



# Code of Practice on Changes to Existing Transmission and Reception Arrangements

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## Section 1

# Introduction

- 1.1 Ofcom requires multiplex licensees to minimise any disruption to viewers resulting from clearance activities. In order to achieve this objective, Ofcom has produced this Code of Practice, which provides licensees with guidance on the priorities it expects them to adopt during clearance activities.
- 1.2 'Clearance activities' means actions by the relevant parties to clear existing authorised users from certain frequencies to make spectrum available for new users.
- 1.3 The Code was originally produced during Digital Switchover (DSO), which was completed in 2012. Ofcom revised the Code in 2010 to include the work that licensees needed to carry out in relation to the 800MHz clearance.
- 1.4 The Code was again revised in 2016 to take account of further clearance activities, including 700MHz clearance. 700MHz clearance is scheduled to take place by 2022 or potentially up to two years sooner.

## Section 2

# Regulatory principles

- 2.1 In due course, the digital replacement licence (DRL) holders (the providers of Channels 3, 4, and 5 services) and multiplex licensees will be required under the terms of their licences to implement 700MHz clearance to a timetable set out in the appropriate licence.
- 2.2 Coverage obligations in the DRLs require the holders to substantially match the analogue coverage of terrestrial television which was in place at the point of switchover to Digital Terrestrial Television (DTT). These obligations are reflected in the frequency assignments inserted in the multiplex licences for Digital 3&4<sup>1</sup> and BBC Multiplex B.<sup>2</sup>
- 2.3 In November 2014, Ofcom confirmed that the UK would align itself with the emerging European approach to clearing the 700MHz band (see Ofcom Statement “Decision to make the 700MHz band available for mobile data”<sup>3</sup>). This will involve making further changes to the frequencies used by some of the UK’s transmitters, and moving services broadcast within this band to alternative frequencies.
- 2.4 Currently the DTT platform consists of the following multiplexes:
  - 2.4.1 Three PSB multiplexes (3PSB) – BBC and Digital 3&4 provide these multiplexes. They broadcast from all of the transmitters in the DTT network and are available to around 98.5% of UK households.
  - 2.4.2 Three commercial multiplexes – these are licensed to Arqiva and SDN. They broadcast from the largest 80 transmitters achieving coverage of around 90% of households.
  - 2.4.3 Geographic Interleaved (GI) spectrum multiplexes – two portions of spectrum that can be used to provide a DTT multiplex in Manchester and Cardiff.
  - 2.4.4 Northern Ireland multiplex – one multiplex that broadcasts RTÉ and TG4 services from three transmitters and covers approximately 78% of households in Northern Ireland.
  - 2.4.5 Local television multiplex – Comux holds the licence to broadcast the local TV multiplex which has plans to broadcast from 40-60 transmitter sites and achieve coverage of up to 50% of households. The award of this licence specifically referred to the possible change of use of the 700MHz band.
  - 2.4.6 Interim multiplexes – Ofcom awarded frequencies in the 600MHz spectrum band (550 MHz – 606MHz) to Arqiva on an interim basis by granting a single licence for the establishment of two temporary DTT multiplexes.<sup>4</sup> The basis on which we made it available was to support interim use of the spectrum for DTT using DVB-T2/MPEG 4 technology. The terms of the

<sup>1</sup> <http://licensing.ofcom.org.uk/tv-broadcast-licences/current-licensees/multiplex/d34m/>

<sup>2</sup> <http://licensing.ofcom.org.uk/tv-broadcast-licences/current-licensees/multiplex/mb/>

<sup>3</sup> <http://stakeholders.ofcom.org.uk/consultations/700MHz/statement/>

<sup>4</sup> [http://stakeholders.ofcom.org.uk/binaries/consultations/600mhz-award/statement/600\\_MHz\\_Statement.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/600mhz-award/statement/600_MHz_Statement.pdf)

award set out specifically a power for Ofcom to revoke the licence to enable a change of use of the 700MHz band, if we made a decision in favour of such a change. The licence has a minimum duration to December 2018, and is subject to revocation on 24 months' notice.

