



## Content management on the HD Freeview platform

Consultation

Publication date: 22 January 2010

Closing Date for Responses: 2 April 2010



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## Section 1

# Executive Summary

- 1.1 This consultation considers a proposal from BBC Free to View Ltd<sup>1</sup> (the “BBC”) that would require the inclusion of content management technology in receivers for High Definition Television (HDTV) services on the Freeview Digital Terrestrial Television (DTT) platform. This technology would enable broadcasters to control the copying of content from high definition receivers to other consumer devices and its distribution to others over the internet.
- 1.2 Under the Communications Act 2003, Parliament gave Ofcom additional responsibilities for the regulation of DTT that are wider and deeper than on other television platforms, reflecting the important role that DTT has in making public service broadcaster (PSB) content available to all. In view of this special role, we believe it is important that the regulation of DTT should continue to foster innovation and the development of new services so that it can continue to deliver maximum value to consumers and citizens.
- 1.3 Our aims in assessing the BBC’s proposal are to ensure that citizens and consumers have access to the widest possible range of HD television content on DTT, whilst not unduly restricting their use of this content and the range of receiver equipment available in the market.
- 1.4 The BBC’s proposed content management approach would require Ofcom to grant an amendment to its multiplex licence, subject to Ofcom’s approval of specific proposals, to allow the BBC to restrict the availability of programme listing information for HDTV services only to receivers that implement content management technology.
- 1.5 In this consultation document, we have considered whether to approve both the proposed licence amendment and, if we were to do so, whether or not Ofcom should approve the detailed proposals of the BBC in relation to the implementation of content management through the restriction of programme listing data.
- 1.6 We note that in considering the BBC’s proposed licence amendment Ofcom is not being asked consent to the deployment of content management on DTT. Rather, we are being asked to consider the appropriateness of the method by which the BBC proposes to deploy content management, which has been arrived at based on industry consensus in the Digital Television Group (DTG).
- 1.7 As digital television switchover rolls out across the UK and increasing numbers of consumers purchase HD Ready TV sets, HDTV is becoming an increasingly important service upgrade on DTT. The success of this upgrade will contribute to the future success of the DTT platform and its ability to continue to perform its important role of ensuring that everyone in the country has access to PSB content free to air.
- 1.8 The BBC believes its content management proposals would contribute to the success of HDTV services on DTT by ensuring that the widest possible range of attractive HD services made are available to citizens and consumers. The BBC’s aim is to ensure that rights holders, such as film makers and TV production companies,

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<sup>1</sup> BBC Free to View Ltd is the holder of the Multiplex B licence used to deliver HDTV services on DTT.

have confidence that the copy management system on DTT is effective. This they argue will mean that HD content is made available by rights holders to free to air broadcasters on DTT on similar commercial terms and in similar time release windows as those on alternative digital TV platforms, such as Freesat, Sky, Virgin Media or BT Vision.

- 1.9 The content management technology required to be implemented in receivers under the BBC's proposals would permit unrestricted recordings of HD content onto digital video recorders (DVRs) but would enable broadcasters to control the copying of this content onto other devices and its distribution over the internet. The HD content would only be accessible on other consumer devices which support the same content management technologies as those used in HD receivers.
- 1.10 This consultation follows an initial request in August 2009 from the BBC for a change to its digital multiplex licence. Ofcom published a letter on 3 September 2009<sup>2</sup> asking stakeholders for their views on the BBC's proposed licence amendment and received a large number of responses, in particular from consumers and consumer groups. These raised a number of potentially significant questions regarding compliance with copyright law and competition issues that were not addressed in our original letter.
- 1.11 In view of these responses we asked the BBC to provide more information and evidence on the anticipated benefits to citizens and consumers of the proposed licence amendment and how they intend to preserve the legitimate use of HD content by citizens and consumers. We also asked for an explanation of possible alternative approaches that would potentially impact less on competition in the receiver market, and the extent to which those alternatives would be able to deliver similar outcomes and benefits for citizens and consumers' to those the BBC claims would be delivered by their proposal.
- 1.12 A copy of the BBC's fuller submission which seeks to address the consumer copyright law and competition issues raised by respondents to the first consultation is provided in Annex 6 of this document. This sets out why the BBC believes copy management would broaden the range of HD content available on DTT, and hence would deliver benefits to citizens and consumers, and why the proposed licence amendment represents the most proportionate means for securing these benefits. The BBC also sets out a number of proposed commitments towards safeguarding the use of HD content by consumers.
- 1.13 In view of the fuller submission provided by the BBC, Ofcom is currently minded to approve its request for a multiplex licence amendment subject to consultation responses, on the basis that in principle, content management is a justified objective which ensures that the broadest range of HD content is made available to citizens and consumers.
- 1.14 Ofcom has considered alternative proposals for implementation put forward by the BBC and is minded to grant approval under the amended licence on the basis that the proposals are the least intrusive means of achieving effective copy management to deliver the benefits of a wider range of content to consumers.
- 1.15 Ofcom has also considered proposals put forward for the application of content management by the BBC, and whether these would secure a broader range of content without placing undue restrictions on how content can be used by consumers. Ofcom is currently minded that this outcome could be achieved based on

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<sup>2</sup> [http://www.ofcom.org.uk/tv/ifi/tvlicensing/enquiry/ofcom\\_bbc.pdf](http://www.ofcom.org.uk/tv/ifi/tvlicensing/enquiry/ofcom_bbc.pdf)

the BBC proposals and intends to require that these proposals are implemented by the BBC before it could limit the availability of programme listings information for the purposes of securing content management.

## Section 2

# Introduction

- 2.1 This consultation seeks stakeholder views on a request made by the BBC for an amendment to its licence for Multiplex B (“the Multiplex B Licence”) to support content management plans for HDTV<sup>3</sup> services carried on the DTT platform.
- 2.2 To support these plans, the BBC considers it is necessary to compress electronic programme guide (EPG)<sup>4</sup> data using Huffman coding<sup>5</sup> and to make the provision of look-up tables needed to decompress and use this data to receiver manufacturers conditional upon the implementation of content management technology in those receivers. The Multiplex B Licence currently contains a provision which requires EPG data to be made freely available to receiver manufacturers and channel suppliers. In order to implement the BBC’s proposals, the Multiplex B Licence therefore requires amendment.
- 2.3 Ofcom is therefore considering whether a licence amendment is appropriate. In doing so, Ofcom recognises the restriction on the availability of EPG data which would result from any amendment and has therefore considered the extent to which a change would deliver positive benefits to citizens and consumers and constitutes the most proportionate means for securing those benefits.
- 2.4 We note that Ofcom is not being asked consent to the deployment of content management on DTT. Rather, we are being asked to consider the appropriateness of the method by which the BBC proposes to deploy content management which has been arrived at based on consensus in the DTG<sup>6</sup>.
- 2.5 Groups of TV channels are broadcast together on DTT in what are known as digital multiplexes. The BBC currently operates the only DTT multiplex broadcasting HD services, named Multiplex B<sup>7</sup>. This currently delivers HD channels from the BBC and ITV, and it is anticipated that two further PSB HD channels will be added in 2010.
- 2.6 The BBC wrote to Ofcom in August 2009 to request an amendment to the Multiplex B Licence to support content management plans for HDTV services on DTT. This amendment would allow the BBC to seek to ensure that only receivers which supported content management could provide access to EPG data for HDTV services carried on Multiplex B<sup>8</sup>, with the objective of increasing the volume of receivers that are compatible with content management. The BBC claim that this

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<sup>3</sup> HDTV is TV system which provides a clearer, sharper picture through higher resolution.

<sup>4</sup> An EPG is a programme schedule, typically broadcast alongside digital television or radio services, to provide information on the content and scheduling of current and future programmes.

