



# Digital Switchover – Management of Transition Coverage Issues

Discussion paper

	Discussion paper
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## Section 1

# Introduction

- 1.1 In September 2005, the Government confirmed that digital switchover will take place between 2008 and 2012, ITV region by ITV region, starting in the Border TV region. Digital switchover (DSO) is the process of changing the UK's television broadcasting to digital. Digital switchover will involve converting the current television broadcasting network, as well as encouraging everyone to convert or upgrade their TV and recording equipment to receive digital television. Ofcom has inserted conditions into the terrestrial broadcasters' multiplex licences to ensure that they implement digital switchover to this timetable.
- 1.2 During the transitional period between the start of DSO preparation work (2006) and the end of DSO roll out (2012), the implementation of the DSO plan has the potential to cause some interference to the normal reception of the analogue terrestrial services (BBC1, BBC2, Channel 3, Channel 4/S4C and Channel 5), the existing digital terrestrial television (DTT) services (comprising the six DTT multiplexes as currently broadcast from 80 transmission sites around the UK) and the six DTT multiplex services as they will be broadcast after switchover on a region by region basis.
- 1.3 Ofcom's multiplex licences currently include a condition requiring the broadcasters to comply with a Code of Practice on Changes to Existing Transmission and Reception Arrangements (the Code). This Code was originally drawn up by Ofcom's predecessor, the Independent Television Commission, to provide guidance to broadcasters on how to minimise the impact of the initial launch of DTT in 1998 on analogue viewers. This Code has from time to time been revised by Ofcom.
- 1.4 Ofcom believes that it is important that any disruption caused by the implementation of the DSO programme to viewers is minimised, whilst enabling the broadcasters to implement digital switchover in a timely and cost effective manner. The purpose of this document is to set out Ofcom's proposals for how the Code should be updated to achieve these objectives. It is intended to provide clear guidance to the digital multiplex licensees about how they should minimise the impact of DSO on existing analogue and DTT viewers.
- 1.5 Ofcom is not carrying out a full public consultation on these proposals as it considers that this is not a matter which involves any fundamental change in policy and Ofcom is not proposing any change to licence conditions in the broadcast licences. Ofcom is also mindful of the urgent need of broadcasters for clear guidance on these issues. We are though seeking to ensure that all interested parties are aware of these proposals and have the opportunity to comment. The closing date for responses is 6 March 2007. Details about how to respond are set out at section 4 of this discussion paper.

## Section 2

# The frequency planning process

- 2.1 Digital switchover requires that the terrestrial broadcasters switch off their existing digital terrestrial television (DTT) transmissions and adopt new higher power DTT frequency assignments to a timetable set out by Government and included in their Ofcom licences.
- 2.2 Ofcom is responsible for carrying out the frequency planning work which is necessary to identify these new digital only frequency assignments and to gain the necessary agreements from the UK's neighbours for their adoption by the broadcasters. This planning work is normally carried out by the Joint Planning Project (JPP) which is chaired by Ofcom and includes frequency planners from the BBC, Arqiva and National Grid Wireless.
- 2.3 Both Arqiva and National Grid Wireless carry out this planning work under contract to Ofcom. They are also employed by the broadcasters to transmit their analogue and digital terrestrial television services from their 1,154 transmission sites around the UK and will therefore be responsible for implementing the transmission change arising from switchover.
- 2.4 The JPP also includes the broadcasters and Digital UK as members (Digital UK is the independent, non-profit organisation leading the process of digital TV switchover in the UK). This is to ensure that the planning process is closely integrated with implementation of digital switchover which is co-ordinated by Digital UK on behalf of the broadcasters.
- 2.5 The JPP carries out a detailed frequency planning assessment for each site being adopted by the broadcasters at switchover. This forms the basis of the eventual frequency assignment that will be made by Ofcom to the broadcasters as part of their Wireless Telegraphy Act and Broadcasting Act licences. Part of this process includes the need for the planners to assess whether the coverage of the existing services for reception by UK television viewers (and those in neighbouring countries if covered by international agreements) are likely to be affected by the adoption of these new digital only assignments.
- 2.6 The digital switchover (DSO) programme may affect the coverage of existing DTT and analogue services due to two main reasons -
  - a) Preparatory work at existing transmission sites, with the sequence of events being:
    - Several years before switchover, the existing digital antenna may need to be removed to enable the construction of new DSO-ready antennas (e.g. to make room on the mast).
    - Some of the existing digital antennas transmit less power in certain directions to protect the reception of services broadcast from existing analogue relays, these are known as antenna restrictions.
    - If these restrictions can be removed, it may be possible to transfer the existing DTT services into the analogue antenna whilst the new DSO-ready antenna is built; and then use the new DSO-ready antenna up until DSO.

