



Joint response from the BBC, ITV, Channel 4, Channel 5, Arqiva and SDN to second Ofcom 800 MHz Coexistence consultation

1. Introduction and summary

The above-named organisations welcome the opportunity to respond to Ofcom's second consultation on the Coexistence of new services in the 800 MHz band with digital terrestrial television.

As broadcasters and multiplex operators, we have played a key role in delivering consumer and citizen value, and have enabled the future roll out of fourth generation mobile services by working to free up spectrum:

- Our investments and efforts in driving Digital Switchover (DSO) and the roll out of DTT have created a vibrant, free to air TV platform, highly valued by viewers. DTT is the most popular UK television platform, and is used in more than three quarters of UK homes.
- These investments have incentivised consumers to take up digital TV, thereby making the process of DSO much easier and so helping to free up large amounts of analogue spectrum for new uses.
- Consumers have made significant investments in DTT reception equipment – with more than 30 million digital TV Freeview devices in use in the UK. Consumers have made these investments based on the Government's promise to deliver universally available television via DTT – they will therefore expect continuity of service.
- We have also co-operated fully with Ofcom's process to amend the post-DSO spectrum plan so as to clear DTT from the 800 MHz spectrum band – thereby directly enabling the auction of the 800 MHz spectrum for mobile uses on a harmonised basis.
- The multiplex operators are investing hundreds of millions of pounds to build out public service and commercial DTT networks, and the public service broadcasters and multiplex operators have funded the management and marketing of the Digital Switchover (DSO) programme by Digital UK. DTT has also evolved to meet consumer needs and to deliver spectrum efficiency – adopting the most

efficient broadcast technologies in order to deliver HD within existing spectrum. Moreover, licence fee payers have funded hundreds of millions of pounds of help for vulnerable consumers through the digital switchover help scheme, including the installation of reception equipment. It is noteworthy that over 80% of Help Scheme customers have chosen DTT equipment. These investments were entered into on assurances from and in close collaboration with Ofcom and Government around DSO which was premised on long term interference-free access to spectrum reaching 98.5% of UK households.

Our overarching objective is to ensure the strongest possible future for the DTT platform, in the interests of consumers. Moreover, the multiplex operators have made enormous long term investments in the legitimate expectation of continued access to adequate, interference free spectrum for DTT services and the Government has recognised its obligations via its funding of the process to clear DTT from Channels 61 and 62. That said, we also recognise the public interest in the roll out of 4G mobile services for the UK and therefore, as we have done with the 800 MHz clearance process, we are keen to work with Ofcom and Government to ensure a constructive solution to the introduction of new mobile services consistent with our own legal rights.

Before addressing each of Ofcom's consultation questions in Section 2, this section starts by considering some overarching issues that are not specifically covered in the consultation questions. In particular, we set out below:

- Our concerns over the Government's decisions on consumer support – particularly in relation to the significant issues that viewers with communal aerial systems are likely to face in resolving interference issues and the lack of support for secondary sets. We are also concerned that Government has decided not to support households with loft or set-top aerials, as well as to provide no installation support to those with a reception system including amplifiers unless they are defined as being "vulnerable". Such households are likely to be reliant on DTT, but they will not be properly protected under the Government's decisions.
- Our surprise at Ofcom apparent retreat from the Government's and its own commitment to 98.5% coverage for the PSB multiplexes, despite the fact that Ofcom insisted that the PSB multiplex operators had to invest to build out the PSB multiplexes to 98.5% coverage. We also note that the BBC is explicitly obliged by Government under Clause 35 of the BBC Agreement to ensure that "substantially the same proportion of households" will be able to receive digital television as were able to receive analogue, and similar commitments have been placed on other PSBs in their licences.
- The overarching principles that should be considered when setting up MitCo and establishing its mode of operation. In our view, Ofcom's proposals fall short in relation to these principles.

The Government's decisions on consumer support

While we welcome the fact that the Government has announced a scheme to help counter the effects of interference, we believe that the Government's decisions in

relation to consumer support for DTT households will leave many households with insufficient support to address interference problems – in particular because Government has decided not to provide installation support for most affected households. We note that the consumer research from Essential Research, commissioned by Ofcom to support its proposals, suggested that it is relatively straightforward for consumers to self-install filters for a standard domestic installation. However, this research finding is insufficient to support a general policy of no installation support (except for vulnerable consumers). This is primarily because households with standard domestic installations account for only 17% of Ofcom's forecasts of potentially affected households. There does not appear to have been any assessment of the complications associated with the vast majority of installations, which will require some form of technical intervention and likely considerable cost. As Ofcom's own assumptions¹ suggest, professional installation support is likely to be required for domestic installations with amplifiers, and in particular for communal aerial systems – with consumers left to bear such installation costs. Moreover, we note that Ofcom's consumer research only tested the installation of a filter to a wall plate, and not installations where there is only a fly-lead. The scope for confusion here is much greater, and therefore Ofcom's research finding may not be robust even in relation to standard domestic installations.

The challenges are likely to be acute for households in communal aerial systems, where MitCo will have to procure the necessary address data to identify the households with communal systems, identify the appropriate landlords / managing agents/freeholders etc., and send the right filters out to the communal households. If MitCo is successful in following these steps, the responsibility for paying for installation will be left with the landlord – who may or may not be willing to pay for installation, and may not always be able to recover installation costs from residents. We understand from Digital UK that it is very difficult to identify communal dwellings and the appropriate landlord – regardless of the quality of the address data. It is therefore not clear how MitCo will succeed where others have not. Digital UK resorted to mailing co-located addresses, and those with the word “flat” in the name, plus addresses with the suffix A, B, C etc. as a proxy for communal dwellings – but did not manage to find authoritative data. We understand that, while the Ordnance Survey data will help, it will not necessarily provide all the information that MitCo will need.

We also note that Ofcom's modelling assumed that a single filter would solve the interference problem in each communal system. This may not be correct in practice if there is any degree of LTE pick-up on the in-building distribution system after the filter – in such circumstances, individual household filters may also be required, but it is not clear whether MitCo will provide them. We understand that this could be a problem in London at least, because many communal aerial systems used to suffer from severe ghosting on analogue pictures caused by direct reception of Crystal Palace on the cabling, rather than via the roof aerial. In addition, the Ofcom modelling (and therefore the Government's decisions) ignored the fact that larger communal systems are likely to involve further amplifiers below the head-end – meaning that further large filters are likely to be required; but again it is not clear whether MitCo will necessarily provide them.

¹ As set out on page 81 of the Deloitte report on MitCo Design Advice published by Ofcom alongside the current consultation.

In addition, we are concerned that MitCo will only be required to supply filters for the main set in viewers' homes. This means that, in areas affected by interference, viewers with two or more TV sets will have to pay for additional filters out of their own pockets to continue viewing on them.

Ofcom estimates that 2.3 million homes are at risk of interference (around nine per cent of all homes). Ofcom has also estimated that while 40% of homes have DTT on their main sets, a further 34% of homes have DTT on one or more secondary sets. However, these figures relate to the position a year ago, when most of the country had yet to undergo digital switchover and almost a quarter of all secondary sets were still analogue. We anticipate that by the time switchover is complete, the proportion of homes with DTT on their main sets will have increased to around 45% (as most remaining analogue homes will convert to DTT). In addition, the proportion of homes with DTT on a second set but not a primary set will also have increased. Although it is more difficult to forecast the number of homes with DTT secondary sets, we believe at least 75% of all homes (some 20 million households) will receive DTT on one or more sets once switchover is complete.

This would mean that of the 2.3 million homes which Ofcom estimates are at risk of interference, around 1.7 million are likely to watch some or all of their television on DTT. Under the scheme the Government has announced, a sizeable proportion of these viewers will not be eligible for support to prevent interference on their secondary sets, and are likely to feel aggrieved as they will have invested in DTT equipment believing it would continue to work efficiently after switchover.

In addition to the above observations relating to affected but unsupported households, it is important to highlight that the recent technical enhancement to the Commercial Multiplexes (involving a switch from 2/3 FEC to 3/4 FEC operation) has not been considered in Ofcom's interference modelling on which the Government's decisions have been based – in particular, we understand that Ofcom's modelling assumes 2/3 FEC across all multiplexes. The consequence of this oversight in the Ofcom analysis is that the modelling is likely to underestimate the number of households affected by LTE interference – therefore, the mitigation costs faced by DTT households will also be underestimated. We encourage Government to revisit its decisions in light of this observation.

