



**BBC response to Ofcom’s Consultation  
“Spectrum management strategy”**

## Overview

The BBC welcomes the opportunity to respond to Ofcom's Spectrum management strategy consultation, published on 2<sup>nd</sup> October 2013.

The BBC's starting point is not to see spectrum use as a zero sum game between the competing demands of mobile operators and terrestrial broadcasters. Instead, we have a distribution strategy focused on ensuring UK citizens have access to BBC content in a range of ways which are convenient, affordable and as close to universally available as is possible. The strategy needs to support wider objectives such as investment in high quality PSB content, innovation, good value for money and effective inter-platform competition.

It means that the BBC is committed to digital innovation whether via IP, cellular or terrestrial networks, and whether fixed or mobile. Tony Hall recently set a vision for the BBC which includes innovations such as enhanced iPlayer, BBC Playlister and Open Minds – all of which will, in part, depend upon using mobile networks.

Overall, the BBC continues to play an important role in encouraging IP adoption, for example via YouView. It is exploring the viability of mobile content delivery through the trialling of eMBMS with mobile partners.<sup>1</sup> Over the coming months we will engage with Ofcom on how the delivery of content might evolve over the coming years, recognising the growing synergies between broadcasting and mobile. In this respect, we particularly welcome Ofcom's proposal to initiate discussions on the future of the free-to-air (FTA) platform in the longer term, beyond the period when Ofcom sees DTT as being the principal delivery platform (2030).

In the meantime and as Ofcom acknowledges, viewers continue to watch broadcasting content in a primarily linear and static way. This is expected to continue for the foreseeable future. DTT, reliant on secure access to UHF spectrum, provides enormous benefits to the UK's communications sector and to citizens and consumers. These benefits cannot be fully replicated on other platforms, including:

- Free at the point of access content;
- Universal reach (presently defined as over 98.5% of the UK population);
- Regionality; and
- Unmediated access.

DTT provides choice for those who do not wish to (or cannot) pay for access to broadcasting services as well as introducing a competitive constraint on pay TV

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<sup>1</sup> <http://www.globaltelecomsbusiness.com/article/3159773/BBC-talks-to-Huawei-about-LTE-broadcasting.html>

platforms.<sup>2</sup> This spur to inter-platform competition drives innovation and supports investment in content by pay TV providers.

In this context, we welcome Ofcom's acknowledgement of public interest considerations around DTT and in fulfilling its wider spectrum management responsibilities (paragraphs 1.15-1.16). These are not just important – they are essential to the 40% of the population who rely on Freeview as their primary means of accessing TV and the wider population who benefit from strong PSB and thriving competition in UK content and platforms.

We recognise the merits, as well as the limitations, of market mechanisms to allocate scarce resources like spectrum. The economic surplus from DTT's use of the UHF has already been valued at £63.6 bn<sup>3</sup>. However, in our view, spectrum management should not be focused on the total economic surplus of any one use over another. Instead, it should focus on the incremental value, just as central government spend is assessed based on the incremental value of each incremental pound. This allows the analysis to account for the fact that the majority of mobile's value derives from voice – not data – yet relies on just a fraction of network capacity. Digital UK will shortly be publishing a report by Communications Chambers showing that, on this incremental basis, DTT is a more valuable use of spectrum than mobile data services.

The incremental value of spectrum to DTT is underlined by the fact that a loss of spectrum which would affect channel choice could have a substantial impact on the overall platform. Indeed, Ofcom previously noted “the attribute of the DTT platform consumers value most highly is access to a sufficiently large number of free-to-air TV channels.” (Statement on Securing long term benefits from scarce low frequency spectrum, 16/11/12). Fewer channels and the ensuing loss of consumer value could undermine confidence in the platform among any one of the many parties which DTT supports.

In our view, such an approach could be used to make a robust assessment of the cost benefit of the case for 700 MHz clearance, which has still not been made. The international momentum to clear that band makes it imperative that Ofcom addresses the need for certainty in the spectrum which remains for harmonised broadcasting use (470-694 MHz). Specifically, Ofcom and government should argue against conferring a mobile/broadcasting co-primary status for this band at WRC-15 in order to facilitate the investment decisions needed for the long-term future of the platform in light of any clearance from 700 MHz. Ofcom and government should also provide assurances that those who benefit from any clearance of the 700 MHz band will be responsible for meeting costs of clearance which will inevitably be faced by broadcasters.