<sup>5</sup> Huffman coding is a compression technique which is based on the frequency of occurrence of data items. It replaces the most common items with short codes which are then listed in a ‘lookup table’. Access to the lookup table is essential to reconstruct the original information from the compressed version.

<sup>6</sup> The DTG is a cross-industry body that draws up a specification for DTT equipment which ensures their interoperability.

<sup>7</sup> A multiplex is a digital stream or service that carries multiple interleaved signals or streams of information on a carrier at the same time in the form of a single, complex signal. The individual signals are then separated at the receiving end.

<sup>8</sup> Condition 6 of the Multiplex B Licence currently requires EPG data to be made freely available to receiver manufacturers and channel suppliers.

intervention is needed to ensure that the DTT copy management system is perceived by the holders of broadcast rights for HD content (“rights holders”) as being as effective. This they argue would enable broadcasters on DTT to secure HD content from rights holders on similar commercial terms and within the time release windows to those on alternative digital TV platforms, which have content management technologies in place.

- 2.7 The BBC has therefore proposed that Condition 6 of the Multiplex B Licence is amended to allow the BBC to restrict the availability of EPG data for the purposes of ensuring that appropriate content management technology is included in DTT HD receivers, subject to Ofcom’s approval of any individual proposals.
- 2.8 Ofcom therefore published a letter on 3 September 2009 asking stakeholders for their views on the BBC’s proposed licence amendment and received a large number of responses, in particular from consumers and consumer groups. These raised a number of potentially significant questions regarding compliance with copyright law and competition issues that were not addressed in our original letter. In view of these responses we decided that further consideration was appropriate. We asked the BBC to provide more information and evidence in three key areas:
  - 2.8.1 The anticipated benefits to citizens and consumers of the proposed licence amendment;
  - 2.8.2 How the potential disadvantages to citizens and consumers associated with the licence amendment would be addressed;
  - 2.8.3 An explanation of possible alternative approaches that would potentially impact less on competition in the receiver market, and the extent to which those alternatives would be able to deliver similar outcomes and benefits for citizens and consumers’ to those the BBC claim would be delivered by their favoured option.
- 2.9 Ofcom received in December 2009 a fuller submission from the BBC addressing the copyright law and competition issues raised by respondents to Ofcom’s first consultation on their proposal, a copy of which is attached at Annex 6. This sets out why the BBC believes copy management will broaden the range of HD content available on DTT, and hence will deliver benefits to citizens and consumers, and why the proposed licence amendment represents the most proportionate means for securing these benefits. The BBC also sets out a number of proposed commitments towards safeguarding the interests of consumers and citizens from an inappropriate application of content management.
- 2.10 This consultation document considers the BBC’s proposal to amend Condition 6 of the Multiplex B Licence generally and the specific proposals put forward for the implementation of content management, should the licence amendment be approved, in light of this further submission, and is structured as follows:
  - 2.10.1 Section 3 provides a summary of the BBC’s proposals.
  - 2.10.2 Section 4 considers whether it is appropriate to amend Condition 6 of the Multiplex B Licence to allow restrictions on the availability of EPG data for the purposes of securing content management. In doing so, Ofcom considers whether content management is needed to broaden the range of content on DTT and whether the BBC’s proposal to link content

management and the availability of EPG data is the most proportionate means of securing this.

- 2.10.3 Section 5 considers whether it would be appropriate for Ofcom to approve the detailed proposals of the BBC should the licence amendment be granted, taking into account their potential impact on consumers and citizens and other DTT stakeholders.
  - 2.10.4 Section 6 outlines Ofcom's preliminary conclusion on the BBC's proposals.
  - 2.10.5 A copy of the BBC's submission is attached in Annex 6.
  - 1.1.1 A glossary of technical terms used in this consultation is provided in Annex 7.
- 2.11 This consultation closes on 2 April 2010.

## Section 3

# The BBC's proposal

## The aim of the BBC's proposed multiplex licence amendment

- 3.1 The BBC's request for an amendment to Condition 6 of the Multiplex B Licence would enable it to deliver the EPG data for services carried on this multiplex in a *closed* rather than an *open* transmission format, for the purposes of securing content management. The BBC intends to use this change to increase the volume of receivers that are compatible with content management. The BBC claim that this intervention is needed to:
- 3.1.1 Ensure that the copy management system used on DTT is regarded by rights holders as being sufficiently effective so that they are prepared to make HD content available to broadcasters on DTT on similar terms as those on competing digital TV platforms;
  - 3.1.2 Reduce the risk of the unauthorised distribution of HD content on pre-recorded media and the internet after it has been broadcast free to air, and hence, help secure greater investment in UK produced HD content by improving the ability of producers to gain additional revenues from Blu-ray discs<sup>9</sup> sales and selling HD rights in broadcast markets outside the UK.

## The BBC's proposed implementation of the licence amendment

- 3.2 On the DTT platform, groups of digital TV channels are broadcast together in what are known as digital multiplexes. There are currently six of these multiplexes operating on DTT. Pursuant to the Television Multiplex Services (Reservation of Digital Capacity) Order 2008 ("the 2008 Order"), Ofcom has reserved capacity on Multiplex B for HDTV services provided by the Channel 3 licensees and Channel 4/S4C.
- 3.3 Multiplex B operates using new, more efficient, DVB-T2<sup>10</sup> transmission and MPEG 4<sup>11</sup> compression standards which provide the additional multiplex capacity needed to deliver HDTV services. These standards are not compatible with existing SD DTT receivers, and consumers must purchase a new DVB-T2 / MPEG 4 compatible receiver in order to receive HDTV services.
- 3.4 In addition to the HD channels themselves, Multiplex B also carries data known as Service Information (SI) which describes the programmes available for reception in the multiplex and the availability of additional services linked to these programmes such as subtitling and audio description. The SI data is used by HD receivers to create an EPG which provides viewers with an easy means to select programmes and set up recordings on DVRs<sup>12</sup>.

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<sup>9</sup> Blue-ray is a high capacity DVD format which is designed for HDTV.

<sup>10</sup> DVB-T2 is a second generation standard which is used for Freeview HD broadcasts.

<sup>11</sup> Most digital television services in the UK use MPEG-2, but MPEG-4 offers greater efficiency, and is commonly used for new services including TV over DSL and High Definition TV.

<sup>12</sup> A DVR is a device, usually built into a set-top box or TV set, which records content digitally onto a hard disk or flash memory. The unit may have several tuners to record programmes simultaneously, as well as enabling facilities such as live pausing.

- 3.5 The SI data delivered on all six DTT multiplexes, including Multiplex B, is currently broadcast in an open format using European standards. Indeed, the Multiplex B Licence requires, at Condition 6, that EPG data be made freely available to receiver manufacturers. The BBC is proposing to use a variant for delivering SI, which uses Huffman Coding to compress the data before transmission. SI broadcast using this approach cannot be decoded by existing standard definition (SD)<sup>13</sup> receivers and the BBC intends to use it first on Multiplex B to deliver SI data for HDTV services which require new HD receivers.
- 3.6 In order to utilise the SI data broadcast using Huffman Coding, Huffman Code look-up tables developed by the BBC are needed to decode the data in receivers. If approved, the proposed licence amendment would enable the BBC to broadcast SI on Multiplex B using Huffman Coding and to only make the Huffman Code look-up tables available to receiver manufacturers who implement content management, subject to Ofcom approval of the specific proposals. In this way, the BBC intends to increase the volume of receivers that are compatible with content management. The SI data carried on other DTT multiplexes for SD services would be unaffected by this approach, and existing DTT receivers would be able to continue to provide an EPG for SD services.
- 3.7 Should a licence amendment be approved, allowing the possibility of the BBC encoding SI data, the BBC proposes to licence its Huffman Code look-up tables on a royalty-free, and fair, reasonable and non-discriminatory (FRND) basis to any party that undertakes to comply with the content management conditions specified by the Digital Television Group (DTG). These parties could include consumer electronics manufacturers and also organisations that wish to make use of the BBC's Huffman Codes within a system incorporating Open Source software.
- 3.8 Under the BBC's proposal, its HDTV services and those of other PSB broadcasters would continue to be broadcast free to air without encryption. However, Multiplex B would also now broadcast a content management state flag for each HD programme that has been set by broadcasters. Receivers that support content management respond to this flag and set corresponding controls for how each HD programme can be recorded, copied and be distributed over the internet. This control is achieved by encrypting HD content on the HD receiver outputs. To decrypt and use these HD outputs on other consumer devices these devices must support the same content management system technologies as those used in the HD receiver. There are no controls imposed over the recording, copying or distribution of down-converted<sup>14</sup> SD versions of HD programmes.
- 3.9 HD receivers that do not support copy management do not respond to the content management state flags attached to the free to air broadcasts and provide HD content outputs without encryption. This would make it technically feasible for HD content to be copied without restriction and also to be distributed over the internet, irrespective of whether this is permitted or not by the rights holder. Under the BBC's proposal these receivers would be unable to access SI data and hence provide an EPG for HD services.