There is therefore a significant gap in the Government's policy decisions – with the potential for many households, particularly in communal dwellings, to be left behind. Consumers will incur significant costs as a result of the Government's decisions – with our estimates (based on Ofcom's projections of affected households, and the cost assumptions set out in Deloitte's report) suggesting that consumers could face additional costs in excess of £100m to solve interference issues on primary sets only, with potential additional costs incurred in relation to secondary sets. We therefore have a concern that the Government's decisions are not fit for purpose, and are based on insufficient research and analysis. We therefore urge Ofcom to raise these issues once again with Government, in order to ensure that all consumers are properly protected.

Universal coverage

In relation to the impact of the introduction of 4G mobile on DTT coverage, we are particularly surprised by Ofcom's statements at paragraph 4.14 to 4.16 of the consultation document – where Ofcom states its view that there is not a legitimate expectation that 98.5% coverage will be maintained, and that Ofcom has not imposed a 98.5% obligation on broadcasters and multiplex operators. This statement runs entirely contrary to the long-running processes in the early part of the previous decade, in which Ofcom insisted that 98.5% was the appropriate minimum level of post-DSO DTT coverage, in order to match pre-DSO analogue coverage levels. Indeed, Ofcom was clear in its view that 98.5% was the firm coverage obligation, at times despite strong objections from commercial public service broadcasters. Annex 1 of this submission sets out a number of statements from Ofcom and Government referring to DTT coverage – making clear Ofcom's long-standing position that 98.5% is the required level of post-DSO DTT coverage.

Ofcom and Government's clear position on this subject drove the PSB multiplex operators to agree transmission contracts with Arqiva TransCo designed to deliver 98.5% coverage – contracts under which the PSB multiplex operators are investing hundreds of millions of pounds over a very long term period, and investments which need to be safeguarded, particularly given the incremental investment required to build out beyond the 80 main sites to the 1154 sites required in order to reach universal coverage. Accordingly, it is simply not appropriate – and is potentially unlawful – for Ofcom to renege on its commitment to and obligation for 98.5% coverage when it finds that such a commitment creates challenges to a separate policy process (namely the introduction of 4G mobile). We therefore consider that Ofcom needs to take all necessary steps to ensure that 98.5% coverage is maintained, at no incremental cost to the DTT multiplex operators and broadcasters.

In addition, many consumers have upgraded their aerials during the switchover process in order to receive DTT services, with the legitimate expectation that their reception will not be adversely affected by later decisions. Indeed, in the light of Government's policy decisions, through Digital UK and through the Digital Switchover Help Scheme, licence fee payers will have spent around £400 million providing advice to customers as to how they can choose and manage digital equipment, the vast majority of whom have chosen Freeview, and directly funded well over 1.2 million of such upgrades for vulnerable consumers. Having to fund a migration to other platforms so shortly after the first upgrade would represent a waste of public money.

Overarching principles for the establishment of MitCo

Turning to the future shape of MitCo – the primary subject of this consultation – we believe that a number of principles should inform the establishment of MitCo. In particular, we have previously expressed the view that Ofcom and the Government should ensure that:

- The “polluters should pay” – i.e. the MNOs should pay for the costs of mitigation. Critically, DTT consumers and multiplex operators should not incur any additional costs as a result of this process.

- MitCo must work effectively to minimise harmful interference. In particular, we consider that the interference problem needs to be addressed pro-actively before DTT viewers are adversely affected, not after any viewer loss has already taken place – i.e. all the emphasis in mitigation should be on a preventative approach. In addition, there needs to be proper use of mobile network mitigations alongside consumer mitigations as part of such a preventative approach. MitCo therefore needs compelling incentives to deliver network mitigations where these are likely to be effective.
- MitCo should properly reflect the interests of DTT consumers – seeking to maintain the DTT platform and safeguard the investment that industry and consumers have made in DTT. As a starting point, therefore, the mitigation process should minimise any platform change for consumers.
- Broadcasters and multiplex operators need to be involved in the mitigation programme – given that it is our customers who are adversely affected and we have the strongest incentive to ensure that they are well served. However, in so doing, the mitigation regime should create no brand or reputational damage to broadcasters and multiplex operators.

Summary of responses to consultation questions

As discussed further above in relation to the Government's decisions on consumer support, and in Section 2 below in response to the specific consultation questions, Ofcom's proposals fall significantly short in relation to these principles. Specifically:

- As noted above, DTT consumers – particularly those in multiple occupancy dwellings with communal aerial systems – will face significant cost and inconvenience as a result of this process. Therefore, the “polluter pays” principle clearly will not have been adhered to.
- On the subject of filter provision there seem to be inconsistencies in the proposals, i.e. it is proposed that 90% of those households predicted to be affected will be provided with a filter on a pro-active basis, whilst separately in paragraph 3.1 it is noted that in advance of the new network being switched on, filters should be provided to all consumers in areas which are likely to be most affected. To be clear, we believe that all potentially affected households should be pro-actively provided with filters.
- We believe that the proposals for the Supervisory Board are not robust enough – with insufficient resource likely to be available to the Supervisory Board to deliver its functions properly, and insufficient authority over decisions made by MitCo. The Supervisory Board should have a more pro-active role, and should not be limited to acting after the event once significant damage to DTT reception has occurred.
- It is not clear to us that MitCo will have the right incentives to properly address DTT interference – the management of MitCo will need to be properly incentivised to minimise interference, and the broadcasting industry will need more visibility

and influence over MitCo than is currently proposed. In addition, we believe that there needs to be much greater and well-resourced audit scrutiny of MitCo's performance than is currently proposed.

- Too great an emphasis is placed on the role of the gain share to incentivise the MNOs to minimise the cost of the protection regime and hence the potential recovery of funds. It is difficult to imagine how the funds in question will be a serious motivation to the parties involved, i.e. if the total funds remaining at the end of the period were £30m then this would leave £15m to be split three ways or £5m per licensee. According to Ofcom's own data, the mobile phone business generates £15bn of revenue per annum, from 82 million subscribers. As such, a £5m upside over a four year period for each operator is unlikely to focus their minds or behaviour towards network based mitigations particularly when this might be at the cost of a reduction to the potential 4G customer base.
- There therefore need to be much stronger incentives on MitCo to carry out network mitigations – we believe that the proposed gain share mechanism is inadequate in this regard, and instead there needs to be a binding cap on platform changes set as soon as possible at such a level that requires MitCo to implement network mitigations in order to meet its obligations. To this end, we are also keen to see a specific reporting requirement whereby MitCo regularly updates the Supervisory Board on the number of network based mitigations deployed and their effectiveness. Moreover, we consider that MitCo should be obliged to report to the Supervisory Board on the geographical breakdown of potential platform changes, with a view to smoothing the regional impact of platform change – in particular to ensure that platform changes are not concentrated in a small number of areas.
- As proposed, the KPIs are far from robust – it is not clear to us why MitCo should only pro-actively send filters to 90% of affected households, and it is also not sufficient to assess achievement of the proactive filtering KPI simply by measuring complaints. Moreover, the operational conditions and other aspects of Ofcom's proposals appear to grant MitCo inappropriate flexibility that would enable them to depart from the KPIs. The KPI framework therefore needs to be much stronger.
- We are concerned with the time period over which MitCo will be in operation as Government has suggested that it should operate for up to a year after network roll-out is complete, whilst at the same time setting a back-stop date of 2017. Ofcom's proposals for the 800 MHz award include a provision of only one licence block to have a specific roll-out target due date which is set to 2017. Clearly Government's proposed back stop date is not one year after the coverage completion date. Furthermore, as coverage obligations will only apply to one licence block, there is huge scope for the other licensed operators to continue their network roll-out way beyond 2017 which would lead to continued risk of disruption and interference to DTT over an extended period with no consumer support in place. We therefore believe that a backstop date of 2017 is likely to be premature, and a more appropriate all-encompassing arrangement needs to be considered.

- We also believe that there needs to be a stronger backstop power for Ofcom to intervene to resolve interference concerns in cases where MitCo is not fulfilling its obligations. Paragraph 8.16 of the consultation sets out a proposed obligation on the licensees to comply with directions given by Ofcom. This appears to be critical in ensuring an effective backstop power, but Ofcom does not provide any sense of when these important powers might actually be used – other than saying that directions would be given in "exceptional" cases, wording which would appear to undermine the incentives to achieve the KPIs. Ofcom should provide further clarity on this backstop power, and make clear that it is willing to exercise the power where required – such clarification would provide key incentives for the MNOs and MitCo, and would help to underwrite delivery of the KPIs.