- However removing the restrictions on the existing DTT service can increase the risk of interference to the reception of services broadcast from the existing analogue relays.
- In cases where the level of interference is predicted to be high it may be necessary to consider the construction of a new dedicated antenna for the existing DTT service which maintains the current restrictions. However, as this new antenna may only be needed for two or three years the costs may be very high and there may not be sufficient space on the masts following the installation of the DSO ready antennas.

b) The regional roll out timetable, where the sequence of event is:

- There are several instances where the frequency channels planned for DSO use at one station are the same as those used for existing DTT or analogue services at a neighbouring station which is in a different ITV region.
- As the regions are scheduled to switch over at different times the transmissions using the new DSO frequency channels being adopted in one region may cause interference that would affect the reception of existing DTT or analogue services in another region.
- This potential interference could exist for several years i.e. until both regions have switched over.
- The interaction could also occur in reverse. That is when services from an existing DTT or analogue station in a region which has yet to switch over can cause interference to a DSO station in another region at the point of switch over.
- This is more likely to occur in the case of relays which use new DSO channels (as opposed to converted analogue channels).

2.7 The JPP has therefore been asked to identify those sites where additional interference is predicted to result from the implementation of the digital switchover programme. The JPP has also been asked to identify how this increased interference could be minimised through the use of a variety of techniques including changes in transmission power, the use of temporary antennas and the use of parking channels.

## Section 3

# Proposed Ofcom Action

- 3.1 It is important that the switchover process is completed on time with as little disruption to viewers as is practical. It is therefore proposed that Ofcom revises the existing Code of Practice on Changes to Existing Transmission and Reception Arrangements (the Code) to enable broadcasters to provide the maximum protection to existing viewers of analogue and digital terrestrial television services whilst enabling them to implement digital switchover in a timely and cost effective manner.
- 3.2 A revised Code has therefore been prepared and a copy is attached to this discussion paper. The existing multiplex licences already require that the respective licensees adhere to a current version of the Code. Hence the key issue being considered in this paper is whether the provisions of the revised Code, as drafted, represent an appropriate way of managing this complex issue.
- 3.3 The proposed Code's main provisions are summarised below:
- a) The Code notes that the public service broadcasters are obliged to ensure that they substantially match their current analogue terrestrial television coverage through digital terrestrial television (DTT) means. Ofcom proposes that communities normally covered by existing terrestrial transmissions should not lose this service at switchover.
  - b) Ofcom's is concerned to ensure that viewers who are normally covered by the existing analogue and DTT services should face minimal disruption that may arise through the switchover transition programme.
  - c) Ofcom proposes that in cases where existing viewers are predicted to suffer a degradation to their existing level of service, due to the switchover process, the broadcasters should take into account four priority groups when finalising the planning and implementation of digital switchover in each region.
  - d) Ofcom's view is that the broadcasters should use a variety of mitigation techniques to minimise the impact of switchover on viewers within these four priority groups. Ofcom also proposes that the broadcasters will have to seek Ofcom's guidance and agreement for a period of least six months in cases where: the transitional work would result in the predicted loss of service for viewers in the Priority 1 (total loss of all analogue services); Priority 2 (loss of one or more existing analogue or DTT service with no alternative DTT provision); or where the numbers of viewers predicted to be affected in priority groups 3 and 4 is very large.
- 3.4 The draft Code therefore provides guidance to broadcasters about which groups of viewers should have priority through the switchover programme and to identify a means whereby more difficult decisions should be taken in conjunction with Ofcom.
- 3.5 Ofcom is publishing this discussion paper together with the draft Code in order to facilitate a discussion on its proposed approach. A key issue Ofcom would welcome views on is whether the Code as currently drafted provides a suitable means of managing this complex issue. Ofcom will also welcome views on whether the proposed ordering of priority groups of viewers is an appropriate and reasonable way of prioritising protection of viewers.