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<sup>13</sup> In the UK, SD is a 625 line TV system, of which 576 lines are visible – a lower resolution than HDTV.

<sup>14</sup> The process of producing a lower resolution version of some content, typically to create a SD version of an HD TV programme, so that it can be viewed or recorded on SD equipment.

- 3.10 The BBC proposes to require in receivers a number of internationally agreed content management standards that are being built into new HD consumer equipment<sup>15</sup>. These include:
- 3.10.1 High-bandwidth Digital Content Protection (HDCP): this encrypts the HD display outputs on HD receivers. To view HDTV services protected with HDCP, a HDCP compatible display must be used to decrypt the signals. HD Ready displays support HDCP.
  - 3.10.2 Digital Transmission Content Protection (DTCP): this encrypts the HD outputs on receivers used to connect to other digital devices in a home network. Content protected by DTCP can only be accessed on other consumer devices in a home network which support DTCP.
  - 3.10.3 Advance Access Content System (AACS): this is used to encrypt and manage the copying of HD content onto Blu-ray DVD.
  - 3.10.4 AES-128 or triple DES encryption: this is used to encrypt and bind to the receiver time-shifted content recorded on removable hard drives, USB memory sticks and flash memory cards.
- 3.11 Under the BBC's proposal broadcasters will be able to allocate one of three content management states to HD programmes:
- 3.11.1 *Unrestricted copy*: the HD receiver output is unencrypted and an unrestricted number of copies of the HD content can be made onto any digital device. There are no restrictions on internet distribution.
  - 3.11.2 *Multiple copy*: the digital receiver output is encrypted and unrestricted copies of the content can be made onto digital devices that are compatible with the copy management technologies used in the HD receiver. Internet distribution is not permitted.
  - 3.11.3 *Managed copy*: the digital receiver output is encrypted and only one copy of the content can be made onto an external consumer device. The copies are flagged 'copy no more'. Internet distribution is not permitted.
- 3.12 The BBC proposes that the *managed copy* state can only be applied to HD content which:
- 3.12.1 Has previously only been available on a paid-for basis, e.g. distributed on Pay TV, as paid for downloads or on pre-recorded Blue-ray DVD;
  - 3.12.2 Is having its first free to air showing in the UK and is still available or is expected to made available outside the UK on a paid-for basis. This could include, for example, co-produced HD content that has been part funded by Pay TV operators.
- 3.13 The BBC proposes that the *unrestricted copy* and *multiple copy* states can be applied to any HD content.
- 3.14 In all of the three content management states the BBC proposes that:

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<sup>15</sup> These content management standards are used on the Freesat platform for HD content.

- 3.14.1 HDCP is applied to the HD display output on receivers;
  - 3.14.2 No restrictions are placed on the amount of time and the number of times permitted copies of HD content can be viewed;
  - 3.14.3 No restrictions are placed on recordings of HD programmes onto DVRs integrated with HD receivers;
  - 3.14.4 No content management restrictions are placed on down converted standard definition versions of the HD content.
- 3.15 The BBC indicates in its proposal that it intends to apply the *multiple copy* state to the majority of its HD content.
- 3.16 The BBC's proposal also includes a number of proposed commitments aimed at safeguarding the interests of citizens and consumers against the application of content management that would limit their legitimate use of HD content. These include:
- 3.16.1 An undertaking to respect current user protections enshrined in copyright law and any future extension of these protections, such as those recommended by the Gower's Review of Intellectual Property;
  - 3.16.2 A commitment to establishing an "appeals" process whereby viewers who believe their lawful usage is being impinged by the BBC's use of content management can raise their concerns with the BBC, rather than having to write to the Secretary of State, which is the current practice;
  - 3.16.3 A commitment to work with the other PSBs to create a 'user friendly' consumer guide to content management which would be published on their websites and made available to manufacturers and retailers;
  - 3.16.4 A commitment to facilitate discussions between broadcasters, manufacturers, relevant industry bodies and consumer groups to develop and implement a good practice framework for the use of content management on the HD Freeview platform.
- 3.17 In order for Ofcom reach a decision on the BBC's proposals, including the request for a licence amendment and approval of content management proposals under an amended licence, this consultation seeks to reach a view on:
- 3.17.1 Whether it is appropriate to amend Condition 6 of the Multiplex B Licence to allow restrictions on the availability of EPG data for the purposes of securing content management. In doing so, whether content management is needed to broaden the range of content on DTT and whether the BBC's proposal to link content management and the availability of EPG data is the most proportionate means of securing this. Section 4 considers this aspect of their proposal.
  - 3.17.2 Whether it would be appropriate for Ofcom to approve the detailed proposals of the BBC in relation to content management should the licence amendment be granted, taking into account their impact on consumers and citizens and other DTT stakeholders. Section 5 considers this aspect of their proposal.

## Section 4

# The impact of content management on the range of HD content available on DTT

### 4.1 HDTV on DTT now

- 4.1 Digital technology enables the distribution to consumers of a much wider choice of content over a diverse range of delivery platforms and devices, such that TV content can be viewed and stored and shared as never before.
- 4.2 DTT is one very important part of this new television landscape. Digital switchover will mean that its services are available throughout the UK; allowing DTT to become the way in which we ensure that the whole country has access to Public Service Broadcasting (PSB), free-to-air.
- 4.3 Under the Communications Act 2003, Parliament gave Ofcom additional responsibilities for the regulation of DTT that are wider and deeper than on other television platforms, reflecting the important role that DTT has in making PSB content available to all. In view of this special role, we believe it is important that the regulation of DTT should continue to foster innovation and the development of new services so that it can continue to deliver maximum value to consumers and citizens.
- 4.4 One recent important service development is HDTV which provides a more *life-like* viewing experience than conventional standard definition television. Increasing sales of HD compatible HD Ready TV sets (figure 1) and an increasing proportion of TV content being produced in HD has now created a growing expectation by consumers that HDTV services will be made available on all digital TV platforms. As of 2008 the number of consumers expecting to be able to receive HDTV services on the DTT had increased to 63%.
- 4.5 During the course of 2008 and 2009, Ofcom and the Secretary of State undertook a process to allow the use of new more efficient MPEG 4 compression and DVB-T2 transmission standards, which provide the additional broadcast capacity needed to deliver HDTV services<sup>16</sup>. The first DTT HDTV services launched in the Granada switchover region using these new standards on 2 December 2009, and will become available across the rest of the country as switchover is implemented in other regions.
- 4.6 With the full commercial launch of these services expected to occur in the first half of 2010, linked to the mass market availability of HD DTT receivers, we recognise the significance of the challenge industry stakeholders face in meeting the expectations of consumers and citizens for a smooth and speedy introduction of HD services.