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<sup>2</sup> See, for example, Sky's admission to the Competition Commission investigation on Pay TV [http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/inquiry/ref2010/movies\\_on\\_pay\\_tv/pdf/sky\\_response\\_issues\\_statement.pdf](http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/inquiry/ref2010/movies_on_pay_tv/pdf/sky_response_issues_statement.pdf)

<sup>3</sup> Analysys Mason, Impact of radio spectrum on the UK economy and factors influencing future spectrum demand, 5 November 2012

Finally, the BBC also responds from two other perspectives. First, as a significant user of audio and video PMSE equipment, we strongly welcome Ofcom's continuing recognition of the importance of PMSE. Second, as a broadcaster with global reach, we use numerous national and international platforms and are reliant on extensive global distribution via satellite. The BBC is also heavily reliant on satellite communications both inside the UK and internationally for news-gathering and other programme contributions. When representing the UK in international fora, we would encourage Ofcom to consider UK interests in overseas jurisdictions.

## General points

Ofcom helpfully raises a number of important cross-cutting issues which will have an increased bearing on spectrum management decisions over the next ten years. In response, we offer the following broad observations.

The development and use of more efficient technologies and new means of achieving efficient re-use of spectrum resources will ease spectrum demand pressures in some cases

In April 2013, Digital UK submitted a response to Ofcom's Call for Inputs on WRC-15 Agenda Item 1.1<sup>4</sup>. That response set out in some depth our views on the importance of spectrum reuse in future spectrum management decisions. In particular, it noted that the scope for mobile use of higher frequencies through licence-exempt Wi-Fi appeared to have been somewhat overlooked by policy makers.

We are encouraged that Ofcom has been seeking further views on this issue through its more recent Call for Inputs on spectrum sharing. We also note that the European Commission published a report<sup>5</sup> earlier this year which appeared to confirm that the use of Wi-Fi and other off-loading measures is far more prevalent than policy makers (including Ofcom) had hitherto accepted. We are told constantly of the imminent "explosion" in mobile data demand. However, given that 80% of this data demand is being met through Wi-Fi (and in the case of mobile demand for iPlayer, the figure is 93%), this gives something of a different picture when it comes to the mobile demand for more spectrum allocations.

On the TV White Spaces initiative that Ofcom is driving, we recently submitted a response to Ofcom's latest consultation. That response sets out a number of concerns on that specific issue. However, the general principle of using spectrum which is unused (either temporally or geographically) is one that we can support as this could represent a more efficient use of spectrum. The caveat to this, however, must always be that consumers and audiences do not see a reduction in their enjoyment of existing and valued services.

Spectrum recycling to uses with higher value will remain an important objective and the release of public sector spectrum is likely to be a key source of spectrum supply in future

We would also suggest that Ofcom takes full account on the costs of repurposing services as these costs can often exceed the benefits of introducing the nominally "more valuable" service.

In terms of assessing higher value, this would clearly only be meaningful where the *incremental* value is taken into account. For example, if Ofcom (as expected) releases the 1.4 GHz, 2.3 GHz and 3.4 GHz bands on a harmonised basis for mobile use within the next 5

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<sup>4</sup> [http://stakeholders.ofcom.org.uk/binaries/consultations/cfi-mobile-bb/responses/UK\\_DTT\\_Multiplex\\_Operators.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/cfi-mobile-bb/responses/UK_DTT_Multiplex_Operators.pdf)

<sup>5</sup> <http://bookshop.europa.eu/en/study-on-impact-of-traffic-off-loading-and-related-technological-trends-on-the-demand-for-wireless-broadband-spectrum-pbKK0113239/?CatalogCategoryID=CXoKABst5TsAAAEjepEY4e5L>

years, as well as the expected expansion of the 5 GHz Wi-Fi band, then the incremental value of the 700 MHz band for mobile operators will likely reduce as the scarcity value of spectrum for mobile use similarly reduces.

The international dimension of spectrum management remains highly relevant to optimal spectrum use in the UK

We agree with this statement. However, we have residual concerns that some lessons from previous international experience may not be fully appreciated. WRC-12 – and the unanticipated decision to make the 700 MHz band a co-primary allocation between mobile and broadcasting - showed that the UK will need to be more vigilant in key international fora. In particular, we note the continued growing influence in the ITU of regions and countries outside Europe (initially flagged in the UK following WRC-07.) We have some concern that similar unforeseen outcomes could emerge from WRC-15 and would urge the UK to drive the agenda in CEPT preparatory meetings ahead of the 2015 conference.