## Section 4

# How to respond

4.1 Ofcom invites written views on the issues raised in this document, to be made by 5pm on the 6 March 2007. This represents a relatively short period than Ofcom would normally adopt for its consultations. However, Ofcom believes that this is appropriate as in this case Ofcom is not proposing any fundamental change in its overall policy or adding any new licence conditions to the broadcast licences. Ofcom is also mindful of the urgent need of broadcasters for clear guidance on these issues.

4.2 Please email your views on these proposals to [peter.madry@ofcom.org.uk](mailto:peter.madry@ofcom.org.uk) attaching your response in MicrosoftWord format. Responses may alternatively be posted or faxed to the address below, marked with the title of the paper.

Peter Madry  
Spectrum Policy Group, Floor 3  
Ofcom  
Riverside House  
2A Southwark Bridge Road  
London SE1 9HA  
Fax no:020 7981 3990

4.3 Please note that we do not need a hard copy in addition to an electronic version.

## Confidentiality

4.4 We believe it is important for everyone interested in this issue to see the views expressed by respondents. We therefore intend to publish all responses on our website, [www.ofcom.org.uk](http://www.ofcom.org.uk), ideally on receipt. If you think your response should be kept confidential, can you please specify what part or whether all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

4.5 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will do our utmost to respect this. But sometimes we will be required to publish a response marked as confidential in order to meet legal obligations.

4.6 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's approach on intellectual property rights is explained further on its website at <http://www.ofcom.org.uk/about/account/disclaimer/>



## **Annex 1**

# **Draft - Ofcom Code of Practice on Changes to Existing Transmission and Reception Arrangements**

## **1. Introduction**

- 1.1. Digital switchover is scheduled to take place in the UK between 2008 and 2012 according to a regional timetable confirmed by the Government in September 2005. The digital switchover programme is expected to be preceded by an extensive programme of transmission infrastructure upgrading. It is possible that this upgrade programme and the regional adoption of digital switchover will cause disruption to the normal reception of analogue and digital terrestrial television services by viewers in the same or adjacent regions. In order to minimise this disruption Ofcom has produced this Code which provides licensees with guidance on the priorities that it expects them to adopt during the switchover transition programme.

## **2. Regulatory Principles**

- 2.1. The digital replacement licence (DRL) holders (the providers of Channels 3, 4, 5 and Teletext services) and multiplex licensees are all required under the terms of their licences to implement digital switchover to a timetable set out in the appropriate licence.
- 2.2. Coverage obligations in the DRLs also require the holders to substantially match analogue coverage through digital terrestrial television (DTT) means. This requires that the public service broadcasters broadcast their digital services from all of the 1,154 current analogue transmitter sites at digital switchover. These obligations are also reflected in the frequency assignments and timetable inserted in the multiplex licences for Digital 3&4 and BBC Multiplex B.
- 2.3. These obligations, together with similar provisions covering the BBC's services carried on Multiplex 1 via obligations in its Charter and Agreement, 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).
- 2.4. Ofcom has also recently stated that "it is not acceptable that any community of reasonable size currently covered by analogue transmissions should lose access to terrestrial television on switchover" (see Ofcom Statement "Switchover related changes to DTT Licences", December 2006).
- 2.5. Ofcom also confirmed in this Statement that the post switchover coverage of the three commercial multiplexes (who will adopt new high power frequency assignments at their 80 current transmission sites at switchover) should at least match that currently achieved (six multiplex core coverage which currently reaches 73% of UK households).
- 2.6. Hence, Ofcom's key concern through switchover is that analogue viewers who are normally covered by the existing analogue transmissions (analogue core coverage) and digital terrestrial television viewers within the six multiplex core coverage area

only face minimal disruption to the reception of these services through the switchover transition.

### **3. *Types of work expected***

#### **3.1. There are four categories of switchover related activity which are expected to affect viewers' reception of UK television services.**

3.1.1. Work being carried out by the transmission companies on the transmission infrastructure (including masts and antennas) in advance of digital switchover in a particular region. This work is expected to cause temporary disruption to viewers of the transmitter affected by the work as the transmission equipment is either switched off or operated at reduced power to enable the essential work to be carried out.