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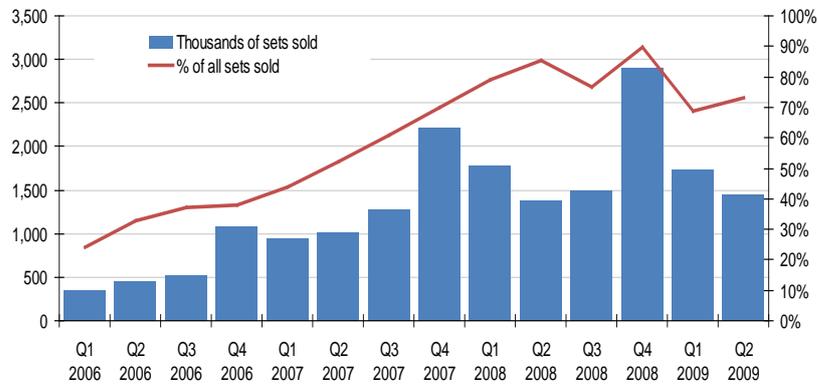
<sup>16</sup> see Ofcom's statement of 3 April 2008 entitled "*Digital Television: Enabling New Services – Facilitating efficiency on DTT*", available at <http://www.ofcom.org.uk/consult/condocs/dttfuture/statement/>; *The Television Multiplex Services (Reservation of Digital Capacity) Order 2008*, available at [http://www.opsi.gov.uk/si/si2008/uksi\\_20081420\\_en\\_1](http://www.opsi.gov.uk/si/si2008/uksi_20081420_en_1); *Ofcom Determination of 16 October 2008 reserving capacity on Multiplex B*, see [http://www.ofcom.org.uk/radiocomms/digital/hd\\_on\\_dtt/ita/committee/determinationart3.pdf](http://www.ofcom.org.uk/radiocomms/digital/hd_on_dtt/ita/committee/determinationart3.pdf)

- 4.7 We also recognise that with HD services set to become an increasingly important part of the digital TV landscape, the successful development of these services on DTT is likely to be instrumental in ensuring that the platform remains attractive to consumers and citizens, and as a consequence is able to continue to fulfil its important role in ensuring the whole country has access to PSB content free to air.
- 4.8 We currently anticipate that part of this success will be dependent on the availability of free to air HD content on DTT being equally attractive to citizens and consumers as that available free to air on competing digital TV platforms.

**Figure 1**

**HD-Ready TV sets - sales volumes as a % of all set sales**

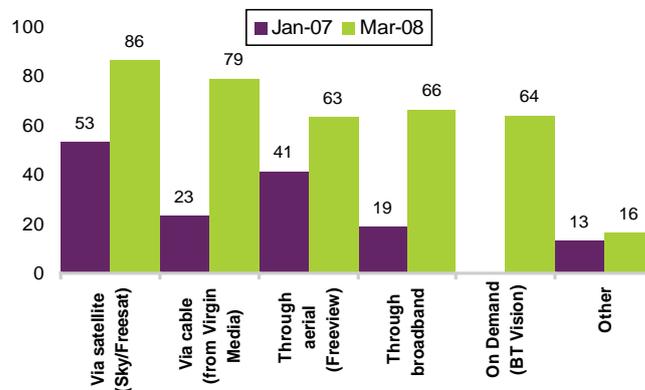
Cumulative sales of HD Ready TV sets stood at 19m at June 2009, according to GfK.



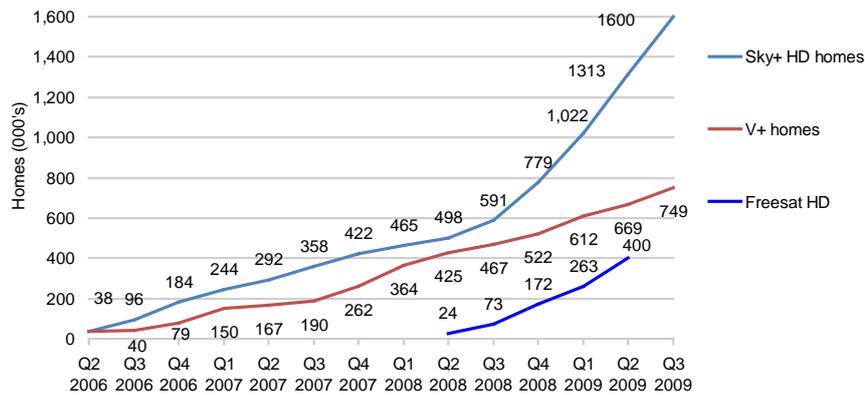
Source: GfK

**Figure 2**

**Expectations for platforms to offer HD content (%)**



Source: Digital UK  
 Note: 2009 HD omnibus, BMRB n=1008 and 2007 HD Omnibus. BMRB n=1010

**Figure 3****Number of linear HDTV homes: Sky, Virgin Media and Freesat**

Source: BSkyB/Virgin Media/Freesat

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**4.2 The impact of content management and the range of HD content available on DTT**

- 4.9 Video content, and in particular film content, is usually monetised for different distribution means (cinema, pay-per-view, DVD, VoD, pay TV, free to air TV etc) using different time release windows. In addition, these release windows are often different in different geographical regions.
- 4.10 Faster broadband connection speeds and the falling cost of digital storage has made it potentially easier to disrupt these HD monetisation windows through the unauthorised distribution of HD content on the internet and physical media. This has led some rights holders to place increasing emphasis on the use of content management technologies to combat the unauthorised distribution of their content after it has been broadcast.
- 4.11 The content management system proposed by the BBC for the DTT platform would enable broadcasters to control how HD content can be copied and redistributed over the internet after it has been broadcast free-to-air. The BBC claims in sections 1.3 and 1.6 of its submission, attached in annex 6, that without content management the breadth of free to air HD content available to consumers on DTT would be restricted. This view is based on the BBC's negotiations with rights holders for HD broadcast rights on DTT, where the BBC claims that some rights holders have not been prepared to provide DTT broadcast rights if content management is not provided, in particular in cases where the rights holders content is still generating significant revenues in markets outside the UK from Blu-ray disc sales and pay TV distribution.

- 4.12 The BBC also claims in sections 1.3 and 1.6 of its submission that the implementation of content management on HD DTT would assist a broadening of the range of content available on DTT by:
- 4.12.1 Maximising investment in UK produced HD content by UK broadcasters and independent producers, by improving their ability to secure additional revenues from Blu-ray discs sales and selling HD content rights in markets outside the UK;
  - 4.12.2 Assisting UK broadcasters to secure HD co-production arrangements with other programme makers and broadcasters who are also seeking to monetise HD content in markets outside the UK through Blu-ray disc sales and paid-for HD content downloads.
- 4.13 Other digital TV platforms in the UK (Freesat, Virgin, Sky, BT Vision) already apply content management to the HD output on receivers used to connect to HD displays. This ensures that consumers can only use this output for the purposes of viewing the content on an HD display and not for its copying and use on other devices. Most platforms including pay TV satellite, cable and IPTV platforms do not provide any additional digital HD outputs on their receivers and hence provide no means for HD content to be copied from their receivers and be used on other devices. These platforms do typically allow the recording of HD content onto a DVR integrated with the receiver but would not permit any onward copying onto another device.
- 4.14 Some HD receivers on the Freesat platform do provide a HD digital screen and an additional HD digital output for the transfer of HD content onto other devices. The content management technologies are applied to these outputs are similar to those the BBC proposes to require for HD DTT receivers.
- 4.15 The horizontal market for HD DTT receivers is likely to lead to some manufacturers making available to consumers receivers which provide both a HD digital screen output and on higher end devices, HD digital outputs that can be used for the copying and distribution of HD content onto other devices. The BBC claims in sections 1.3, 1.6 and 1.7 of its submission that these receivers would need to apply an equivalent level of content management to these outputs as those on alternative digital TV platforms to prevent the DTT platform becoming perceived by HD rights holders as being less attractive than other platforms. Without this they claim that the range of HD content on DTT will be restricted compared to other platforms, reducing its attractiveness to consumers and threatening its long term viability as the means by which we ensure that PSB content is made available to all UK households.

