: Do you agree that the future benefits for citizens and consumers of enabling the release of the 700 MHz band whilst maintaining the role of DTT are likely to outweigh the loss in benefits of the 600 MHz band not being able to be used for other services in the long term?

We agree with this, it is difficult to identify alternative services that could come anywhere close to matching the consumer benefits associated with improved mobile broadband and DTT services in these bands.

Question 19: Have we identified correctly the possible short-term uses of the 600 MHz spectrum? Are there other short-term uses we should consider?

Yes - we do not foresee any other realistic short-term uses.

Question 20: Which option(s) for releasing 600 MHz in the short term would maximise its value whilst supporting our proposed longer term objectives?

It would seem sensible to release the spectrum on a technology and service neutral basis or for test and development purposes before moving DTT services into it.

Question 21: Do you agree that the wider impacts of a future clearance of the 700MHz band could be managed to prevent them having a detrimental impact on consumers and the services operating in this band?

We agree that this is possible, not least because valuable learning will be available from the coexistence measures introduced for mobile and DTT services in the 800MHz band.

In particular a more proactive approach by DTT receiver device manufacturers in the years leading up to the clearance of 700MHz band could make the coexistence issues even easier to manage than the current 800MHz scenario.

Question 22: Do you agree that the approach set out in this consultation is likely to secure significant benefits for citizens and consumers over the long term?

Yes

Question 23: Have we correctly identified the main areas of future work that could follow this consultation process subject to its outcome?

Yes