



Issue 1

BT's response to Ofcom's consultation on:

Spectrum management strategy

Ofcom's approach to and priorities for spectrum management
over the next ten years

(Issued by Ofcom on 2 October 2013)

1. EXECUTIVE SUMMARY

BT welcomes Ofcom's assessment of future trends in the markets relevant to spectrum to set priorities for the next 10 years. The spectrum management strategy will be a key component of the Government's UK Spectrum Strategy that is currently taking shape. On the whole a continuation of the current market-led approach is proposed by Ofcom, with limited regulatory action in certain areas. This is essentially a continuation of the outcome of the Spectrum Framework Review that was completed in 2005. We would highlight that, with the increasingly disruptive nature of spectrum opportunities and the communications industry in general, due regard must be given to allow for new trends that cannot be predicted by past events. Ofcom should remain free to pursue regulatory approaches for events and developments in future scenarios that differ from the past.

Ofcom identifies seven priority areas as a result of its analysis. We urge Ofcom to pursue these priorities in an international context, as the international dimension to spectrum management strategy should not be underestimated. This is of increasing importance, especially in the EU context, and there is little scope for the UK to develop a spectrum strategy that is not aligned with European developments. It is therefore important that the UK is influential in international spectrum management debates.

It will be important to take into account the impact of the evolution of fixed networks on the demand for spectrum for mobile, broadcasting and satellite. Fibre broadband coverage and capability will continue to improve and could have significant impact in terms of supporting converged fixed and mobile broadband solutions in which much of the projected growth in mobile data traffic will be handled over fixed networks via Wi-Fi or small cells. Fixed network solutions will also have an increasing role in mobile backhaul, especially small cells. The increasing capability to unicast and multicast TV over fixed broadband networks may affect requirements for broadcasting spectrum.

The projected huge growth in demand for mobile broadband, combined with the likely requirement for operators to deliver this at similar monthly costs to consumers as today, will require different mobile network architectures; notably increased use of small cells and increased network sharing. This will require spectrum to be assigned in much larger blocks than in the past and different network and spectrum sharing models may require a different approach to spectrum assignment compared to past auctions, and different regulatory approaches.

We agree with Ofcom that the proposals to replace the current EU Radio and Telecommunications Telecom Equipment (R&TTE) Directive represent a key opportunity to improve radio equipment performance and lessen coexistence issues. We would welcome increased contribution by Ofcom in the development of European and international regulations on radio equipment, and for Ofcom to become better engaged in industry standardisation work where appropriate.

It will be important for Ofcom to align its spectrum management strategy with the Government's policies and the UK Spectrum Strategy. Ofcom is working on supporting the Government's release of 500 MHz of public sector spectrum, but has not included this as a priority in its own right. In a similar fashion to the international work which also underpins many of the priority items, some explicit reference to how these aspects will be handled might usefully be included in Ofcom's Statement.

1. RESPONSES TO THE SPECIFIC CONSULTATION QUESTIONS

Market and international context

Question 1: Have we captured all the major trends that are likely to impact spectrum use over the next ten years in this section and the separate Appendix on sectoral developments? Are there other market, technology or international developments that could lead to significant changes in spectrum demand and supply over the next 10 years?

Ofcom's assessment of future trends for the individual sectors given in the appendix to the consultation paper seems sufficiently comprehensive and covers all the major areas of interest to BT. There are a number of ways in which the topics could have been identified and categorised, but we are content with the analysis presented on the twelve major uses of spectrum.

BT agrees that the seven priority areas identified by Ofcom are appropriate, but these must be pursued in an international context. The international dimension to spectrum management strategy is key and should not be underestimated. This is of increasing importance, especially in the EU context, and there is little scope for the UK to develop a spectrum strategy that is not aligned with European developments. It is therefore important that the UK is influential in international spectrum management debates. We understand that Ofcom currently represents the UK on behalf of Government and it is helpful that the UK has leading roles in some international groups. It is clearly important to ensure that the requirements and views of UK companies are taken into account when establishing UK positions and contributions to these meetings and that the process is as transparent as possible so that UK companies can maximise their contribution to Ofcom's tasks.

It will be important to take into account the impact of the evolution of fixed networks on the demand for spectrum for mobile, broadcasting and satellite. Fibre broadband coverage and capability will continue to improve and could have significant impact in terms of supporting converged fixed and mobile broadband solutions in which much of the projected growth in mobile data traffic will be handled over fixed networks via Wi-Fi or small cells. Fixed network solutions will also have an increasing role in mobile backhaul, especially small cells. The increasing capability to unicast and multicast TV over fixed broadband networks may affect requirements for broadcasting spectrum.