Platform	HD receiver digital screen output protected by content management	HD receiver digital output provided to enable the transfer of HD content to other devices
Freesat	Yes	Yes  (content management is applied to these outputs)

Sky	Yes	No
Cable	Yes	No
BT Vision	Yes	No

- 4.16 The BBC also claims in section 1.6 that content management would bring a number of additional benefits to the DTT platform including:
- 4.16.1 A wider range of attractive HD content enabled by content management on DTT would provide a greater incentive for consumers to invest in HD receivers, providing greater economies of scale for manufacturers and lower receiver prices for consumers. This would create a virtuous circle whereby increasing HD receiver sales encourage the launch of more HD services, which in turn drives receiver take-up.
- 4.16.2 It would provide greater economies of scale for acquired content by enabling broadcasters to offer the same HD content on DTT as on other digital TV platforms which provide equivalent content management. It will also enable broadcasters to offer for same TV programme schedules for the same HD TV channels delivered on different platforms.
- 4.16.3 Consumers can enjoy leading edge content without a subscription or the need to purchase content on Blue-ray DVD, via pay-per-view or as a 'paid-for' internet download.
- 4.17 Content management can also provide potential detriments to consumers by placing restrictions on how they can copy and use content on other digital devices. This issue was raised by many of the consumer and consumer group respondents to Ofcom's first consultation on the BBC's proposals. To attempt to address this issue the BBC has included in section 2 of its submission, a number of commitments aimed at safeguarding the interests of citizens and consumers, including:
- 4.17.1 An undertaking to respect current user protections enshrined in copyright law and any future extension of these protections, such as those recommended by Gower's Review of Intellectual Property;
- 4.17.2 A commitment to establishing an "appeals" process whereby viewers who believe their lawful usage is being impinged by the BBC's use of content management can raise their concerns with the BBC, rather than having to write to the Secretary of State, which is the current practice;
- 4.17.3 A commitment to work with the other PSBs to create a 'user friendly' consumer guide to content management which would be published on their websites and made available to manufacturers and retailers;
- 4.17.4 A commitment to facilitate discussions between broadcasters, manufacturers, relevant industry bodies and consumer groups to develop and implement a good practice framework for the use of content management on the HD Freeview platform.

### ***Ofcom's current view on the need for content management on DTT***

- 4.18 Taking into account the increasing availability of faster broadband connection speeds and the falling cost of digital storage, which make it potentially easier to distribute unauthorised copies of HD content over the internet and on physical media such as Blue-ray DVD, we recognise that these developments may lead rights holders to increasingly demand content management to preserve the monetisation windows for their content on different distribution media in different geographical areas.
- 4.19 If content management is not provided on DTT for HD content it will be the only major digital TV platform not to do so, and there is a risk that rights holders would be less willing to offer their content on DTT in the same distribution windows and on the same commercial terms as on other platforms. This creates a risk that the HD service offer on DTT will become less attractive to consumers and citizens, threatening its important role in ensuring that everyone in the country has access to PSB content free to air.
- 4.20 Ofcom's preliminary view is therefore that content management should be available for broadcasters to use on DTT in order to secure the availability of a broad range of content for consumers. However, Ofcom recognises that the use of content management could result in detriments to consumers if it is not implemented in an appropriate manner. Ofcom has therefore considered the extent to which the BBC's proposal ensures that:
- 4.20.1 the legitimate citizen and consumer use of HD content delivered on DTT is preserved;
  - 4.20.2 content management does not significantly impact on the range and cost of receivers available in the market.
- 4.21 These aspects of BBC's content management proposals are considered in sections 5.1, 5.2 and 5.3 of this document.

*Q1: Do you agree that copy management would broaden the range of HD content available on DTT and help secure its long term viability as a platform?*

### **4.3 Content management on DTT without a multiplex licence amendment**

- 4.22 To assess the necessity for the BBC's proposed multiplex licence amendment to support its content management plans on DTT we first consider the counterfactual i.e. how would content management develop on DTT without the licence amendment?
- 4.23 If the licence amendment is not implemented the BBC expects, in section 3.3.2 of its submission, that the majority of manufacturers would include copy management in their DTT HD receivers in any event. This is because:
- 4.23.1 In order to use the FreeviewHD trademark on receiver products, manufacturers would be required to comply with the DTG D-Book;
  - 4.23.2 The inclusion of copy management technology in receivers is a mandatory requirement of the DTG 'D-Book', which is the industry recognised specification for DTT equipment in the UK. The D-Book has been

developed based on consensus between multiplex operators, broadcasters and receiver manufacturers and so the inclusion of copy management technology as a mandatory requirement of these specifications indicates that manufacturers are generally supportive of its inclusion in their equipment;

- 4.24 However, the BBC also considers in section 3.3.2 of its submission that certain manufacturers may be happy to produce products which do not bear the FreeviewHD trademark and therefore this approach will not guarantee that all manufacturers would include copy management in their receivers. Without an additional guarantee that manufacturers will include content management in receivers, they argue that the copy management system on DTT would be perceived by some rights holders as not providing sufficient protection for their content after it had been broadcast free to air, and that these rights holders would not be prepared to offer their content to HD DTT broadcasters in the same release windows on similar commercial terms to those on competing digital TV platforms. As a result, the objectives set out in section 4.2 above would not be achieved.
- 4.25 The BBC sets out in section 3.3.2.C of its submission a number of reasons why it considers some receiver manufacturers may elect not to seek D-Book compliance and implement content management, despite this enabling them to use the Freeview HD trademark. It therefore considers that the linkage between the FreeviewHD trademark and the requirements of the D-Book would not of itself be sufficient to ensure effective content management on the DTT platform.
- 4.26 The reasons the BBC considers certain manufacturers would reject the use of the FreeviewHD trademark include:
- 4.26.1 To prevent having to incur the cost of implementing all of the receiver functionality required by the HD Freeview trademark and their associated compliance testing costs;
  - 4.26.2 A potential reluctance by some equipment manufacturers to include Freeview branding in their on-screen EPGs, which is a requirement of the FreeviewHD trademark;
  - 4.26.3 Pay TV operators on DTT have business models that are not fully aligned with the Freeview brand and may have a reduced incentive to use the FreeviewHD trademark;
  - 4.26.4 Receiver equipment without content management can be potentially marketed to consumers who want to retain full flexibility over how they can record, copy and use HD content, regardless of whether this use is permitted by rights holders or compliant with copyright laws.
- 4.27 Whilst any supply of HD receiver equipment with no content management may initially only come from smaller, niche manufacturers, the BBC argues in section 3.3.2. D of its submission that if major manufacturers perceive that they are losing market share to these suppliers they may respond by also supplying products without content management. The resulting effect on the DTT receiver market could lead to further growth in sales of receivers without copy management to the detriment of products with content management. If this were to occur, HD receivers with no content management would represent an increasing share of the overall HD receiver market and accelerate the rate at which the content management solution on the DTT platform is perceived to be ineffective by rights holders. In those circumstances,

the objectives of the introduction of content management on the HD DTT platform, namely ensuring the broadest range of content being made available, would not be achieved.

- 4.28 The BBC also argues in sections 3.3.2.D and 3.3.3.A of its submission that when consumers choose an HD DTT receiver they are more likely to take account of greater flexibility afforded by receivers without content management rather than the longer term implications for the breadth of HD content available to them when they make purchases. As a result, consumers would not specifically opt for receivers containing content management technology in order to protect the content available on the DTT platform. There is therefore a risk that allowing individual consumer choice alone to determine whether or not content management should be included in HD DTT receivers would not lead to the best outcome for the platform, and therefore viewers, as a whole.