Overall, therefore, whilst we welcome Ofcom's attempt to find ways to minimise interference to DTT from 4G mobile, we are concerned that Ofcom's current proposals do not go far enough – a view on which we expand in Section 2 below.

2. Answers to Ofcom consultation questions

Question 7.1: Do you agree that it is best to seek to establish MitCo in advance of the auction for later transferral to 800 MHz licensees?

We agree with Ofcom's view that MitCo should be established before the auction. This would enable:

- The governance and constitution of MitCo to be established and for the broad operational arrangements for the company and the Supervisory Board to be put in place.
- The MNOs to have more clarity on the nature of MitCo as they prepare their bids prior to the 800 MHz auction.
- The independent Chair of MitCo to be appointed by Government and to be made accountable to the Supervisory Board.
- The Chief Executive to be appointed by the independent MitCo Chair, to enable MitCo to be established in good time.
- The Chair of the Supervisory Board to be appointed, able to command the respect of both broadcasters and MNOs.
- MitCo to gather the necessary postcode and household information in order to enable it to commence mailing out filters as soon as this activity becomes necessary. Digital UK's experience suggests that this is likely to be a challenging process, and so MitCo's work in this area should commence significantly in advance of network roll out.
- The KPIs to be agreed, and for MitCo to start putting in place the operational conditions necessary to deliver on the KPIs.

Overall, Ofcom should ensure that 4G roll out using 800 MHz spectrum is not allowed to commence until MitCo has put itself on a fully operational footing, and has taken all the necessary preparatory steps to ensure effective mitigation. In particular, although the 800 MHz spectrum may be available for UK-wide use from June 2013, 4G roll out should not be permitted to commence from that date if MitCo is not ready to ensure effective mitigation – which includes the mail out of filters to potentially affected households prior to the commencement of roll out. Moreover, we note that there were a number of trials for Digital Switchover in advance of the full region by region DSO programme – there would also be merit in trialling 4G roll out and MitCo's operational capabilities in a small area prior to full UK-wide roll out.

Question 7.2: Do you agree with our initial views on MitCo's constitution and governance?

As set out in the introductory section of this submission, our key concerns are that MitCo should be properly incentivised to minimise DTT interference and mitigate it

where it occurs, that the MNOs should face sanctions if DTT interference is not minimised, and that MitCo's performance should be properly scrutinised – objectives that can partly be addressed through proper and robust KPIs (discussed in response to subsequent questions below), but also through the establishment of MitCo itself. In particular:

- We consider that the incentives of MitCo management are key – on what basis will management be rewarded, and to what extent will their remuneration be linked to successful interference prevention and mitigation? We believe that the employment terms and bonus arrangements of MitCo management should be subject to approval by the Supervisory Board.
- More broadly, the consultation is not clear on who will appoint the Chief Executive (and senior management) of MitCo, and when such an appointment will take place – as noted above, we consider that that the CEO should be appointed at an early stage, when MitCo is being established prior to the 800 MHz auction. Given that the 800MHz licensees will not be in place at this point, we believe that Government should appoint an independent Chair of MitCo who will command the respect of both broadcasters and MNOs, and who will have the casting vote in the event of deadlock. In our view, the Chair's first task should be to appoint an appropriately qualified CEO.
- MitCo will also need to engage with a number of external suppliers – such as providers of a contact centre, independent financial auditors, technical experts etc. The contracts between MitCo and these external suppliers should also be approved by the Supervisory Board, in order to ensure that external suppliers have clear incentives to enable MitCo to deliver the KPIs.
- We also consider that the broadcasting industry should be able to perform some oversight of the internal operation of MitCo, in addition to full representation on the Supervisory Board – similar to the way in which supply chain representatives are engaged with the activities of Digital UK. In addition, the broadcasting industry will be able to provide relevant insights to MitCo, based on our experience with Digital UK. Such oversight might involve a PSB or MuxCo representative having an observer status at the MitCo Board, to help encourage (through full access to information) the executive management and non-executive directors of MitCo to work properly to ensure the most effective delivery of mitigation to DTT viewers. In the absence of proper scrutiny, there is a risk that MitCo will simply seek to minimise the costs of mitigation even if doing so were to run contrary to the interests of viewers.

Question 7.3: Do you have any views on the proposed approach to the Supervisory Board.

We agree with Ofcom and Government that a Supervisory Board is required in order to oversee MitCo. However, we note that a strong and well resourced Supervisory Board is critical to ensuring that MitCo can deliver its mission – but under Ofcom's proposals, we are concerned that the Supervisory Board will not be sufficiently robust. In particular, we note the following:

- Resourcing and support for the Supervisory Board will be critical – with sufficient financial and non-financial resource being necessary preconditions for the Supervisory Board to be able to deliver its role effectively. However, it appears to us that a budget of £1.2m is very unlikely to be sufficient to enable the Supervisory Board to hold MitCo and the MNOs to account in relation to complex activities across the UK. A KPI based approach will only work if MitCo feels that it is subject to very regular and granular audit and scrutiny across the UK – but the Supervisory Board is unlikely to be able to provide this granularity on such a tight budget. We therefore consider that there should be greater flexibility in relation to the precise budget for the Supervisory Board – with greater funding being made available in order to enable the Supervisory Board to deliver its objectives properly.
- In this context, we also note that the MitCo Executive should not control the budget for the Supervisory Board. Rather, MitCo should be obliged to provide whatever level of funding is agreed by Ofcom/Government following preparation of the budget proposal by the Secretariat of the Supervisory Board – with the budget proposal then agreed by the Supervisory Board itself.
- There also needs to be more clarity about the precise role of the Supervisory Board. Ofcom states in the bullets under paragraph 7.46 of the consultation that one of the key functions will be to “Advise Ofcom on reported non-compliance” by MitCo or the MNOs – we believe that there needs to be clarity about the nature of such an “advisory” role, and in particular we consider that MitCo should be able to recommend particular courses of action to Ofcom to deal with cases of non-compliance (including delaying further roll out until full compliance in existing areas is achieved). The Supervisory Board should also have scope to offer broader advice to MitCo, as the Supervisory Board will have much wider representation than MitCo itself. We also believe that the Supervisory Board should pro-actively engage with other consumer and industry stakeholders, to ensure that the Supervisory Board’s work and advice reflect a broader set of views. As part of this enhanced engagement activity, we also believe that the Supervisory Board should provide the escalation path for complaints or appeals from viewers and other affected stakeholders.
- The bullets under paragraph 7.46 also state that part of the Supervisory Board’s role will be to “accredit significant one-off aspects of MitCo’s service” – we believe that “accredit” in this context should mean that significant one off aspects of MitCo's service should require prior approval from the Supervisory Board. We would welcome clarity and confirmation from Ofcom on this point.
- The Supervisory Board should play a key role in monitoring MitCo’s actual operation, rather than simply review output metrics relating to the KPIs. In addition, the Supervisory Board should have the power and resource to review MitCo’s finances or any aspects of MitCo’s work. In order to fulfil this role, the Supervisory Board will need sufficient financial, technical and audit advice. In addition, it is important that the Supervisory Board has its own consumer research function. Rather than relying simply on the success or otherwise of the filtering KPIs, we consider that the Supervisory Board should pro-actively commission

research to see if interference has spread beyond the forecast areas and whether consumers are responding in the manner envisaged by the mitigation scheme – for instance, are consumers requesting initial or purchasing secondary filters?

- In terms of the Chairmanship of the Supervisory Board, we believe that a Government official should act as Chair because (i) it will ultimately be up to Government to resolve any deadlock within the Supervisory Board, for example by exercising the casting vote on key decisions, and (ii) because Government will be required to fund any costs above £180m
- Beyond the Chair, we are keen to clarify the proposals for the senior membership of the Supervisory Board. In particular we observe that the MitCo CEO, Government (DCMS) rep (except when chairman) and Ofcom do not have voting status. It is unclear why the technical / audit representative would have voting status, particularly if this is an external advisor to the Supervisory Board. In our view, it may be preferable if this voting position is taken by the Head of the Secretariat for the Supervisory Board – as that individual will have overall responsibility for managing and overseeing the technical and audit activity.
- We note that Ofcom has proposed that the MNOs and the broadcast industry will each have three representatives on the Supervisory Board – with the three 800 MHz licensees all represented, and respective representatives for the Multiplex Operators, the PSBs and the Commercial broadcasters. It is not clear to us precisely what Ofcom means by the representative of the Commercial broadcasters. If this is intended to be a representative of the broadcasters who are not connected with the PSBs, then Ofcom needs to recognise the potential conflict of interest here – as it is possible that the Commercial broadcaster representative on the Supervisory Board could be connected with a platform operator that would benefit from platform changes away from DTT. If such a broadcaster were to be represented on the Supervisory Board, it would have the incentive (and the ability) to seek to undermine the mitigation regime. We therefore consider that it is more appropriate for the DTT Multiplex Operators to appoint three members of the Supervisory Board (i.e. there would be three Multiplex Operator representatives, rather than the three separate broadcast representatives as proposed by Ofcom) – as the Multiplex Operators' interests would be aligned with the protection of DTT, to the benefit of DTT consumers and broadcasters.