3.1.2. Changes to the antenna radiation pattern at a particular transmitter which results in permanent changes to the normal reception of analogue or digital terrestrial television services by households within the coverage area of that transmitter or to the normal reception of services broadcast on other transmitters using the same frequencies.

3.1.3. Implementation of digital switchover in an adjacent region.

3.1.4. Implementation of digital switchover in a neighbouring country.

### **4. *Categories of viewers expected to be affected.***

#### **4.1. It is expected that digital switchover will result in a small number of viewers having a lower quality reception or level of coverage compared to that which they currently enjoy. This degradation could either be temporary or permanent. In order to provide the most appropriate guidance on how the planning and implementation programme should be managed the following categories should be considered.**

4.1.1. Category 1: viewers who would reasonably be expected to receive all four analogue terrestrial services from a UK transmitting station (analogue core coverage) who would **not** normally be expected to be covered by equivalent digital terrestrial television services (DTT three public service multiplexes core coverage).

4.1.2. Category 2: viewers who would reasonably be expected to receive all four analogue services from a UK transmitting station who would normally be expected to be covered by equivalent digital terrestrial television services (DTT three public service multiplexes core coverage).

4.1.3. Category 3: viewers who would reasonably be expected to be covered by all six digital terrestrial television multiplexes (six multiplex core coverage) from a UK transmitting station.

### **5. *Priorities to be adopted during digital switchover***

#### **5.1. In planning transmission infrastructure work, antenna design or the implementation of digital switchover assignments the licensee should in general ensure that work is carried out with a view to minimising any degradation to the normal reception of existing analogue and digital terrestrial services. The licensee should specifically aim to ensure that any work does not result in the total loss of a service to viewers who**

are currently served by an existing service (as described in section 4 above) apart from short breaks in service that are a necessary part of the planned upgrade programme.

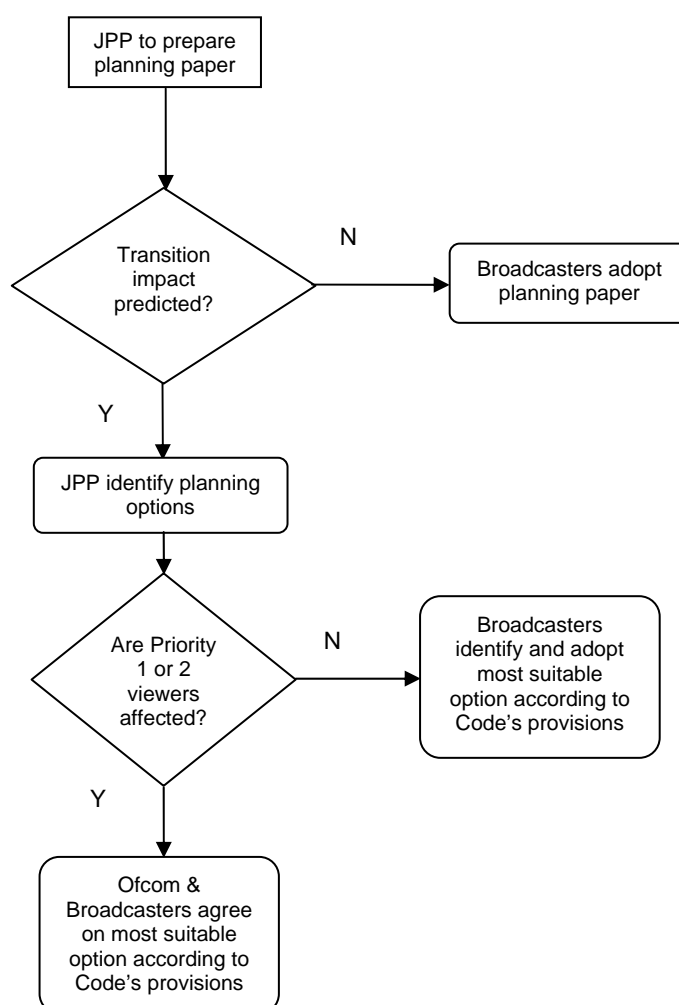
- 5.2. However, it is likely that due to the extensive nature of the work being carried out and the complex planning relationship between the assignments currently being used for the transmission of existing services and those being planned for the post switchover environment that some viewers will suffer a degradation in the quality of their current services or, in exceptional cases, the total loss of the current service. In such circumstances the following priorities should be taken into account when planning and implementing the digital switchover plan.
- 5.3. **Priority 1:** Any viewers who are predicted to lose the coverage of all of their current analogue services for a period of more than two weeks and who do not have access to an alternative service either via a different transmitter or via a digital terrestrial service from their current transmitter as described in 4.1.1 above.
- 5.4. **Priority 2:** Any viewers who are predicted to lose the coverage of one or more of their current analogue services or one or more of their current DTT multiplexes for a period of more than two weeks who do not have access to an alternative service either via a different transmitter or via a digital terrestrial service from their current transmitter as described in 4.1.1 and 4.1.3 above.
- 5.5. **Priority 3:** Any viewers who are predicted to lose the coverage of all of their current analogue services for less than two weeks who do not have access to an alternative service either via a different transmitter or via a digital terrestrial service from their current transmitter.
- 5.6. **Priority 4:** Any viewers who are predicted to have their current level of service degraded (this can mean the quality of the analogue service is predicted to drop by more than one grade or a decrease in time availability of the service below current planning levels (95% for analogue and 99% for digital) but above a minimum level of 90% for analogue services and 95% for digital services).