In particular, on Agenda Item 1.1, we urge Ofcom and government to safeguard the long term future of the DTT platform by arguing *against* conferring a mobile/broadcasting co-primary status on the band 470-694 MHz. We set out further below the reasons why we consider this is a necessary position to take.

The BBC also believes the international dimension of spectrum management is highly relevant where there is UK interest in spectrum use outside the UK, for example, for BBC international operations. UK spectrum policy needs to reflect this in addition to spectrum use within the UK: international engagement should not be solely driven by the need to influence European or international decisions for the benefit of national spectrum issues.

The European Commission has illustrated its ambition to play a growing role in spectrum management decisions in the provisions currently contained in its proposed *Connected Continent* Regulation. We would encourage Ofcom to maintain an active role in shaping EU spectrum policy.

As the use of key spectrum bands intensifies, the interference environment is likely to become more challenging

We agree with Ofcom and note that the management of interference has already become more challenging. The increase in the noise floor in broadcasting spectrum is already of some concern to us.

## Responses to questions

*(Q1) 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?*

1. Ofcom appears to capture all of the major trends in its analysis.
2. An exception to this is space services. This strategy's relatively short reference timeframe and its focus on spectrum use within the UK likely accounts for this. However, because the BBC has an interest in spectrum use outside the UK and sees issues affecting our interests returning after periods of over 10 years, we urge Ofcom to reconsider the importance to the UK of spectrum use by the space service.
3. A development which is of concern to us is around the harmonisation trend that Ofcom identifies in paragraph 3.63 and alludes to further in paragraph 4.17. In our view, harmonisation will only deliver any great benefit when it is led by consumer demand. For example, the harmonisation and subsequent clearance of the 800 MHz band was deemed a key plank within the EU for introducing 4G mobile services. This is helping to meet a clear increased demand for mobile data – much of which has been driven by the introduction and development of smart phones and tablets.
4. Our experience in international discussions suggests that there has been a subtle change in how harmonisation is being approached. Rather than being led by any significant and identifiable consumer appetite for services, the drive for harmonisation is coming from within the mobile supply chain and is being treated as an end in itself. This is particularly the case with the growing calls for harmonisation of the 470-694 MHz band (and to some, though a lesser, extent the 700 MHz band), which appear to be led by mobile device manufacturers who seek to realise economies of scale through cheaper handset devices<sup>6</sup>.
5. Cheaper handset devices are clearly a potential benefit to be taken into account in these spectrum management decisions. However, they are only one benefit amongst a number of other benefits and costs. We would argue that the starting point for any harmonisation decisions should be whether there is any significant consumer demand for services which seek to use this spectrum. This will more fully inform the total likely benefit associated with spectrum clearance.
6. In that context, it is regrettable that no analytical work has yet been done on the use of the 700 MHz band, substantiating the level of consumer demand for services seeking to use those frequencies. We would, therefore, strongly argue that any future pressure for release of further UHF spectrum for mobile must establish the full incremental benefit of clearance for consumers. Such an assessment would need to take into account the

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<sup>6</sup> It is also worth noting that contradictory arguments are being made in CEPT and ITU around global harmonisation for mobile services for example that it is crucial for UHF, but that for C-band, a European-only solution is worth pursuing.

numerous other mobile spectrum releases that are likely to have occurred in the meantime.

7. Ofcom should also consider in the longer term how viable IP could be for delivery of broadcasting content. The extent to which IP could be an effective substitute for DTT would depend on a number of criteria. These would include the resilience of the network for mass consumption, low cost access to content for viewers, unmediated network access for broadcasters and EPG prominence for PSBs.

*(Q2) Do you have any comments on this summary of our approach to spectrum management and on the principles discussed in Annex 5?*

8. We repeat our comment of above that, where Ofcom has to intervene to repurpose spectrum between users, the key comparison should be all of the costs associated with clearing the existing service (critically, including the costs of replicating the displaced service using another delivery mechanism) and the likely incremental benefits of the new use.
9. Timescales and co-existence issues are challenges for changing spectrum use. An additional challenge is assessing whether the new use will likely deliver sustainable benefits in the same way that established technologies have been able to. The rapid development of new technologies brings benefits but also some uncertainty about their longer-term spectrum efficiency and commercial viability
10. In terms of market mechanisms, we note that introducing spectrum trading or leasing would be challenging as it relates to BBC use of spectrum. This is because of the public status of the organisation, our coverage obligations and other commitments as set out in the BBC Charter.
11. We have addressed the issue of DTT and spectrum pricing in our response to Ofcom's 2013 consultation on Administered Incentive Pricing (AIP) for DTT<sup>7</sup>. However, we feel it is important to re-iterate our objections to the application of AIP on the grounds that we cannot respond to pricing incentives to use our spectrum more efficiently. The key elements of this are:
  - a. We cannot reduce the amount of spectrum we hold in response to AIP as this would reduce coverage, removing viewers' access to TV services. This would clearly be in conflict with our coverage obligations;
  - b. Where a decision had been taken to expedite a move to more efficient technologies (such as DVB-T2), there is a likelihood that this would require some form of government and/or regulatory intervention to overcome the issue of viewers' legacy receiver equipment; and