#### 4.4 The BBC's proposed multiplex licence amendment for securing effective content management on DTT

- 4.29 This section considers whether, assuming that content management is a necessary and desirable objective and FreeviewHD trademark compliance would be insufficient to deliver this outcome, the BBC's proposed licence amendment would be the most proportionate means of achieving the delivery of effective content management on the HD DTT platform.
- 4.30 The BBC has considered a number of different options to achieve its objective of ensuring an effective content management system on the DTT platform. In assessing the merits of these different options there are a number of relevant factors to consider including:
- 4.30.1 Whether the solution represents the *minimum* necessary level of intervention needed in the receiver market to secure this objective;
  - 4.30.2 Whether the solution will impact on the cost of receivers;
  - 4.30.3 Whether the solution can be implemented in a *sufficiently short timescale* to prevent receivers entering the mass market without content management.
- 4.31 The options considered by the BBC are summarised in the table below.

Option	Approach
1	No content management (the potential need for content management was considered in section 4.2)
2	Use of FreeviewHD trademark is dependent on implementation of D-Book Content Management requirements (i.e. the counterfactual considered in section 4.3)
3	Use of HD EPG data is dependent on implementation of D-Book Content Management requirements (the BBC's proposed licence amendment)
4	Implementation of D-Book Content Management requirements mandated through regulation

5	Access to HD channels dependent on implementation of D-Book Content Management requirement (implemented by encrypting HD content)
6	Functional requirements for Copy Management are defined, but not the specific technologies. Implementation mechanisms based on options 3-5 above.

### ***Option 1: No content management***

4.32 This option is considered in section 4.2 of this document. Ofcom's current view on this option is that there is an increasing likelihood that rights holders will demand content management to preserve the monetisation windows for their HD content on different distribution media in different geographical areas. If content management is not provided on DTT for HD content it will be the only major digital TV platform not to do so, and there is a risk that rights holders would be less willing to offer their content on DTT in the same distribution windows and on the same commercial terms as on other platforms. This creates a risk that the HD service offer on DTT will become less attractive to consumers and citizens which could:

4.32.1 threaten its important role in ensuring that everyone in the country has access to PSB content free to air;

4.32.2 reduce the consumer demand and economies of scale for HD receivers, increasing their prices for consumers.

4.33 For these reasons it is Ofcom's current view is that content management is a justified objective for the DTT platform that would broaden the range of HD content available to citizens and consumers and help secure its future viability as a platform.

### ***Option2: Reliance on the FreeviewHD trademark for the inclusion of content management in receivers***

4.34 This option is considered in section 4.3 of this document. Ofcom's current view on this option is that the FreeviewHD trademark is unlikely to prevent the sale of HD DTT receivers without content management and this is likely to make the content management system on DTT to be considered by rights holders as less effective than those on other competing digital TV platforms, which could lead to reduction in the range of HD free to air content available on DTT compared to other platforms. This would reduce the attractiveness of the content provided by broadcasters to consumers on the DTT platform, reducing sales of HD DTT receivers and threatening its longer term viability as the means by which we ensure that everyone in the country has access to PSB content free to air.

### ***Option 3: Multiplex licence amendment (the BBC's proposal)***

4.35 This option is considered in section 4.4 of this document. This approach provides an additional incentive to the FreeviewHD trademark for manufacturers to include content management in HD DTT receivers, by restricting access to EPG data to receivers which implement content management. Ofcom's current view it that this approach appears to us to be the most appropriate means for preventing receivers without content management entering the market for the full commercial launch of HD services on DTT, and securing the benefits of a wider range of HD content.

- 4.36 However this option would remove the ability of consumers to purchase receivers which do not impose restrictions on how HD content delivered on DTT can be used and copied. We believe that the benefits of securing a wider range of HD content would outweigh the disadvantages of consumers being unable to purchase a receiver without content management because:
- 4.36.1 the small reduction in the price of receivers without content management would be typically less than £1 per receiver, based on the anticipated licensing costs for the content management technology, which is likely to be more than offset by the consumer benefits of having access to a wider range of content on the HD DTT platform over the lifetime of the receiver;
  - 4.36.2 the conditions which Ofcom would attach to any approval under an amended Multiplex B Licence would ensure that consumer rights to use and copy content are protected. This would significantly reduce the consumer benefits of being able to access content on a receiver without content management. Ofcom's current intention is to make the BBC's commitments aimed at protecting consumers rights to use and copy content a condition of it being able to restrict the availability of EPG data for the purpose of securing content management;
- 4.37 If the BBC proposal were implemented, HD DTT receivers which did not contain copy management would be unable to provide an EPG for HD services. This would therefore reduce their attractiveness to consumers and therefore reduce the number of such receivers purchased. As a result, there would be a potentially greater number of HD DTT receivers containing content management and a greater level of protection offered to rights holders. The BBC therefore argues that its proposal would be sufficient to ensure that effective content management is implemented on the HD DTT platform so as to ensure that rights holders would supply a full range of HD content.
- 4.38 However, there is a risk that the BBC's Huffman Codes will become known to manufacturers who do not take a licence from the BBC but provide receivers without content management. In this instance the BBC could in principle be able to take action against the manufacturers of this equipment for the unauthorised use of its Huffman Code IPR.

#### **Option 4: HD content encryption**

- 4.39 As with the *multiplex licence* approach, this approach seeks to provide an additional incentive for manufacturers to include content management in HD DTT receivers, in addition to the FreeviewHD trademark, by restricting access to HD programmes to receivers which implement content management. This is achieved by encrypting the HD content and only allowing this content to be decrypted on receivers which implement content management.
- 4.40 This approach would be potentially technically more robust and difficult to circumvent by manufacturers wanting to offer full receiver functionality without content management than the restriction of HD EPG data. This is because the restriction of EPG data relies on keeping Huffman Code look up tables secret from third parties who have not taken a licence from the BBC to use these codes, whereas content encryption relies on content scrambling and Conditional Access technology which has proven to be sufficiently robust for Pay TV platforms.
- 4.41 However, this approach has three potential disadvantages compared with option 3:

- 4.41.1 content is currently required to be broadcast in a free to air format on DTT;
  - 4.41.2 it would increase the price of receivers as they would need to support both content management and content encryption technologies;
  - 4.41.3 the majority of HD DTT receivers currently under development for the full commercial launch of HD services on DTT in first half of 2010 do not support content decryption but are compatible with Huffman coding approach required under the BBC's proposal (option 3).
- 4.42 In view of these disadvantages, we believe that HD content encryption would be a much less attractive option than the BBC's proposed approach for securing an effective content management system on DTT.

***Option 5: Direct regulatory intervention in the receiver market***

- 4.43 As with the BBC's proposed approach (option 3) and the content encryption approach (option 4), this approach seeks to provide an additional incentive for manufacturers to include content management in HD DTT receivers, in addition to the FreeviewHD trademark. This would be achieved through regulation that requires content management to be included in receivers.
- 4.44 However, Ofcom has not been granted those powers by Parliament and is not therefore in a position to mandate the use of content management or to regulate its implementation by receiver manufacturers.
- 4.45 The potential benefits this approach would bring to consumers, broadcasters and receivers manufactures by enabling the availability of wider range of content on the DTT platform would be the same as those for the BBC's proposed approach (option 3) but the likely delay this approach would cause to the commercial launch of HD services on the DTT platform would delay the ability of these stakeholders to secure these benefits.