Question 7.4: We propose that the 50% gain share be split between 800 MHz licensees based on the volume of spectrum they hold in the 800 MHz band. Do you have any comments on this proposal?

Ofcom states at paragraph 7.61 of the consultation that part of the intention behind the gain share mechanism is to provide an incentive for new licensees to undertake network mitigation where it is efficient for them to do so. However, we are concerned that the gain share mechanism creates little if any real incentive for MitCo to perform its duties effectively.

It is difficult to imagine how the funds in question will provide a serious motivation to the parties involved, e.g. if the total funds remaining at the end of the period were £30m then this would leave £15m to be split three ways or £5m per licensee. According to Ofcom's own data, the mobile phone business generates £15bn of revenue per annum, from 82 million subscribers. As such, a £5m upside over a four year period for each operator is unlikely to focus their minds or behaviour towards network based mitigations particularly when this might be at the cost of a reduction to the potential 4G customer base.

In addition, it is not clear to us how separate commercial entities will co-ordinate effectively to undertake network mitigation solutions. It seems more likely that the 800 MHz licensees will collectively choose not to undertake network mitigations, as there is no obvious benefit for an operator to choose to do this in isolation – i.e. the one that does spend its own money on network mitigation will lose out on any gain share upside because MitCo's funds have been spent on filters which would otherwise have not been necessary if they had carried out network mitigations together (notwithstanding the point above that the gain share does not provide a significant incentive anyway). Moreover, a single operator will be unlikely to voluntarily carry out network mitigations, as that could reduce its revenues in an area where other operators are continuing to operate 4G networks at full power.

As set out in the introduction to this submission, we therefore believe that there need to be stronger incentives for MitCo to undertake network mitigations alongside consumer based mitigations – as this would deliver the only means through which platform changes can be minimised. In this context, we disagree with Ofcom's sentiment at paragraph 6.12, which suggests that extensive network mitigation is assumed to be inefficient. However, in reaching this view, Ofcom does not take into account the negative externality of platform change on DTT consumers, broadcasters and multiplex operators – with the total costs of platform change to all relevant parties significantly exceeding the direct costs of implementing the platform switch.

This is the reason why we believe that what is efficient from a MNO point of view might not be the most efficient solution for consumers. Hence, MNOs should not be left alone in deciding where to use network-based mitigations. On the contrary, we believe that in the areas where a significant number of households are likely to be affected, network-based mitigations should be considered first. This might represent a small number of sites but a major proportion of the affected households. Outside these areas, choice between consumer or network-based mitigations could be left to MitCo, within the constraints of the KPIs.

Moreover, we consider that a binding target for platform changes represents a far more effective means through which network mitigations can be incentivised – an issue which we discuss further in response to Q7.10 below.

Question 7.5: Are the information parameters defined above and in Annex 5 sufficient to allow MitCo to accurately and reliably forecast the scale and scope of households affected by DTT interference?

We note that paragraphs 7.71 to 7.78 and Annex 5 of the consultation set out the information requirements for MitCo to be able to deliver its objectives. We offer the following comments in relation to these requirements:

- We note that MitCo will require an interference forecasting model. In this context, we note that Ofcom already has a model on which it has based its forecast of affected households. Is Ofcom planning to offer this model to MitCo, or will MitCo be required to start from scratch?
- We also believe that, using this model, the Supervisory Board should be able to determine a number of areas where interference is forecast to affect a significant number of households and where network-based mitigations should be required,
- Ofcom also note that the Supervisory Board will be responsible for validating that the interference model operated by MitCo is appropriate and reliable. As per the above comment, we consider that the Ofcom model should be used as the reference because all of the policy decisions have been based on this. Moreover, in any event, we believe that both MitCo and the Supervisory Board need to use the same model, otherwise there will be complete confusion about both forecasts and reporting.

Question 7.6: Do you agree the KPIs related to MitCo's activities are appropriate and robust?

First we would like to stress that we believe the triggers for receiving support are not robust enough and in particular insufficient consideration has been given to those with complex installations, without roof top aerials or in communal dwellings, We urge the Government to reconsider its position on these key aspects. This would mean that different KPIs need to be considered.

Notwithstanding the above, even within the framework currently set, we are very concerned that the proposed KPIs are not sufficiently robust. We summarise our concerns in response to this question, and then our responses to questions 7.7 to 7.8 cross refer to this response.

Our key concerns with the proposed KPIs are as follows:

- As we have previously set out, MitCo's priority should be to pro-actively address mitigation before it happens. In this context, we do not consider it appropriate for Ofcom to require MitCo to send out filters to only 90% of the potentially affected households – leaving up to 10% of households to request filters after interference has already been experienced. We note in this regard that, at the stakeholder briefing event on 26 March 2012, Ofcom stated that the rationale for the 90%/10% split was that it will not be possible to predict precisely all the households that will

be affected – suggesting that the 10% of households that reactively request filters will be those for whom an adverse impact was not initially predicted by MitCo. However, this explanation is not consistent with the proposed KPI in Table 7.3 of the consultation document – which states that “No more than 10% of households forecast to be affected by DTT interference in a 1.5km radius of a 800 MHz base station should request a reactive filter within 1 calendar month following activation of a base station”. This clearly states that Ofcom’s proposal is that only 90% of forecast households need to be pro-actively supplied with a filter – meaning that reactive requests will come from households both within the forecast area and beyond. In our view, this KPI needs to be revised – and MitCo should be required pro-actively to send out filters to all potentially affected households, not just 90%. If the KPI were revised in this way, then reactive filter requests would come only from households outside the 1.5km radius forecast area – consistent with Ofcom’s verbal briefing on 26 March 2012.

- We also believe that assessing achievement of the proactive filtering KPI solely by measuring complaints is not appropriate – although it will be relevant to measure complaints and how they are handled as one indicator of MitCo’s success. By defining the measurement primarily in terms of complaints (rather than on the basis of the number of filters actually mailed out), Ofcom’s proposals create incentives for the MNOs to take risks in proactive activity – with the potential for gaming of the system to seek to minimise complaints. Ofcom seems to justify this approach by noting the potential scope for MitCo to “achieve cost efficiencies over time through improved targeting distribution, enabled by innovation and more precise demand forecasting” (paragraph 7.94 of the consultation) – it is not clear what this statement actually means in practice, but it would appear to enable MitCo to save costs by compromising the service it provides to DTT consumers. In practice, therefore, we consider that the pro-active filtering KPI should be assessed primarily on the basis of the number of filters actually mailed out by MitCo, and not simply on the basis of the number of complaints received. The measure of effective filter delivery should also consider whether the appropriate filter is being shipped to the right interference context as defined by Ofcom standard installation, standard installation plus amplifier, and communal aerial system.
- Moreover, it is important to note that Ofcom has previously acknowledged that households do not pro-actively complain when they have issues with their television and hence this raises the concern that the level of complaints received will provide insufficient comfort that the mitigation regime is acting effectively. It is also worth noting that the most vulnerable consumers – those who are most socially isolated – may be the least likely to have the ability to complain. Moreover, in a recent DTT platform development project undertaken by the Commercial Multiplex Operators, where there was a potential risk of reception loss to DTT households, Ofcom specifically required the licensed operators to undertake pro-active field based market research to investigate the actual consumer impact. On this basis we believe that there should be a requirement on the Supervisory Board, funded by MitCo, to undertake equivalent field based market research on an ongoing basis to test the performance of the mitigation solution implemented.