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<sup>7</sup> <http://stakeholders.ofcom.org.uk/binaries/consultations/aip13/responses/BBC.pdf>



- c. We are subject to international constraints in how we use spectrum – enshrined by Treaty<sup>8</sup> - which would make any unilateral rearrangement of the UK DTT network impractical.

12. Ofcom has committed to reopen the issue of applying AIP to DTT within the timeframe of this spectrum management consultation. Unless there has been some unforeseen and radical change in the status of the BBC and the broader DTT network, we will continue to argue that applying AIP in this case is counter to Ofcom's own established principles on AIP.

*(Q3) Do you think we have adopted the right approach to analysing future trends and developments that could raise the need for future regulatory action?*

13. We think that Ofcom's approach is broadly sensible.

14. However, as set out above, any strategy which only considers UK spectrum when analysing sectoral spectrum use is unlikely to accurately reflect UK interests where services are international.

15. We are unclear as to the interaction between identifying sectors which require some form of action (Figure 11), what form of action is available (Figure 12) and then identifying spectrum which could meet future demand (Table 4). For example,

- a. Mobile services have been identified as urgently needing more spectrum for capacity purposes (Figure 11);
- b. Some mitigations appear to be available (Figure 12); and
- c. Spectrum between 100 kHz and 300 MHz has scope to be made available (Table 4).

16. Do we then conclude that Ofcom will aim to make this lower frequency spectrum available for mobile capacity purposes? It would be useful for us to understand more fully how Ofcom makes decisions on *which* spectrum will likely be made available for repurposing after the need for intervention has been established.

17. We also recognise that segmenting spectrum for the purposes of Table 4 is inherently difficult. However, it seemed unusual to us that the margins of some bands have been set at particularly arbitrary points. For example, the band 470 MHz-1 GHz could have been more meaningful if defined as 470-790 MHz. The current frequency range involves assessing the scope for spectrum change for very different services with differing circumstances. We would expect this to make an analysis of the bands in Table 4 more complicated.

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<sup>8</sup> <http://www.itu.int/pub/R-ACT-RRC.14-2006/en>

*(Q4) 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*

18. We note that DTT has been marked amber (ie moderate impact) in terms both of the significance of any changes and of the urgency of action. We suggest that are good reasons to revise both of these assessments.
19. In terms of significance, with over 20 million primary TV DTT viewers in the UK (and a similar number of secondary TV set viewers), it is unclear how any change in spectrum supply and the consequent disruption that would inevitably follow could represent anything other than a Red rating (severe impact).
20. In terms of the amber rating for urgency of action, this might be correct if by “action” Ofcom is referring only to the actual clearing of spectrum - which could only happen in the longer term. However, Ofcom will be aware that key decisions need to be made imminently, most notably the decision on what Radio Regulations allocation should be given to the spectrum between 470-694 MHz. This will be decided at WRC-15 but Common European Positions at CEPT on this will be decided in the very near future. As a result, we consider that both the significance and urgency of action should be classified as “Red.”
21. We very much support the inclusion of the 700 MHz implementation and DTT’s long term future as one of the proposed priority areas. As part of this, we welcome Ofcom’s reaffirmation in paragraph 5.25 to “re-planning of DTT in a way that secures the ongoing delivery of the benefits it provides.”
22. We further welcome the initiation of wider thinking on the longer term future of the platform and look forward to being involved in those discussions in the near future.
23. In terms of satellite services and the number of bands essential for the provision of BBC services under consideration under WRC-15 Agenda Item 1.1, we suggest Ofcom should also include the space sector in its sector-focused priorities.
24. The analysis for radio broadcasting does not reflect the UK’s public policy interest in BBC World Service’s international radio broadcasting (delivering a weekly global audience estimate of 145 million) or global developments in digital radio both nationally and internationally.