The projected huge growth in demand for mobile broadband, combined with the likely requirement for operators to deliver this at similar monthly costs to consumers as today, will require different mobile network architectures; notably increased use of small cells and increased network sharing. This will require spectrum to be assigned in much larger blocks than in the past and different network and spectrum sharing models may require a different approach to spectrum assignment compared to past auctions, and different regulatory approaches.

On a point of detail, we note that Ofcom uses a particular methodology to calculate spectrum usage, and in this consultation has revised its previous algorithm used to apply different weighting to quantities of spectrum depending on frequency (a mix of linear and logarithmic calculations depending on frequency are arbitrarily applied). The conclusions on spectrum use in section 2 of the consultation that follow from this methodology then underpin the later analysis. Whilst there is no right or wrong way to calculate spectrum usage we would like to highlight that varying the methodology would lead to different results and potentially different conclusions for the comparative amount of spectrum occupied by the various users, which is one element conferring a particular level of importance to those users in establishing spectrum policy. Given Ofcom's

somewhat arbitrary choice of the weighting of spectrum bandwidths at different frequencies, the subsequent discussion of precise percentages of spectrum for different management arrangements or uses should be interpreted with caution.

Our approach to spectrum management

Question 2: Do you have any comments on this summary of our approach to spectrum management and on the principles discussed in Annex 5?

We note that spectrum suitable for licence-exempt equipment is not addressed in Annex 5 of the consultation. This option should continue to be the first consideration when looking at how spectrum use could be authorised. Section 2 (as amended by the December Spectrum attribution metrics document) indicates the proportion of UK spectrum that is already exempt from licensing at 29%, using Ofcom's weighted algorithm (and at only 17% if the specific niche applications of tank level probing radar and radar level gauges are removed from the analysis). The share made available for Wi-Fi devices in the 2.4 and 5 GHz bands together represents only 2% of the total the weighted spectrum. We would have expected one of Ofcom's spectrum management principles to aim for continued maximisation of the amount of licence exempt spectrum in the UK, potentially in combination with an appropriate level of monitoring and enforcement. Further licence-exempt use, for example Dynamic Shared Spectrum access to TV White spaces and additional spectrum for Wi-Fi at 5 GHz, can represent a highly efficient use of spectrum and can generate additional economic value. We therefore consider that facilitating licence-exempt spectrum use should be an important component of Ofcom's spectrum management approach.

Notwithstanding the comments on licence exempt usage above, the spectrum management principles outlined in Annex 5 of the consultation appear to reflect Ofcom's approach to date and the implication is therefore that Ofcom does not plan to deviate from these. Whilst the principles may have worked reasonably well to date, it is important that Ofcom remains open to consider adapting these or looking at alternatives in future. An example can be drawn from the future award and regulation of mobile spectrum where there may be a case to award spectrum in much larger packages than in recent auctions. Also, where shared infrastructure and spectrum is used to improve network economics and the customer experience, regulated wholesale access conditions may be appropriate where competition concerns arise. The five principles need to allow Ofcom sufficient flexibility to cover similar departures from previous approaches.

On a point of detail for the first principle, we suggest that this should be aligned to the wording of clause A5.6 of the consultation in order to provide greater certainty to users. The full wording would then read:

"Rights to use spectrum should be unambiguous, not changed without good cause, and as flexible as possible whilst respecting the rights of others".

Turning to the three high level strategic objectives for Ofcom's spectrum-specific activities as given in clause 4.6 of the consultation, we would like to reinforce the consideration of social benefit when the final objective is pursued, namely "enable recycling of spectrum from lower to higher value uses and users". Some uses of spectrum may not provide particular business returns for the UK directly, but nevertheless facilitate an invaluable service that should not be ignored and provide for downstream benefit to the UK.

Future spectrum challenges

Question 3: Do you think we have adopted the right approach to analysing future trends and developments that could raise the need for future regulatory action?

We welcome Ofcom's analysis of future trends. Necessarily any evidence used by Ofcom relates to recent events and past history. With the increasingly disruptive nature of spectrum opportunities and the communications industry in general, due regard must be given to allow for new trends that cannot be predicted by past events. Ofcom should remain free to pursue regulatory approaches for events and developments in future scenarios that differ from the past. For example, a significant change in mobile network architectures to include large numbers of small cells to support the projected huge growth in mobile broadband data could benefit from a shared infrastructure to improve the economics. This new scenario may require regulatory actions. A further example is the future capability of fibre broadband to reach a very high percentage of UK homes and carry TV programmes that would traditionally be broadcast using DTT, satellites or cable networks.

Question 4: What are your views on the results of our analysis of future developments summarised in this section and discussed in greater detail in the Appendix to this consultation? Please provide evidence in support of your views wherever possible.