- We also have a number of concerns about the operational conditions specified by Ofcom in Annex 6 – which are insufficient to ensure that the KPIs are properly met. Overall, we note that the detailed conditions in Annex 6 do not appear to adhere to the general principles specified at paragraph 7.108. For instance, paragraph 7.108 refers to issues including delaying base station activation, operating new base stations under test conditions and reducing base station power – but a reduction in base station power does not appear to be mentioned in Annex 6, except in relation to the operational conditions relating to the complaints KPI. As set out below, a reduction in existing base station power needs to be explicitly included as a response to a failure to meet the filtering objectives.
- More specifically, operational condition 2(3) in Annex 6 – which sets out the steps that need to be taken if the pro-active filtering KPI is not met – is particularly concerning. In our view, if MitCo fails to meet this KPI, then there needs to be an immediate reduction in base station power in the area in question (or even switch-off of that base station), an immediate re-mailing of filters, and further base stations should not be activated until the KPIs have been fully achieved. Operational condition 2(3), however, does not specifically refer to a reduction in base station power as a response to failure to meet the pro-active filtering KPI – we consider that this is a key gap that needs to be filled. Rather, the operational condition permits further base station switch-on under a “testing phase”, even if the KPI has not been met. This does not seem to us to be an appropriate course of action – the condition appears to provide an alternative to meeting the KPIs, as opposed to being a clear specification about the consequences of failure in the particular area to meet a KPI. The problem of Ofcom’s proposed reactive approach is that it may not be clear how effectively MitCo has carried out its role – so there need to be more robust KPIs to hold MitCo to account and to incentivise it to carry out its obligations without cutting corners. In particular, we consider that Ofcom (potentially with input from the Supervisory Board) should explicitly hold the option to prevent roll out in further areas until the filtering KPIs have been fully met in existing network areas.
- We absolutely do not agree with the proposal in paragraph 7.120 that “only a relaxation of the KPI’s performance target should be permitted”. While we agree that there should be scope to relax the KPIs in the appropriate circumstances, there also must be scope for strengthening of the KPIs where doing so is in consumers’ interests. We consider that this latter option would not be detrimental to the MNOs – as, if stronger KPIs were to lead to the costs of MitCo increasing beyond the budgeted £180m, any cost-overrun would be borne by Government, and so there is no downside financial risk to the MNOs. In our view, there should be a regular review of MitCo’s performance by the Supervisory Board (informed by an external auditor), with the Supervisory Board being able to recommend to Ofcom (and Ofcom explicitly holding the option) to strengthen the targets if the interference problem is more significant than originally expected. In the absence of this option, there is the serious potential for significant and prolonged detriment for DTT consumers – with no scope to address interference issues if the KPIs have been incorrectly specified.
- In relation to the information provision KPI, we reiterate our view (as previously expressed to Ofcom and Government) that MitCo should be obliged to use the

brands and logos of the MNOs in communications to consumers and any other third parties – as direct brand risk for the MNOs provides a key incentive on them to get mitigation right. This would ensure that consumers and other stakeholders are clear as to the source of the interference, and therefore are clear as to who is responsible for solving the ensuing problems. If the MNOs are allowed to operate MitCo solely as a separate branded entity, there is a risk that the MNOs will simply shelter behind the MitCo brand and seek to avoid any specific reputational risk. Greater transparency is therefore needed, in order to ensure that the consumer interest is maintained. In this regard, MitCo should also report transparently to the Supervisory Board specifically which mobile operator is responsible for interference issues in particular areas – and this information should also be made public where necessary. In addition, the provision of information should go beyond just leafleting and local advertising but also include consumer engagement activities and perhaps local road shows to ensure that the message is delivered effectively. There is also a case for the KPIs to include a requirement for broader promotion of consumer awareness, particularly in those areas expected to be most heavily impacted.

Question 7.7: Do you agree that the KPI for incentivising and measuring the proactive supply of DTT receiver filters to households affected by interference should be based on an assessment of the outcomes rather than the activities performed by MitCo?

As is clear from our response to question 7.6 above, we do not agree that the proactive filtering objective should be defined based on reported negative outcomes (i.e. the number of complaints received) – not least because the complaints-based assessment system assumes perfect knowledge of entitlement followed by complaint. In the absence of perfect knowledge of entitlement, it is not clear what an absence of complaint actually proves.

We therefore believe that the objective should be defined primarily based on activities (namely proactive supply to 100% of potentially affected households) but also, on outcomes achieved, this should be assessed through the use of periodic and targeted independent market research as indicated in our response to Question 7.6 above.

Question 7.8: Do you agree with the approach we have outlined for incentivising KPI achievement and managing cases of non-compliance with KPIs?

As noted in response to question 7.6 above, we do not agree that the proposals – including the operational conditions set out in Annex 6 – will sufficiently incentivise MitCo to meet the KPIs. We have a particular concern around operational condition 2(3), which effectively appears to provide MitCo with an alternative to meeting the pro-active filtering KPI.

More generally, we believe that there needs to be a stronger backstop power for Ofcom to intervene to resolve interference concerns in cases where MitCo is not fulfilling its obligations. Paragraph 8.16 of the consultation sets out a proposed

obligation on the licensees to comply with directions given by Ofcom. This appears to be critical in ensuring an effective backstop power, but Ofcom does not provide any sense of when these important powers might actually be used – other than saying that directions would be given in "exceptional" cases, wording which would appear to undermine the incentives to achieve the KPIs. Ofcom should provide further clarity on this backstop power, and make clear that it is willing to exercise the power where required – such clarification would provide key incentives for the MNOs and MitCo, and would help to underwrite delivery of the KPIs.

Question 7.9: Do you agree with our proposed approach for managing MitCo's performance against other elements of service delivery that are not captured by KPIs?

We offer the following comments on Ofcom's proposals for additional performance management areas, as set out in Table 7.4 of the consultation:

- Monitoring filter technical standards will be a particularly critical issue for MitCo and the Supervisory Board – particularly in the light of the Government's decision to send only one filter per household, and for no installation support. MitCo should be obliged to ensure that it sends the correct type of filter to each household, and that it should have a bias towards sending out better performing filters in cases where these might be needed – rather than sending out lower cost basic filters as a default and then finding that many consumers return to MitCo to complain that the interference problem has not been resolved.
- In relation to the Contact Centre, we believe that MitCo should be obliged to use the brands and logos of the MNOs in any communication to consumers (for example promotion of the Contact Centre on the MitCo website or in third party publications) – in line with the obligation proposed in response to Q7.6 above. We consider that there is public interest in there being transparency both about what is happening, and who is responsible. Moreover, there needs to be an appropriate reputational incentive on the MNOs. The risk otherwise is that consumers assume that the problem is caused by the broadcasters.
- In relation to reporting, it is unclear why Ofcom is proposing a "Licence requirement on 800 MHz licensees for reported performance to have no more than a 5% negative variance from actual performance" – a proposal which would appear to allow the MNOs to overstate their performance. The licence obligation should therefore require reported performance to equate to actual performance. In this context, we stress that the integrity of the data supplied by the MNOs/MitCo will be critical to ensuring that the Supervisory Board can exercise its functions and ensure that consumers are properly protected in the public interest.

In addition to the points in Table 7.4 of the consultation, we note the following:

- Table 5.1 of the consultation seems to suggest that the application of a consumer filter to communal or domestic installations with amplifier systems is disproportionately more effective than in the case of a standard installation – it is

not clear to us why this is the case. We assume that such issues will be considered further by the Supervisory Board in relation to filter technical standards. In addition, we see merit in ongoing performance testing and certification of production filters to ensure that filters meet the same or similar levels of performance as exhibited by the prototype filters on which the consumer mitigation proposals have been based.

- In relation to Table 6.1 of the consultation, we note that the use of improved base station filters has been discounted, because it would cost more than Ofcom originally anticipated. It is not clear to us whether Ofcom has independently verified this, or whether Ofcom has relied upon information from the MNOs on this. We would welcome clarity on this point.

Question 7.10: Do you think a hard or soft limit should be set in relation to platform changes? Do you have any other comments in relation to the platform change cap?

As set out in response to question 7.4 above, our strong view is that a binding limit on platform changes set low is certainly required – and, as discussed further below, we consider that such a limit needs to be set as soon as possible.

In particular, we consider that, in the absence of an aggressive target on platform changes, the MNOs will be incentivised to address interference problems through platform changes rather than network mitigations. In addition, pay TV operators (especially Sky) are likely to use their very significant marketing budgets to target DTT customers potentially affected by 4G interference – thereby incentivising platform changes further unless DTT customers are confident that interference will be properly addressed. In the absence of a clear cap, there is the potential for significant commercial loss for DTT broadcasters and multiplex operators – setting a clear cap now would therefore be consistent with the legitimate expectations of broadcasters and multiplex operators.