*(Q5) 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?*

25. We agree that a rigorous and realistic review of future mobile data demand should be conducted. This should take into account real-world developments such as an assessment of the impact of off-loading and price sensitivity of consumers. We also consider that an ongoing review of how any increases could be met should be a key part

of these studies and should not be limited merely (or primarily) to increasing spectrum allocations.

26. Perhaps, of more importance is an acceptance from all policy makers that, where there is such uncertainty in forecasts, real caution needs to be exercised in action that is taken by regulators and government. Current data demand forecasts show such a remarkably wide variation between high end and low end estimates. Accordingly, the reality is that nobody actually knows with *any* certainty what data demands will be by 2025 and beyond.
27. Caution is therefore required on the WRC-15 decision on whether 470-694 MHz should be a co-primary allocation between broadcasting and mobile. We would remind Ofcom that the Agenda Item for this discussion is explicitly to find spectrum allocations for mobile services which could have IMT identification. Conferring mobile status to any allocation under such an Agenda item would give strongly expressed signals to the market and certainly be more than a mere “enabling measure”.
28. As a result, Governments and regulators would in our view be taking premature steps which could damage the DTT platform, given
  - a. Very uncertain data demand forecasts;
  - b. An existing commitment from Ofcom to the DTT platform for the foreseeable future;
  - c. The existing precedent of the 800 MHz and 700 MHz bands where co-primary status has triggered inexorable momentum toward mobile deployment; and
  - d. The lack of certainty that would face broadcasters at a time where crucial investment decisions may be faced on DTT infrastructure.

*(Q6) 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?*

29. Ofcom has clearly given significant thought to this issue and we are grateful for its acceptance of the importance of securing the PMSE sector’s future.
30. The issues facing the PMSE sector have always been on three levels, namely:
  - a. Securing sufficient quantity of spectrum;
  - b. Securing certainty of access to enable investment in equipment; and
  - c. Ensuring that access to spectrum is at an affordable level.

31. A further issue that Ofcom may wish to consider is the international PMSE dimension, seeking to ensure that harmonised tuning ranges are made available to broadcasters who operate across borders.
32. The issue of wireless cameras is an important one. The BBC has been engaged with both Ofcom and government over the past 6 years (primarily through the industry group, Spectrum for Programme Makers) and believes that some significant progress is being made in all of these areas. However, with investment decisions now needing to be made by broadcasters and our partner production companies, we are keen to reach a longer term settlement which will safeguard BBC events production and news gathering for the longer term.
33. We, therefore, look forward to further constructive engagement on the issue of wireless cameras as soon as possible.
34. In terms of wireless microphones and other audio devices (which BBC use heavily in its productions), we welcome a number of the efforts that Ofcom has made to resolve critical issues facing the audio PMSE sector over the past few years. However, we consider that the time has now come for Ofcom to set out how audio PMSE users can have a long term future, given the sustained pressure from the mobile sector on the only identified spectrum available for low power PMSE devices (namely, UHF interleaved).

*(Q7) 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?*

35. We agree with this issue featuring as a priority area and would remind Ofcom of the key issues as raised in DUK's response to Ofcom's Call for Input on the 700 MHz band<sup>9</sup>, as set out below:
36. Ofcom should consider the following when planning its approach to clearing the 700 MHz band:
- a. The principles and outcomes which should shape the approach to 700MHz clearance;
  - b. The limits of IPTV - even in the longer term; and
  - c. The need for DTT viewers and platform operators to have reasonable certainty about spectrum allocation.
37. Broadcasters, multiplex operators and consumers should not bear the burden of additional costs of a process from which they derive no benefit. Specifically, we would urge that Ofcom seeks the following outcomes:

<sup>9</sup> [http://stakeholders.ofcom.org.uk/binaries/consultations/700mhz-cfi/responses/Digital\\_UK\\_members.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/700mhz-cfi/responses/Digital_UK_members.pdf)

- a. That the Freeview platform is not damaged by the process of 700MHz clearance and retains its appeal to viewers and ability to provide competition in the UK market;
- b. That DTT coverage is maintained – both for PSB and commercial multiplexes – and that frequency planning scenarios are predicated on maintaining existing platform coverage of 98.5% of households;
- c. Viewers affected should be fully supported, in both the provision of information and practical support, especially where equipment such as aerials may need to be replaced;
- d. A platform with scope to grow and deliver more choice for viewers, especially where that creates opportunities to drive the take up of spectrum-efficient technologies and standards such as DVB-T2; and
- e. That clearance planning includes the possible requirement for a co-timed transition to technical standards such as DVB-T2/MPEG4 to ensure the DTT platform is not weakened as a result, especially in relation to coverage.