## **6. Remedial actions**

- 6.1. The licensees should aim to use a variety of mitigation techniques to minimise the impact of switchover on UK viewers in accordance with the priorities discussed above. In general it is expected that these will focus on optimising the design of the antennas, use of parking channels where possible and adjusting the power of interfering services to minimise interference consistent with the licensees post switchover coverage obligations.
- 6.2. For the avoidance of doubt, in the case of viewers who are predicted to lose one or more of their analogue services, it will be acceptable to advise these viewers to move to digital terrestrial television providing they are within the three public service broadcasting multiplexes' coverage area. In such cases it is important that viewers are given as much notice as possible of this early switchover date and that they are provided with the normal range of advice and support that they would have been entitled to at the normal switchover date.
- 6.3. It is expected that the viewers themselves will have to cover the normal costs of the necessary work that may be required to enable such a transition including the reorientation of their antenna to a new transmitter or relay. In cases where digital terrestrial television or an alternative analogue service from another transmitter is not

available the multiplex operators can propose to switch these viewers to an alternative digital platform providing they ensure that the capital costs of additional equipment and installation are covered by the multiplex operators.

- 6.4. In general Ofcom would expect the multiplex operators to work closely with the planners in the Joint Planning Project to identify and agree an appropriate way of minimising the disruption arising from the switchover programme on UK viewers. However, Ofcom would also expect to work closely with the broadcasters in determining an appropriate way of responding to these choices.
- 6.5. Therefore, it is proposed that for an initial period of at least six months (this to be reviewed at the end of the initial period) from the date of issue of this Code the multiplex operators should seek Ofcom's guidance, and if necessary agreement, to their proposals when the number of viewers affected is predicted to be large or it is predicted that the work would involve loss of services to Priority 1 or 2 viewers. In order to enable a speedy consideration of each specific case the broadcasters should prepare a paper which summarises the main planning issues involved and consideration of the options being proposed by the planners and concludes with a recommendation for action.
- 6.6. The following flow chart illustrates how it is expected the Code will operate.



## **7. Information requirements**

- 7.1. It will be the licensees' responsibility to ensure that all viewers that are predicted to be affected in the ways described above are provided with appropriate guidance and advice. This should be provided in a manner and timeframe as agreed between the multiplex operator and Ofcom.
- 7.2. In cases where a degradation of service is predicted, especially when this is due to the final implementation of switchover in that region, licensees should ensure that any affected viewers are provided with appropriate advice as to how they could make use of alternative digital platforms.
- 7.3. Licensees should ensure that any changes to the transmission infrastructure are notified to Ofcom, other broadcasters, Digital UK and other organisations as notified to the licensee by Ofcom. This notification should take the form of an email circular identifying the transmission sites being affected, the nature and duration of the work and any expected impact of the work on viewers.