Insofar as the future direction of industry can be predicted, we believe that Ofcom has undertaken a fair analysis in this section and in the Appendix of the various major uses of spectrum to determine the future priority areas.

Proposed Priorities

Question 5: Do you agree that a consideration of mobile and wireless data demands should feature as a priority area in our work programme for the next ten years? Have we captured all the major issues that we should consider within this area?

We agree that this should be included as a priority area in the work programme.

We see a role for further licensed and licence-exempt spectrum for mobile broadband. However, in order to cope with the projected huge growth in demand for mobile data, and the need to deliver this in a way that reflects the fact that revenue from consumers is unlikely to significantly increase, it is likely that network architectures will change with greater network sharing and use of small cells connected to fixed networks. This will require regulatory action for this to occur and regulatory action to ensure that competition issues are addressed, for example it may be necessary to introduce regulated wholesale access to mobile networks where there is insufficient infrastructure competition.

Question 6: Do you agree that the future of PMSE spectrum access should feature as a priority area in our work programme for the next ten years? Have we captured all the major issues that we should consider within this area?

We agree that this should be included as a priority area in the work programme, including consideration of how moves to more efficient technology can be facilitated.

Question 7: Do you agree that the implementation of our 700 MHz strategy and the longer term future of DTT should feature as a priority area in our work programme for the next ten years? Have we captured all the major issues that we should consider within this area?

We agree that this should be included as a priority area in the work programme. Both the short-term opportunity to release 700 MHz following European harmonisation activities and the long-term requirements for TV broadcasting need to be considered carefully, taking account of the alternatives available, with a view to minimising the impact on consumers and development of future proof solutions for TV delivery.

Question 8: Do you agree that a consideration of competing demands for spectrum at 450 -470 MHz should feature as a priority area in our work programme for the next ten years? Have we captured all the major issues that we should consider within this area?

We agree that this should be included as a priority area in the work programme.

Question 9: Do you agree that spectrum sharing should feature as a priority area in our work programme for the next ten years? Have we captured all the major issues that we should consider within this area?

We agree that this should be included as a priority area in the work programme and recognise that spectrum sharing can take on many forms.

Ofcom has a major programme underway to pilot the use of TV white space devices and BT has contributed to that activity. The principles of Dynamic Spectrum Access will be relevant in future to other bands and we support Ofcom's efforts to develop such opportunities.

Ofcom's plan to investigate additional licenced-exempt spectrum at 5 GHz for technologies such as Wi-Fi is also helpful and could enable more efficient use of that spectrum to be achieved and additional consumer benefits to be generated in the longer term.

Other spectrum sharing opportunities may be possible in future that fall between the extremes of exclusive licenced use and shared licence-exempt use. For example, geographic sharing using techniques such as Authorised Shared Access/Licensed Shared Access have been proposed.

Question 10: Do you agree that, in future, we should consider whether and how to play a greater role in supporting improvements to the performance of RF transmitters and receivers? What are your views on the potential future role for regulation in this area?

We agree with Ofcom that the proposals to replace the current EU Radio and Telecommunications Telecom Equipment (R&TTE) Directive represent a key opportunity to improve radio equipment performance and lessen coexistence issues. We would welcome increased contribution by Ofcom in the development of European and international regulations on radio equipment, and for Ofcom to become better engaged in industry standardisation work. It is important to strike a suitable balance between technical efficiency of spectrum use and acceptable equipment costs. Close engagement and consultation with all interested parties is therefore needed when formulating Ofcom's position for external groups.

Question 11: Are there other issues or potential future challenges that you consider should feature as a priority in our work programme for the next ten years? Please provide evidence in support of your views wherever possible

It will be important for Ofcom to align its spectrum management strategy with the Government's policies and the UK Spectrum Strategy. Ofcom is working on supporting the Government's release of 500MHz of public sector spectrum, but has not included this as a priority in its own right. In a similar fashion to the international work which also underpins many of the priority items, some explicit reference to how these aspects will be handled might usefully be included in Ofcom's Statement.

Monitoring spectrum use

Question 12: Do you consider that tracking these metrics could be a useful way to help monitor the effects that our spectrum management strategy has on the nature of spectrum access and how this changes over time? Are there any other indicators that we should be seeking to track for these purposes?

The metrics that Ofcom has identified are appropriate.

Question 13: Do you consider that targeted spectrum utilisation measurements could be useful in informing future spectrum management initiatives? What type of specific uses or bands could be the subject of future measurement studies, and why? Please provide evidence in support of your views wherever possible.

BT agrees that spectrum utilisation measurements may be useful to help inform spectrum management decisions. Licence-exempt spectrum use and spectrum where individual assignments are made by, or on behalf of, Ofcom may be priorities for these measurements. These bands may be ones where Ofcom is most able to initiate changes where appropriate.