*(Q8) : 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?*

38. PMSE talkback use is a very significant use of this spectrum and there is no identified alternative spectrum for this valuable service. Therefore, we would urge Ofcom to consider the needs of these users and the value that they bring to high quality productions in any policy decisions that they take forward.

39. We look forward to discussing this further as part of Ofcom's forthcoming consultation on the long-term future of the PMSE sector.

*(Q9) 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?*

40. Ofcom has broadly captured the key issues. We repeat our views as set out above that spectrum sharing could be a crucial part of meeting increased demand for wireless services, though the existing services enjoyed by audiences and consumer should receive adequate protection from any risk of harmful interference.

*(Q10) 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?*

41. We welcome Ofcom's recognition of the need for a "forward looking view in its engagement to ensure poor equipment performance decisions are not made now which

result in sterilised opportunity to use spectrum efficiently at a future date". We encourage Ofcom to become more involved in standardisation activities rather than to work via mandates. This is because of the complexity of this work and the lack of co-ordination between the numerous bodies internationally which produce standards.

42. Developments in telecommunications equipment can also severely impact spectrum use (albeit unintentionally) and Ofcom should consider how this can be monitored and influenced. In that respect, work has been initiated in the ITU to ensure close cooperation between the R and T sectors and with regional and industry standardisation bodies ITU Study Group I Opinion 100.
43. There is a need for appropriate regulations around RF transmitter and receiver performance standards, especially to enable the co-existence of different services in adjacent spectrum bands, and to facilitate the introduction of new technologies within an existing environment. Our view is that such regulation should take place at as high a level as possible (e.g. CEPT, ITU or ETSI), rather than at a national level. This is especially the case with consumer devices such as TV receivers and mobile phones.
44. Such an approach will ensure that any increase in costs can be minimised, because they will benefit from the economy of scale by being applied across European or International markets. Moreover, the UK would not be disadvantaged by adopting regulations that differ from those of other countries.
45. However it is important that any such regulations do not introduce significant additional costs, and must carefully balance the requirements between transmitters and receivers. This position is consistent with the statement made in the consultation that the performance of both transmit and receive equipment is analysed as a complete system.
46. We have some concerns that this approach is not currently being followed. For example, Ofcom recently commissioned a study on DTT receiver performance. A draft of this report was presented to stakeholders on 25th November 2013 and stated that "Ofcom has suggested that technical compatibility studies conducted in international bodies should assume that future DTT receivers would provide at least 80 dB selectivity (ACS) in the second adjacent channel to a mobile service". This target, which would be difficult for DTT receivers to achieve and therefore incur significant costs, would be of no benefit at all unless the relevant transmitters (e.g. 700MHz mobile phone uplink signals) were also required to have at least the same value (80dB) for their Adjacent Channel Leakage Ratio (ACLR.)
47. Currently the mobile community is arguing for values of no greater than 50dB. Similarly, in the context of TV whitespace devices, Ofcom's own proposals require second adjacent ACLR of no more than 60dB. So the current proposals in this specific area are already inconsistent.

*(Q11) 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*

48. No. We have covered our key concerns elsewhere in this response.

*(Q12) 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?*

49. We understand the desirability for Ofcom, as a public body, to demonstrate it is providing an effective spectrum management function. However, we do have some concerns, in principle, over using metrics in this particular area. Ofcom should be looking, where appropriate, to promote certain spectrum management approaches such as increased flexibility and/or more tradable licences. However, it should only do so when the conditions are right.

50. We would be very concerned if Ofcom had an artificial or arbitrary incentive put in place whereby (for example) it sought to harmonise a band or make a certain class of spectrum tradable because it knew that it had metrics which expected these outcomes. Good outcomes should be driven, ultimately, by the interests of citizens and consumers.

*(Q13) 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*

51. These are likely to be of limited value on their own as what constitutes efficient spectrum use varies significantly between bands and is very difficult to define within any single band.

52. We expect that these would be only of use where Ofcom has set out, in the context of the service using the band in question, how it would determine what spectrum efficiency means. For example, multi frequency broadcast networks could theoretically be portrayed as being inefficient since they do not use all available spectrum in each location. However, these multi-frequency networks allow the deployment of a number of other services on a sharing basis such as PMSE, local TV and White Space Devices. They therefore represent a highly efficient use of spectrum.

53. Similarly, emergency service use of a band may be sporadic and low volume but this could be deemed to be highly efficient given the social outcomes that are derived from this use.

ENDS