- 2.5 Ofcom is committed to safeguarding the ongoing delivery of the benefits that DTT provides. In order to achieve this objective, we aim to develop a revised DTT frequency plan which allows for the continued delivery of:
- 2.5.1 Near-universal coverage for PSB services;
  - 2.5.2 Six national multiplexes with coverage broadly matching today;
  - 2.5.3 A similar quantity of local TV services to those that the platform is capable of delivering today (including the Manchester and Cardiff GI services); and
  - 2.5.4 The services carried on the Northern Ireland multiplex.
- 2.6 Ofcom's objective is that viewers within the 3PSB core coverage area (or six multiplex core coverage<sup>5</sup> where appropriate) should face only minimal service disruption as a result of clearance. This Code does not intend to address issues that may arise from the future use of the cleared frequency bands by new users. Rather it is concerned with temporary disruption caused by the phased implementation of clearance.
- 2.7 Similarly, Ofcom is concerned about the impact of clearance activities on the operation and reception of broadcast radio services, which are often located on masts close to the television infrastructure. Ofcom therefore expects the multiplex operators to give these radio services due consideration, and use reasonable endeavours to minimise any impact of clearance works upon listeners.

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<sup>5</sup> Six multiplex core coverage represents the areas within which it is predicted all six multiplexes can be received.

## Section 3

# Types of work expected

- 3.1 There are five categories of DTT clearance related activity which have the potential to affect viewers' reception of UK DTT services:
  - 3.1.1 Work on transmission infrastructure (including masts and antennas) carried out by the transmission companies prior to clearance in a particular region. This may cause temporary disruption to viewers of the affected transmitter as the transmission equipment is either switched off or operated at reduced power while the essential work is carried out.
  - 3.1.2 Changes to the frequencies used by some of the UK's transmitters. This could lead to temporary disruption similar to that set out in 3.1.1 to viewers of the affected transmitters.
  - 3.1.3 Alterations to the antenna radiation pattern at a particular transmitter may result in permanent changes to the normal reception of DTT services by households within the coverage area, or to the normal reception of services broadcast on other transmitters using the same frequencies.
  - 3.1.4 Implementation of clearance activities or frequency changes in an adjacent region.
  - 3.1.5 Implementation of clearance activity or frequency changes in a neighbouring country.

## Section 4

# Categories of viewers expected to be affected

- 4.1 We anticipate that clearance will result in a small number of viewers having lower quality reception or coverage levels of the national multiplexes, compared to the pre-clearance position. 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 by licensees.
- 4.1.1 Category 1: viewers who would reasonably be expected to receive DTT services (either three or six multiplex core coverage as appropriate), and **are not** covered by equivalent services from another transmitting station.
- 4.1.2 Category 2: viewers who would reasonably be expected to receive DTT services (either three or six multiplex core coverage as appropriate), and **are** covered by equivalent services from another transmitting station.
- 4.2 Similarly, a small number of viewers in Northern Ireland may experience lower quality reception or coverage of “overspill”<sup>6</sup> or NI mux<sup>7</sup> services as a result of clearance. The planning and implementation programme should therefore consider the following categories specific to Northern Ireland, in addition to those described above.
- 4.2.1 Category 3: viewers who would reasonably be expected to receive DTT services from either overspill or NI mux, who **would not** normally be expected to be covered by the other.
- 4.2.2 Category 4: viewers who would reasonably be expected to receive DTT services from overspill or NI mux, who **would** be expected to be covered by both services.
- 4.3 Ofcom anticipates that a small number of viewers that receive local TV services carried on the local TV multiplex may suffer lower quality or coverage of these services. Therefore, the following category should be considered in areas that receive local TV services, in addition to those described above:
- 4.3.1 Category 5: viewers who would reasonably be expected to receive DTT services from the local TV multiplex.
- 4.4 The categories of viewers identified above should be taken into account when considering the priorities identified in the following section.

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<sup>6</sup> “Overspill” refers to signals transmitted in the Republic of Ireland, RoI, but capable of being received by viewers in Northern Ireland.

<sup>7</sup> The Northern Ireland multiplex which carries TG4, RTÉ1 and RTÉ2.