## Annex 2

# Impact Assessment

## Introduction

- A2.1 The analysis presented in this annex represents an impact assessment, as defined in section 7 of the Communications Act 2003 (the Act).
- A2.2 You should send any comments on this impact assessment to us by the closing date for this discussion document. We will consider all comments before deciding whether to implement our proposals.
- A2.3 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Act, which means that generally we have to carry out impact assessments where our proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on our website:  
[http://www.ofcom.org.uk/consult/policy\\_making/guidelines.pdf](http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf)

## The citizen and/or consumer interest

- A2.4 Digital switchover will make available a significant amount of UHF spectrum that can be made available for new uses. This is an issue of major interest to citizens and consumers, since the spectrum could be used by a wide range of services offering substantial benefits to UK citizens and consumers, and hence value to society. The use of this spectrum is considered in more detail through the Digital Dividend Review (DDR) consultation which was published by Ofcom on 19 December 2006. Ofcom is therefore keen to ensure that digital switchover is completed to the timetable set out by Government.
- A2.5 However, the implementation of the digital switchover programme also has the potential to cause some temporary disruption to the coverage of some television services for some viewers. It is therefore in the viewers' interest that Ofcom provides clear guidance to the broadcasters regarding what reasonable steps should be taken to minimise any such disruption.
- A2.6 The proposed update to the Code of Practice on Changes to Existing Transmission and Reception Arrangements (the Code) contained in this discussion paper are in Ofcom's view an appropriate and proportionate way of managing the potential impact that digital switchover may have on UK television viewers.
- A2.7 The ITC issued the original Code of Practice in 1997-98 and inserted obligations in the multiplex licences requiring the holders to adhere to its conditions. This was because the initial rollout of the six digital terrestrial television (DTT) multiplex services around the UK was predicted to cause interference to the reception of analogue services. This process worked well resulting in minimal complaints from analogue viewers concerning the roll-out of DTT services. However, the provisions

of the Code were relatively onerous on the broadcasters and the actual level of interference in practice was significantly less than predicted by the planning models.

### Ofcom's policy objective

- A2.8 Ofcom's objective is to establish a regulatory framework which will enable the broadcasters to plan and implement the digital switchover programme to the timetable set out by Government whilst providing clear guidance on how viewers interests should be taken into account by the broadcasters in their implementation of the DSO programme.
- A2.9 Ofcom has considered three different ways by which this process could be managed:
- Option 1: Provide no guidance to the broadcasters
  - Option 2: Proposes the adoption of an updated code of practice containing four priority groups that the broadcasters should take into account when finalising the planning and implementation of DSO
  - Option 3: Would require the broadcasters to ensure that viewers suffer no disruption through the DSO programme irrespective of the adoption of a revised Code.

### Analysis of the different options

- A2.10 The adoption of **Option 1** is likely to result in a relatively large number of viewers suffering disruption and loss of their existing terrestrial services through the DSO programme. Whilst this will minimise the broadcasters costs and increase the likelihood of an early release of the DDR spectrum the planning models show that a relatively large number of viewers may lose access to existing analogue and DTT services for periods of up to three years.
- A2.11 The adoption of **Option 2** represents a balance between allowing some disruption to viewers whilst enabling the broadcasters to implement DSO in a timely and cost effective manner. For instance the adoption of the current DSO plan in the Granada region is currently predicted to cause disruption to some digital terrestrial television viewers in Birmingham. If the Code proposed in option 2 is adopted this would require the broadcasters to prioritise the need to protect viewers in adjacent regions against loss of service and would therefore most likely lead the broadcasters to adopt a different implementation strategy which would minimise or eliminate this predicted interference. It is proposed that such plans should be agreed with Ofcom if the impact is considered to be high in order that a balanced view can be taken between the need to protect viewers and the additional costs that the broadcasters may incur.
- A2.12 The adoption of **Option 3** is likely to significantly increase the costs of DSO to the broadcasters and may well result in a delay to the implementation programme to enable the necessary measures to be fully implemented by the broadcasters before they start the process of switching off the analogue services in each area. Whilst this may ensure that existing viewers have minimal disruption this is likely to significantly increase switchover costs for the broadcasters and delay the benefits the early release of the DDR spectrum are expected to yield for the UK economy and all UK consumers.

### **The preferred option**

- A2.13 Ofcom's strong preference is that it adopts Option 2 and the proposed updated version of the Code and engages with the broadcasters to ensure its effective implementation.