We also believe that a cap on platform changes needs to be set soon – before the 800 MHz auction. We note that Ofcom’s initial view is that a decision on the level of the cap should wait until “there is greater clarity on the scale of the problem” (paragraph 7.148 of the consultation). We do not understand the rationale for this position – as the entire consultation process and the Government’s decisions have been underpinned by Ofcom’s detailed modelling of the likely number of affected households, and we note that Ofcom has been through two iterations of its modelling. We presume that Ofcom considers its latest estimates to be sound, and so it is not clear to us why Ofcom would not use its most recent forecasts as the basis for setting a platform changes cap.

To be clear, our strong view is that a platform changes cap needs to be set before full 4G roll out can commence – otherwise, the MNOs may roll out new networks and be incentivised to effect an inappropriate number of platform changes. If for some reason Ofcom decides not to set a platform changes cap prior to the auction, then we consider that full roll out of 4G mobile must wait until after there has been a pilot roll-out in a single small-scale area – enabling Ofcom to estimate the scale of the problem and set a cap accordingly, before wider network roll out.

Moreover, in addition to a clear and binding cap on funded platform changes, proper mechanisms also need to be put in place to ensure that MitCo/the MNOs do not seek to reduce their costs or avoid the platform changes cap by agreeing commercial deals with third party platform operators who might benefit from platform changes away from DTT – for instance, deals that would enable third party platform operators to fund platform changes without recourse to MitCo's budget (and therefore potentially outside of the cap imposed on MitCo). The 800 MHz licences should also include an explicit condition prohibiting the MNOs from separately funding platform changes outside of MitCo – an activity that would also enable them to circumvent the cap.

In our view, therefore, the most appropriate approach would be to set a platform changes cap now, on the basis of the Ofcom modelling, and in advance of the 800 MHz auction – thereby granting certainty to MNOs and DTT stakeholders about the upper limit on platform changes. The key point here is that the platform changes cap should be both binding and challenging – it therefore needs to be set at a low level in order to incentivise network mitigations. On balance, we consider that a soft cap on platform changes is more appropriate than a hard cap – as that would permit Ofcom to set an aggressive target now, with that target raised or lowered over time if the circumstances permit. We note Ofcom's proposal that any change to the cap would be subject to an Ofcom determination – however, we strongly believe that the Supervisory Board should have a key role in assessing the relevant circumstances and advising on whether a revision to the platform changes cap is appropriate. Moreover, we consider that MitCo should be obliged to report to the Supervisory Board on the geographical breakdown of potential platform changes, with a view to smoothing the regional impact of platform change – in particular to ensure that platform changes are not concentrated in a small number of areas.

More generally, we also believe that further steps need to be taken in order to ensure that MitCo does not have perverse incentives to pursue platform changes in instances where these may not actually be required – with perverse incentives potentially created by the nature of the decisions made by Government.

For example, we consider that the potentially complicated installation required in domestic connections with amplifiers or in communal aerial systems could contribute to perverse outcomes. To illustrate this, consider a scenario in which a household has received the relevant filter from MitCo and has installed (or, as is likely in the case of communal aerial systems, has paid to have installed) that filter in between the roof top aerial and the amplifier. We understand from discussions with Ofcom that there may be instances in which a standard filter does not solve the interference problem, but that a better-performing filter may resolve the issue. We also understand from discussions with Ofcom that, in such cases, MitCo would not be prevented from sending a second filter to the relevant households – despite the Government's decision that each household will receive only one filter.

However, the lack of installation support is likely to create perverse incentives, particularly in households with communal aerial systems. Specifically, even if MitCo is willing to send out a second filter, there may be cases in which the householder is unwilling to receive and install that filter. If the householder has already paid for

professional installation of the first filter, they may (reasonably) be unwilling to pay for a second installation – in which case they may pressurise MitCo to provide a platform change, which the householder could see to be in their financial interest as MitCo will bear the costs of a platform change. Therefore, it is possible that the Government’s decision in relation to installation support may drive “consumer-led” platform changes at MitCo’s expense, even in cases where further filtering mitigations may solve the problem – the irony being that a platform change would be more expensive for MitCo than bearing the cost of installing a filter in a communal aerial system. Moreover, even if the interference problems are ultimately resolved through filtering, the lack of installation support could mean that consumers will go without a fully functioning television signal for quite a considerable period – which in itself would be a significant source of consumer detriment.

Ofcom therefore needs to ensure that MitCo behaves rationally, and that such perverse incentives are avoided. This could be achieved through a combination of factors including:

- Setting an aggressive soft cap on platform changes at an early date, as described above.
- As set out in response to question 7.9 above, placing an obligation on MitCo to ensure that it sends the correct type of filter to each household, and that it should have a bias towards sending out better performing filters in cases where these might be needed – rather than sending out lower cost basic filters as a default and then finding that many consumers return to MitCo to complain that the interference problem has not been resolved.
- Granting MitCo the flexibility to behave rationally and efficiently, at the very least giving it the discretion to fund installation costs in discrete cases where the only alternative might be a (more expensive) platform change that is not necessarily required in order to fix the reception problem.
- Addressing the consumer policy gap that currently exists, particularly in relation to households with communal aerial systems. As set out in Section 1 of this submission, we have a concern that the Government’s decisions – particularly in relation to communal systems – are not fit for purpose, and are based on insufficient research and analysis. We therefore urge Ofcom to raise these issues once again with Government, in order to ensure that all consumers are properly protected.

Question 7.11: Do you agree with the requirements we propose to place on licensees to address interference after MitCo closes?

In our view, the requirements set out in paragraphs 7.202 and 7.204 of the consultation do not go far enough to ensure that interference is properly managed after MitCo closes. It appears that Ofcom’s proposals would only require the MNOs to continue to provide information to Ofcom, but there would be no obligation on any party to provide consumer support once MitCo closes.

This proposal is not appropriate, and could create outcomes that act against the consumer interest. In particular, 4G mobile networks are likely to continue to evolve in the longer term, even after MitCo has closed – with base station powers and technologies changing, and therefore with new DTT households potentially affected with each evolution of the 4G networks, and unable to receive any support. We believe that appropriate support should be provided to DTT consumers until the end of the 800 MHz licences

In our view, the need to protect DTT consumers does not go away simply because MitCo is no longer formally in existence. Therefore, we believe that there would need to be either an ongoing obligation on the MNOs to manage interference and support DTT consumers accordingly; or an up-front commitment from Ofcom and Government that all necessary steps will be taken to minimise interference beyond the life of MitCo. We would welcome clarity from Ofcom on this subject.

We are also unclear on the rationale for the proposed backstop date of 2017 for the closure of MitCo. We are concerned with the time period over which MitCo will be in operation as Government has suggested that it should operate for up to a year after network roll-out is complete, whilst at the same time setting a back-stop date of 2017. Ofcom's proposals for the 800 MHz award include a provision of only one licence block to have a specific roll-out target due date which is set to 2017. Clearly Government's proposed back stop date is not one year after the coverage completion date. Furthermore, as coverage obligations will only apply to one licence block, there is huge scope for the other licensed operators to continue their network roll-out way beyond 2017 which would lead to continued risk of disruption and interference to DTT over an extended period without any consumer support in place. We therefore believe that a backstop date of 2017 is likely to be premature, and a more appropriate all-encompassing arrangement needs to be considered.

Question 8.1: Do you have any views on the nature or detail of the requirements we propose may be necessary as set out in this Section?

We note that Section 8 of the consultation seeks to translate the policy proposals of Section 7 into detailed requirements on new licensees. We note in this regard that a significant number of the requirements in Section 8 will need to be revised in order to reflect the points made in response to the earlier consultation questions.