## Section 5

# Priorities to be adopted during clearance

- 5.1 In planning transmission infrastructure work, antenna design, or the implementation of clearance, the licensees should in general work to minimise any degradation to the normal reception of existing DTT 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. This does not include short breaks in service that are a necessary part of the planned upgrade programme.
- 5.2 However, due to the nature of the work being carried out, it is possible that some viewers will experience degradation in the quality of their current services. In exceptional cases, some may suffer the total loss of their current service. In such circumstances, the following priorities should be taken into account when planning clearance activities.
- 5.2.1 **Priority 1:** Any viewers who are predicted to lose reception<sup>8</sup> of all of the digital multiplexes for a period of more than two weeks<sup>9</sup> and who do not have access to an alternative service via a different transmitter.
- 5.2.2 **Priority 2:** Any viewers who are predicted to lose reception of any but not all of the digital multiplexes for a period of more than two weeks and who do not have access to an alternative service via a different transmitter.
- 5.2.3 **Priority 3:** Any viewers who are predicted to lose reception of any of the digital multiplexes for less than two weeks and who do not have access to an alternative service via a different transmitter.
- 5.2.4 **Priority 4:** Any viewers who are predicted to have their current level of service degraded by a decrease in time availability of the service below the current planning level of 99%, but above a minimum level of 95% for digital services, for a period of more than two weeks.
- 5.3 These priorities are intended to help categorise the different potential impacts of clearance on viewers. For the avoidance of doubt, Ofcom emphasises that planners should seek to ensure that service disruption to viewers as a result of clearance is minimised.
- 5.4 Section 7, which sets out the process for clearance activities, shows how Ofcom expects these priorities to be handled.

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<sup>8</sup> A viewer will be deemed to have lost reception when they suffer a decrease in time availability of the service below 95%.

<sup>9</sup> Ofcom will consider amending this time window on a case by case basis depending upon the number of services affected, the predicted severity of the loss, and whether the affected services have PSB status.



## Section 6

# Remedial actions during clearance

- 6.1 The licensees should aim to use a variety of mitigation techniques to minimise the impact of clearance on UK viewers in accordance with the priorities discussed above. In general, it is expected that these will focus on optimising the timing of the changes, and the use of alternative frequencies so as to avoid interactions that may lead to interference occurring.
- 6.2 If multiplex operators propose the use of frequencies on a temporary basis, they should avoid the use of spectrum due to be cleared by clearance. Ofcom will, however, consider permitting the use of parking channels in the cleared spectrum if there is no alternative option that is viable, and if the costs (including the opportunity costs using of the cleared spectrum) are proportionate and acceptable.