***Option 6: Content management required in receivers but the required content management standards are not specified***

- 4.46 In this option, manufacturers would be required to implement content management using either options 3, 4 or 5 but are given freedom over which copy management technologies to use. We believe that this option would be less attractive than options 3, 4 and 5, where the copy management technology standards are specified by the DTG D Book. This is because whilst giving freedom to manufacturers to use different copy management technologies may promote innovation and appears less interventionist, it is also more likely to lead to consumer disadvantages resulting from incompatibility and usability issues between different pieces of consumer equipment and higher prices due to a lack of economies of scale in equipment development.

***Ofcom's preliminary view on whether the BBC's proposed licence amendment would be the most appropriate means for securing an effective content management system on HD DTT***

- 4.47 Ofcom has considered the merits of these different options in terms of their impact on consumers, broadcasters and receiver manufacturers. A summary of this assessment is provided in the table below.

## Content management on the HD Freeview platform

Option	Impact on cost of receivers	Impact on range of content	Compatible with full commercial launch of HD DTT services
1. No content management required in receiver specifications	Potential increase due to reduced economies of scale for HD receivers caused by reduced range of attractive content.	Range of HD content limited	Yes
2. Content management required by FreeviewHD trademark (the counterfactual)	<£1 additional cost for content management	Range of HD content limited	Yes
3. EPG data limited to receivers with content management (the BBC's proposed licence amendment)	<£1 additional cost for content management	Wider range of HD content	Yes
4. Content management required in receivers by legislation	<£1 additional cost for content management	Wider range of HD content	No
5. Content encrypted and access limited to receivers with content management	>£1 additional cost for content management and content encryption	Wider range of content	No
6. Content management required in receivers using options 3,4 or 5 but content management technologies unspecified	>£1 additional cost content management due to a lack of economies of scale	Range of HD content limited	Yes (if used with option 3) No (if used with options 4 or 5)

- 4.48 Ofcom's currently preferred option for securing an effective content management system on DTT is the BBC's proposed licence amendment (option 3). We believe that this option would secure the associated benefits of a wider range of content on the DTT platform for consumers, broadcasters and receiver manufacturers and would also have the least detrimental impacts on these stakeholders.

*Q2: Do you agree that the BBC's proposed multiplex licence amendment represents the most appropriate means for securing an effective content management system on HD DTT?*

- 4.49 Ofcom's current view is that it would be appropriate to amend the Multiplex B Licence to give effect to the BBC's proposal that the provision of EPG data may be restricted in order to give effect to content management. As set out in Ofcom's letter of 3 September 2009, Ofcom therefore proposed to amend the Multiplex B Licence by adding at the end of Condition 6 the following new provision:

“(8) Nothing in this Condition 6 is to be construed as preventing the Licensee from entering into arrangements for the protection of intellectual property rights in High Definition television services where such arrangements have been approved by Ofcom in writing”.

- 4.50 Ofcom considers that the wording of this amendment would give effect to the preliminary conclusion set out in paragraph 4.49 above by allowing the BBC to submit proposals for the restriction of access to EPG data for the purposes of delivering effective content management to Ofcom for approval. Under the wording of the amendment, access to EPG data could only be restricted for the purposes of delivering content management and the detail of any restriction would be subject to Ofcom approval.

*Q3: Do you agree with the proposed change to Condition 6 in the Multiplex B Licence?*

#### **4.5 Impact of the BBC's content management proposals on other multiplex operators**

- 4.51 On the DTT platform, EPG data is required to be cross carried on the different multiplexes to allow viewers to access the listing details of programmes available on other multiplexes without having to retune their receiver to another multiplex.
- 4.52 It is a current requirement of the Multiplex B, C and D licences that they cross carry the EPG data for services on the other DTT multiplexes and that this is provided in an open format. If Multiplex B were granted an amendment to its licence to permit it to provide EPG data in a closed rather than open format then the operators of Multiplexes C and D would also need to be granted a similar amendment to permit them to offer cross carried EPG data in a closed format. The current terms of the Multiplex 2 and A licences do not require that EPG data is provided in an open format.
- 4.53 We understand that the additional cost of other multiplex operators that would need to provide cross carried HD EPG data using Huffman coding rather than the current open standard DVB approach, as a consequence of the BBC's proposed amendment to the Multiplex B licence, would be negligible. In addition, Huffman Coding compresses EPG data before transmission and reduces the amount of multiplex capacity needed to deliver EPG data, freeing up capacity for use by other multiplex services.
- 4.54 Ofcom, therefore proposes that if the change described in paragraph 4.49 is granted to Multiplex B licence that this change should also be granted to Multiplexes C and D.

*Q4: Do you agree that Multiplexes C and D should be granted a similar amendment to their Licences as Multiplex B?*

## Section 5

# The BBC's detailed plans for implementing the multiplex licence amendment

- 5.1 This section takes as its starting point an amendment to the Multiplex B Licence in the form set out at paragraph 4.49 for the reasons set out in section 4. Should this be the case, the BBC would be able to put forward proposals to Ofcom for approval requesting a derogation from the requirement in Condition 6 of the Multiplex B Licence to make EPG data freely available. Those specific proposals would need to be approved by Ofcom before the BBC was able to offer EPG data in a closed rather than open format for the purposes of securing an effective content management system.
- 5.2 The specific proposals made by the BBC in its submission relating to the application of the multiplex licence amendment include:
  - 5.2.1 The content management states it intends to permit broadcasters to apply to HD programmes and how these different states would impact on the ability of citizens and consumers to use the content;
  - 5.2.2 The restrictions it intends to apply on the use of these different management states for different categories of HD content;
  - 5.2.3 The steps it intends to take to ensure that consumers can continue to make legitimate use of HD content when content management is applied;
  - 5.2.4 Its intention to licence its Huffman Code look-up tables on a royalty-free basis and on fair, reasonable and non-discriminatory (FRND) terms to any party who undertakes to comply with the content management standards agreed and specified by the Digital Television Group;
  - 5.2.5 The specific content management technologies it would require receivers to implement under the terms of its Huffman Code look-up table licence;
  - 5.2.6 That the licence holders for Multiplexes C and D, which carry a similar requirement to Multiplex B to provide EPG data in an open format, be also granted a similar licence amendment to allow EPG data to be broadcast in a closed format.
- 5.3 We now consider the detail of these proposals and how these would impact on;
  - 5.3.1 The legitimate use and copying of HD content delivered on DTT by citizens and consumers;
  - 5.3.2 The cost of HD receivers and their interoperability with other equipment;
  - 5.3.3 Competition in the receiver market;
  - 5.3.4 Other HD broadcasters on DTT;

## 5.3.5 Other DTT multiplex operators.

**5.1 The impact of content management on the ability of citizens and consumers to make legitimate use of content**

- 5.4 We have explored the potential consumer benefits of content management broadening the range of HD content available on DTT in section 4.2. Content management can also have a potentially negative impact on consumers if it is used to place inappropriate restrictions on how consumers can record, use and copy HD content that impinge on their ‘fair dealing’<sup>17</sup> rights under copyright law.
- 5.5 In Appendix 2 of its submission the BBC provides a summary of how citizens and consumers would be able to make use of HD content delivered on DTT when content management is applied. Under the BBC’s proposals, broadcasters would be able to allocate one of three content management states to individual HD programmes:
- 5.5.1 *Unrestricted copy*: the digital receiver output is unencrypted and unrestricted copies of HD content can be made onto any digital device. There are no restrictions imposed on internet distribution.
- 5.5.2 *Multiple copy*: the digital receiver output is encrypted and unrestricted copies of the content can be made onto digital devices that are compatible with the copy management technology. Internet distribution is not permitted.
- 5.5.3 *Managed copy*: the digital receiver output is encrypted and only one copy of the content can be made onto a DVR and one external digital device which is compatible with the copy management technology. Internet distribution is not permitted.
- 5.6 In all three content management states:
- 5.6.1 HDCP is applied to the HD display output on receivers;
- 5.6.2 No restrictions are placed on consumer recordings of HD programmes onto integrated Digital Video Recorders;
- 5.6.3 No restrictions are placed on down converted SD versions of HD content;
- 5.6.4 No restrictions are placed on the number of times copies HD content can be accessed and period of time it can be stored for.
- 5.7 This means that under the most restrictive content management state *managed copy*, consumers would be able to make a recording of HD content onto a DVR and copy it once onto another device such as a Blue-ray DVD recorder. In sections 1.4 and 2.2.4 of its submission the BBC argues that it believes this approach would not impact on the legitimate consumer use of HD free to air content delivered on DTT.
- 5.8 A further potential drawback of using content management is that it has the potential to cause consumer confusion if the content management states applied to different

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<sup>17</sup> Although not characterised as such, “fair dealing” rights as an exception to the general rules on use of copyright material are contained in Chapter III of the Copyright, Designs and Patents Act 1988, in particular section 70.