Annex 1: Ofcom and Government statements relating to DTT coverage

Date	Publication
14 Sep 2004	<p>Ofcom consultation on Digital replacement licences to be offered to channels 3, 4, 5 and public teletext (DRL consultation) http://stakeholders.ofcom.org.uk/binaries/consultations/drl/summary/drl.pdf</p> <p>Ofcom stated (at para 8) that Channel 3 and 5 were “<i>under a duty to procure coverage in digital terrestrial form of their service equivalent to, or substantially the same as, the analogue coverage currently achieved by transmission from a certain named number of transmission stations listed in Part 5 of the Annex.</i>”</p> <p>Para 32 stated: “<i>At the moment the best estimate is that around 98.5 per cent of UK households can receive analogue TV signals for the four main analogue broadcasters.</i>” (Estimate from the Technical Paper prepared by the Digital Action Plan Spectrum Planning Group).</p>
29 Nov 2004	<p>DRLs (and accompanying policy statement) issued: http://stakeholders.ofcom.org.uk/consultations/drl/statement/</p> <p>The DRLs contained obligations in 2.2(b) in relation to the transmission network: “<i>the coverage area to be achieved as from the Relevant Digital Switchover Date shall be equivalent to or, if and to such extent as Ofcom thinks fit, substantially the same as the coverage area that was achieved by the Analogue Licence by broadcasting from the stations and relays specified in, and otherwise in accordance with, Part 5 of the Annex</i>”</p>
1 June 2005	<p>Ofcom statement on Planning Options for Digital Switchover http://stakeholders.ofcom.org.uk/binaries/consultations/752493/statement/statement.pdf</p> <p>Ofcom concludes that the PSB multiplexes should adopt 64QAM at DSO, “<i>provided that steps are taken to ensure that:</i></p> <ul style="list-style-type: none"> • <i>predicted coverage of the nationally available terrestrial TV channels (BBC1, BBC2, ITV1 and Channel 4) continues to reach at least 98.5 per cent of UK households after switchover; and</i> • <i>digital switchover can be achieved between 2008 – 2012.</i>” (para S.4).
Sep 2005	<p>DCMS/DTI publication on Regulatory and Environmental Impact Assessment: the timing of digital switchover http://www.digitaltelevision.gov.uk/pdf_documents/consultations/ria_timing_of_ds2.pdf</p> <p>Publication alongside the announcement in September 2005 of the Government’s commitment to DSO.</p> <p>Para 22 confirmed that 98.5% coverage would meet the Government’s</p>

	<p>policy requirement:</p> <p><i>“On 1 June 2005, Ofcom announced its favoured approach for meeting the Government’s objective that coverage of PSB services on digital terrestrial should substantially matches analogue coverage. The option preferred by Ofcom will deliver DTT coverage of 98.5% for PSB services, thus meeting the Government’s requirement.”</i></p>
30 Sep 2005	<p>Ofcom Evidence to CMS Select Committee Inquiry on “Analogue Switch-off” (published as part of the Select Committee’s report at: http://www.publications.parliament.uk/pa/cm200506/cmselect/cmcomeds/650/650ii.pdf)</p> <p>Ofcom submission to Select Committee inquiry. Key relevant references are as follows:</p> <ul style="list-style-type: none"> • Para 10 refers to 98.5% analogue core coverage and states that <i>“predicted DTT coverage is evaluated against the core coverage of analogue television of 98.5 per cent of UK households.”</i> • Para 13 reiterates Ofcom’s conclusions from the DRL consultation that steps need to be taken to ensure that <i>“the coverage of the nationally available terrestrial TV channels (BBC1, BBC2, ITV1 and Channel 4) continues to reach at least 98.5 per cent of UK households after switchover”</i>. • Para 33 refers to the DRL licence conditions being designed to <i>“achieve the desired 98.5 per cent coverage”</i> • Paras 42 to 48 refer to Ofcom’s coverage consultations of early 2005, in which Ofcom considered the planning options necessary to deliver 98.5% coverage. • Para 55, in the section on “Coverage Obligations” states that <i>“Ofcom has stated that it expects that the coverage of the public service multiplexes will match that of the analogue terrestrial services at switchover”</i>.
13 Dec 2005	<p>Oral evidence from Ofcom to the CMS Select Committee (published as part of the Select Committee’s report at: http://www.publications.parliament.uk/pa/cm200506/cmselect/cmcomeds/650/650ii.pdf)</p> <p>Ofcom’s oral evidence builds on its written evidence as cited above. See in particular:</p> <ul style="list-style-type: none"> • The last part of the response to Q278 refers to <i>“an obligation to ensure that the digital service matches the analogue service. The analogue service currently covers about 98.5% of the population so there is a universal analogue service today. The obligation in those new licences is that there would be a matching of that service in the digital terrestrial world.”</i> • Ofcom also reiterates the 98.5% coverage objective for DTT in response to Qs 280, 283 and 284.

June 2006	<p>Government Response to the Culture, Media and Sport Select Committee, Session 2005-2006: Report on Analogue Switch-Off http://www.digitaltelevision.gov.uk/pdf_documents/publications/2006/Cm6850_govtresponse.pdf</p> <p>Government response to Select Committee report. The response to recommendation 7 (on page 2) stated: <i>"The Government's policy has remained unchanged since 1999 in saying that switchover should only proceed if everyone who could receive the main analogue services was able to receive the digital equivalents of those services. We have been convinced by the technical analysis, drawing on the expertise of Ofcom and the transmission network operators in particular, that this policy is best achieved by ensuring that digital terrestrial television (DTT) coverage at switchover substantially matches that of analogue. In practical terms, this means ensuring that DTT coverage is available to 98.5% of UK households, the same proportion of households who get BBC One, BBC Two, ITV1 and Channel 4/S4C now"</i></p>
July 2006	<p>Agreement Between Her Majesty's Secretary of State for Culture, Media and Sport and the British Broadcasting Corporation http://www.bbc.co.uk/bbctrust/assets/files/pdf/about/how_we_govern/agreement.pdf</p> <p>Clause 35(1) of the Agreement states that: <i>"(1) No later than the Digital Switchover date, the BBC must secure the objective that substantially the same proportion of households in the UK as can, at the date of this Agreement, receive the analogue television services in analogue form by means of terrestrial broadcasting (that is to say, through a television aerial), can receive all the BBC's principal television services in digital form by that means."</i></p>
19 July 2006	<p>Ofcom Consultation (and subsequent Statement on 7 Dec 2006) on Switchover related Changes to DTT Licences Consultation: http://stakeholders.ofcom.org.uk/binaries/consultations/dtt_changes/summary/dtt_changes.pdf</p> <p>Statement: http://stakeholders.ofcom.org.uk/binaries/consultations/dtt_changes/state/statement/statement.pdf</p> <p>Para 3.3 of consultation document states: <i>"Ofcom has interpreted its obligation to ensure that the DRL services continue to serve the same geographical area as their current analogue services as meaning that Channels 3, 4 and 5 must after switchover achieve coverage which is substantially the same in digital as in analogue. In practical terms, this means that when switchover is complete in the UK around 98.5% of UK households must have access to the main national terrestrial TV"</i></p>

	<p><i>channels.”</i></p> <p>Para 3.10 of the consultation states: <i>“Ofcom proposes that the PSB multiplex operators should be under a duty to broadcast from an increased number of sites, so that when DSO is complete DTT coverage will be at around 98.5 per cent of UK households”</i></p> <p>The statement confirmed Ofcom’s view in the consultation that the PSB Mux licences should include an obligation to build out to universal coverage.</p>
26 March 2008	<p>Ofcom publishes three fact sheets on DSO, providing detailed information on DTT coverage</p> <p>1. How are the terrestrial TV coverage predictions worked out? http://stakeholders.ofcom.org.uk/binaries/research/tv-research/no1factsheet.pdf</p> <p>2. What will the coverage of the public service TV multiplexes be after switchover? http://stakeholders.ofcom.org.uk/binaries/research/tv-research/no2factsheet.pdf</p> <p>Para 1.1 of fact sheet 2 states: <i>“The coverage of the public service digital television multiplexes after digital switchover has been designed to meet the same level of coverage that the existing analogue services currently achieve: that is 98.5% of all UK households. However due to differences between digital and analogue signals and different interference patterns after switchover it will not be exactly the same 98.5% of the population. The reasons for these differences, along with ways in which different groups of households might be impacted, are described in this fact sheet.”</i></p> <p>3. Why will some people receive more digital TV channels than others? http://stakeholders.ofcom.org.uk/binaries/research/tv-research/no3factsheet.pdf</p> <p>Para 1.5 of fact sheet 3 states that building out to 1154 sites <i>“will make the services carried on the public service multiplexes available to 98.5% of the population.”</i></p>
3 April 2008	<p>Ofcom Statement on Digital Television: Enabling New Services. http://stakeholders.ofcom.org.uk/binaries/consultations/dttfuture/statement/statement.pdf</p> <p>Para 2.1. <i>“DTT services were launched in the UK in 1998. They currently cover around 73% of UK households compared with 98.5% for the existing analogue PSBs”.</i></p> <p>Para 2.2. <i>“The completion of DSO in 2012 will result in the coverage of the three PSB DTT multiplexes (Multiplexes 1 and B operated by the BBC</i></p>