## Section 7

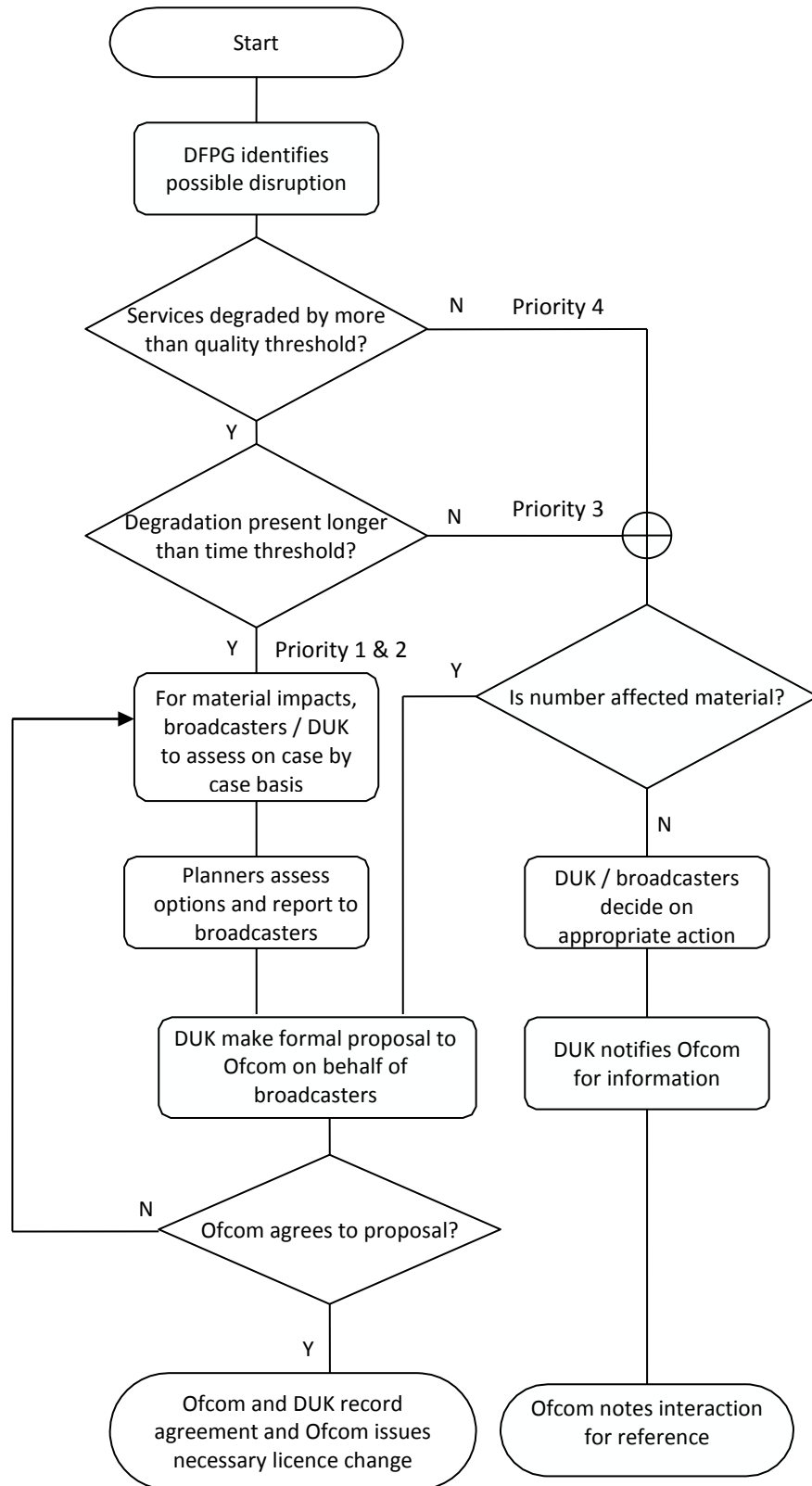
# Process

- 7.1 Ofcom expects the multiplex operators to work closely with the planners in the DTT Frequency Planning Group (DFPG)<sup>10</sup> and Clearance Planning Oversight Group (CPOG)<sup>11</sup> to identify and agree an appropriate way to minimise the disruption arising from clearance on UK viewers. However, Ofcom will also work closely with the broadcasters in determining an appropriate way to respond to these choices.
- 7.2 The multiplex operators should seek Ofcom's guidance, and if necessary consent, to their proposals when the number of viewers affected is predicted to be material or it is predicted that the work would involve loss of services to Priority 1 or 2 viewers.
- 7.3 The following flow chart illustrates how it is expected the Code will operate.

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<sup>10</sup> The DFPG is responsible for developing the clearance frequency plan. It is chaired by Ofcom, and includes representatives from BBC, Arqiva and Digital UK.

<sup>11</sup> The CPOG's function is to oversee and review the technical planning work for the infrastructure related aspects of the clearance programme. It is chaired by Ofcom, and includes representatives from multiplex licensees, Arqiva, BBC and Digital UK



## Section 8

# Information requirements

- 8.1 It will be the licensees' responsibility to ensure that all viewers predicted to be affected in the ways described above are provided with appropriate guidance and advice, in conjunction with any viewer support scheme Government has agreed to put in place. This should be provided in a manner and timeframe as agreed between the multiplex operator and Ofcom.
- 8.2 In cases where a degradation of service is predicted, especially when this is due to the final implementation of clearance work in that region, licensees should ensure that any affected viewers are provided with appropriate advice on how to make use of alternative television platforms.
- 8.3 Licensees should ensure that any changes to the transmission infrastructure are notified to Ofcom, broadcasters, Digital UK, DMSL<sup>12</sup> and other organisations as notified to the licensee by Ofcom. This notification should take the form of an email identifying the transmission sites being affected, the nature and duration of the work, and any expected impact of the work on viewers.
- 8.4 Information concerning planned works and service disruptions is likely to be useful to a wide range of stakeholders. Licensees should ensure that any likely disruption or changes to normal reception are publicised to viewers and installers through appropriate means. Where clearance activities are likely to significantly affect radio services from a particular transmitter, this information should also be publicised.

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<sup>12</sup> Digital Mobile Spectrum Limited