	<p><i>and Multiplex 2 operated by Digital 3and4) matching that of the analogue television services”.</i></p>
6 June 2008	<p>Ofcom consultation on Digital Dividend Review: 550-630MHz and 790-854MHz (Cleared award design consultation) http://stakeholders.ofcom.org.uk/binaries/consultations/clearedaward/summary/condoc.pdf</p> <p>Table 1.1 on page 5: <i>“To prevent interference to existing DTT services adjacent to the available spectrum, we propose to include a clause in every licence in the DDR Cleared Award. The clause would place an onus on the new licensees to plan network roll out to keep interference to existing DTT services to a minimum”</i></p> <p>Para 4.11: <i>“The protection of existing DTT services from out-of-band interference from new services is an important factor in successfully delivering DSO and in particular making the public service broadcasters’ (PSB) DTT multiplexes available on a near universal basis across the UK covering 98.5% of population. We have therefore considered providing an extra level of protection in the form of a protection clause, which would form part of the set of technical conditions in all new licences. Further details on the protection clause are set out in section 5 and in annex 6.”</i></p> <p>Bullet under para 5.42: “Additional licence restrictions for all new licensees in the form of a clause for protection of DTT. <i>We propose existing DTT services will be protected by Digital Dividend Review: cleared award including a ‘protection clause’ in each of the licences for cleared spectrum. This licence obligation will explicitly refer to the detailed coverage/transmission plan of the DTT network after DSO. This will give certainty to the existing DTT broadcasters that planned receivers of their services will receive a defined level of protection, and also give certainty to the new licensees as to the levels of interference they will be permitted to generate. The inclusion of such a clause will avoid the need for large UK-wide guard bands to be placed between fixed transmitters using frequency in the cleared spectrum and the frequencies used by broadcasters in the incumbent DTT network, and the need for overly restrictive emission levels to be specified on a UK-wide basis.”</i></p> <p>Para 5.63 states: <i>“Ofcom research has concluded that this covers 98.5% of UK households for roof-top reception. The UK’s digital switchover plan (as prepared by the Joint Planning Project – JPP) has therefore allocated suitable frequency assignments (based upon the outcome of the Geneva 06 conference – GE06) to these multiplexes to enable them to match this coverage post switchover.”</i></p>
2 Feb 2009	<p>Ofcom consultation on clearing the 800 MHz Band http://stakeholders.ofcom.org.uk/binaries/consultations/800mhz/summary/800mhz.pdf</p> <p>Para 4.11 states that one of the DTT migration criteria is: <i>“any solution</i></p>

	<p><i>should be consistent with existing policy objectives for DTT coverage after DSO, and the process should aim to minimise the impact on viewers of broadcasts from the existing DTT multiplexes”</i></p> <p>Earlier, para 4.2 states that analogue PSB coverage is currently 98.5% and that <i>“The geographic coverage of the three PSB multiplexes will increase at DSO to mirror that currently achieved by analogue terrestrial television”</i>.</p>
30 Jun 2009	<p>Ofcom statement on clearing the 800 MHz Band http://stakeholders.ofcom.org.uk/binaries/consultations/800mhz/statement/clearing.pdf</p> <p>Para 1.17 of the statement confirmed that <i>“We have therefore decided to adopt the DTT migration criteria and we will develop plans for implementation with reference to these.”</i> Para 1.16 restated the proposed criteria, including that relating to DTT coverage (as cited above in relation to the consultation document)</p> <p>Para 4.112 states that Ofcom’s decisions re post-DSO coverage include <i>“for PSB multiplexes – these three multiplexes are required to match analogue core coverage across the UK (at least 98.5% of UK households)”</i></p>
16 Dec 2010	<p>Ofcom Code of Practice on Changes to Existing Transmission and Reception Arrangements http://stakeholders.ofcom.org.uk/binaries/broadcast/guidance/tech-guidance/cop.pdf</p> <p>Updated version of a document originally published in May 2007 – intends to provide guidance to ensure that viewer disruption from the DSO process is minimised. 2010 update reflects the 800 MHz clearance programme.</p> <p>Para 2.3 states that the coverage obligations in the DRLs and multiplex licences <i>“mean that the three public service multiplexes are required to ensure that their collective coverage (3PSB) matches that of the analogue core coverage (this is taken to equate to 98.5% of UK households).”</i></p>
11 Jan 2011	<p>Letter from Greg Bensberg, Ofcom Director of Broadcast (TV) and Clearance, to Members of the Joint Planning Project Management Board and the Regional Roll-out Extension Group : Outline of Ofcom coverage policy for DTT Clearance Programme.</p> <p><i>“Clearance Coverage Objective: We have asked that the JPP and RRO-EG aim to prepare their planning and implementation proposals such that the final overall core coverage for the public service multiplexes (3 PSB) and commercial multiplexes (6 Mux) will be broadly in line with that which was predicted to be achieved at the end of the digital switchover process.</i></p>

	<p><i>This is consistent with the objectives set out for DSO whereby the public service multiplex operators were required to broadcast from all of the existing television transmission sites and match the core coverage of the four analogue public service channels (98.5% of UK homes); and that the commercial multiplexes continued operating from their existing 80 sites and were offered (as part of their licence amendments) improved assignments at these sites which if adopted would enable them to reach around 90% of UK households assuming a transmission mode of 64 QAM Rate 2/3 (or equivalent for the DVB-T2 standard).</i></p> <p><i>The latest JPP predicted digital switchover coverage figures for these two measures were: 3 PSB = 98.5% of UK households 6 Mux = 90.4% of UK households”</i></p>
2 June 2011	<p>Co-existence of new services in the 800 MHz band with digital terrestrial television.</p> <p>http://stakeholders.ofcom.org.uk/binaries/consultations/dtt/summary/dttcondocpdf</p> <p>Para 2.13 of the first Coexistence consultation states: <i>“For PSB DTT networks, broadcasters are currently required by their licences to provide DTT coverage to broadly the same proportion of UK households as reached by their analogue TV networks prior to DSO. They are therefore required to broadcast from a specified list of transmitters. Ofcom has previously estimated that if the PSB DTT networks did this, the coverage of DTT services after DSO should be around 98.5% of UK households.”</i></p>
29 March 2012	<p>Ofcom UHF consultation: “Securing long term benefits from scarce spectrum resources”</p> <p>Para 1.25 states:</p> <p><i>“If the DTT platform were re-planned without the 700 MHz band and no additional spectrum, it could, subject to future international agreements, deliver three multiplexes with 98.5% coverage, the same level of coverage that will be achieved by the current three PSB multiplexes post digital switchover (DSO).”</i></p> <p>Para 4.34 states:</p> <p><i>“Three of these six existing multiplexes are classified as PSB multiplexes, which will provide coverage to 98.5% of UK households after digital switchover, substantially matching the coverage level previously provided by analogue terrestrial television.”</i></p>
11 April 2012	<p>Letter from Greg Bensberg to members of the JPP Management Board and RRO Extension Group on Outline of Ofcom coverage policy for DTT clearance relays</p>

The letter acknowledges the obligation for 98.5% PSB coverage:

“The key test we would expect JPP to adopt in its planning work is whether the UK planning model (UKPM) predictions matched the overall coverage that would have been considered reasonable if the site were within the normal DSO plan (i.e. without new frequencies). Two specific tests were proposed for DSO and these would be similarly adopted for clearance:

a. Does the predicted coverage match the objective of 98.5% UK core coverage for PSBs (i.e. analogue equivalence) and around 90% coverage for 6 Mux core. This should be based upon a UK wide assessment as this was the objective that was adopted when the DSO planning was carried out.

b. Does the coverage of the 3 PSBs leave any deficiencies from the coverage achieved by the existing analogue PSB networks (BBC 1 & 2, ITV and C4/S4C)? In this second case, JPP planners have carried out a cluster analysis on any coverage tiles shown as losing coverage compared to the analogue network.

As part of their DSO obligations, the three public service multiplexes were required to adopt additional (3PSB) relays in cases where the predicted core coverage of an individual station at DSO did not match that of the previous analogue service (taking into account any overlap with neighbouring stations) and the deficiency could be identified as a cluster of at least 500 households in a specific area.

Therefore a similar provision should apply to the public service multiplexes where coverage deficiencies are predicted at particular sites as a result of them adopting new clearance frequencies. As with DSO, the deficiency must comprise a cluster of typically greater than 500 households and it is practical and cost effective to build a new relay to rectify the predicted deficiency.

The Ofcom Executive Team, when drafting recommendations to the SCFC, will therefore view favourably funding new PSB relays for new deficiencies greater than 500 households, provided that the required funding fit within the Ofcom Board Guidelines to the SCFC including with regard to value for money, and subject to a case-by-case judgement on whether deployment is practical or cost effective, when benchmarked against DSO.”