HD programmes restrict the use of the content in ways that are not clearly communicated and understood by consumers.

- 5.9 In section 2 of its submission the BBC proposes a number of commitments aimed at safeguarding consumers legitimate right to use HD content delivered on DTT and ensuring that its application is understood by consumers. These include:
- 5.9.1 An undertaking that the BBC will respect current usage protections under copyright law and any future extension of these protections, such as those recommended by the Gower's Review of Intellectual Property<sup>18</sup>;
  - 5.9.2 A commitment to establishing an "appeals" process whereby viewers who believe their lawful usage is being impinged by the BBC's use of content management can raise their concerns to the BBC, rather than having to write to the Secretary of State, which is the current legal requirement;
  - 5.9.3 A commitment to work with the other public service broadcasters to create a 'user friendly' consumer guide to content management which would be published on their websites and made available to manufacturers and retailers;
  - 5.9.4 A commitment to facilitate discussions between broadcasters, manufacturers, relevant industry bodies and consumer groups to develop and implement a good practice framework for the use of content management on the HD Freeview platform.
- 5.10 Ofcom's preliminary view is that the BBC's undertaking to respect current content usage protections under copyright law would ensure that citizens and consumers could legitimately use and copy HD content delivered by the BBC on DTT if content management were applied to the content. It is also our view that any future extension of the rights of consumers to access and copy content, such as those recommended by the Gower's Review of Intellectual Property would also be protected by the BBC's commitments.
- 5.11 Ofcom also considers that the BBC's proposal to create an "appeals" process whereby viewers who believe that their lawful usage is being impinged by the BBC's use of content management could raise their concerns directly with the BBC, rather than having to write to the Secretary of State, would provide consumers with a much more convenient and practical means for resolving these types of issue.
- 5.12 In addition, Ofcom's preliminary view is that the BBC's proposed commitment to work with other public service broadcasters to create a 'user friendly' consumer guide to content management would help prevent consumer confusion over how different content management states applied to HD programmes restrict their use of the content.
- 5.13 Ofcom considers that a similar approach to that proposed by the BBC in paragraphs 5.9.1, 5.9.2 and 5.9.3 would also need to be adopted by the other free to air HD broadcasters on Multiplex B to ensure that adequate consumer protection is provided for the consumer use of all HD content to which content management is applied. We therefore welcome the BBC's proposed commitment in paragraph 5.9.4 to facilitate

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<sup>18</sup> [http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/d/pbr06\\_gowers\\_report\\_755.pdf](http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/d/pbr06_gowers_report_755.pdf); see, for example, Recommendation 8 which proposes new copyright provisions which would allow format shifting.

discussions between broadcasters, manufacturers, relevant industry bodies and consumer groups to develop and implement a good practice framework for the use of content management on the HD Freeview platform.

- 5.14 Ofcom's preliminary view is that these proposed commitments by the BBC appear to potentially sufficient to safeguard the current and future legitimate use of HD content delivered on DTT by citizens and consumers, provided they are also supported and implemented by the other free to air HD broadcasters on Multiplex B. Our current intention would be to require that the BBC implements all of the commitments in paragraphs 5.9.1, 5.9.2, 5.9.3 and 5.9.4 before it could broadcast EPG data in a closed format under a licence amendment.
- 5.15 We are also of the view that in order to maximise benefits for citizens and consumers broadcasters should apply the minimum necessary level of content management needed to secure HD content from rights holders even if greater content management restrictions would be compatible with copyright law. Ofcom's current intention is to make a requirement of the BBC being able to broadcast EPG data in a closed format under a licence amendment, that the free to air HD broadcasters on Multiplex B must only apply the minimum level of content management needed to secure content from rights holders.

*Q5: Do you agree that the BBC's proposed approach for implementing content management would safeguard citizens and consumers legitimate use of HD content, and if not, what additional guarantees would be appropriate?*

## **5.2 Impact of the choice of content management technologies on the cost and interoperability of HD DTT receivers**

- 5.16 The BBC proposes that the content management technology which will be required in order to obtain a licence for the Huffman codes will be that currently set out by the DTG in the D-Book. The content management system specified by the DTG is set out in the DTG D-Book v6.1 specifications and includes four industry-standard content management technologies:
- 5.16.1 High-bandwidth Digital Content Protection (HDCP): this encrypts the HD display output on HD receivers. To view the HD pictures a HDCP compatible display must be used to decrypt the signals.
- 5.16.2 Digital Transmission Content Protection (DTCP): this can be used to encrypt the HD receiver outputs used to connect to other digital devices in a home network. Where encryption is used HD content can only be accessed on devices which support DTCP;
- 5.16.3 Advance Access Content System (AACS): this is used to encrypt and manage the copying of HD content onto Blu-ray DVD.
- 5.16.4 AES-128 or triple DES encryption: these are used to encrypt and bind to the receiver time-shifted content recorded on removable hard drives, USB memory sticks and flash memory cards.
- 5.17 The first of these standards, HDCP, would be required in all receivers and applies content management to receiver outputs connecting to a HD display. The BBC claims in section 2.1 of its submission that this standard is already included in all HD Ready TV sets and Freesat, Sky HD and Virgin Media receivers. As a consequence

the BBC claims that the additional development costs for manufacturers of including HDCP in HD receivers would be negligible.

- 5.18 Whilst HDCP is compatible with HD Ready sets, a proportion of early generation HD sets which do not carry the HD Ready logo may not be compatible with HDCP. These sets would be unable to view HD content if HDCP is applied. However, these displays are also be unable to display similar free to air HD services delivered on Freesat, Sky HD and Virgin Media cable which apply HDCP.
- 5.19 The remaining three content management technologies (DTCP, AACS and AES-128 /or triple DES encryption) would only need to be required in more advanced receivers that provide an integrated storage device and a digital HD output for the transfer of HD copies from this storage device to external devices. The BBC claims in section 2.1 of its submission that the cost of implementing these content management systems in these higher end HD DTT receivers will have a negligible impact on their cost to consumers and notes that the licensing cost for DTCP is in the range of \$0.02 to \$0.10 per device.
- 5.20 The signalling approach used to flag the content management status of different HD programmes in the multiplex transmission is based on a Europe wide approach developed by the Digital Video Group (DVB). However, the BBC claims in section 2.1 of its submission that there has not been enough time to agree this fully on a pan-European basis and meet the timetable for the full commercial launch of HD DTT services and receivers in Q1/Q2 2010.
- 5.21 Ofcom's current view is that the BBC's choice of content management technologies are aligned with the content management technologies being developed and adopted internationally, and that these are likely to have only a negligible impact on the consumer cost of receivers. We are also of the view that these technologies would be interoperable with the vast majority of HD consumer equipment.

*Q6: Do you agree that the BBC's proposed choice of content management technologies will have only a negligible impact on the cost of HD DTT receivers and their interoperability with other HD consumer equipment?*

### **5.3 The impact of the BBC's content management proposals on competition in the receiver market**

- 5.22 There are a number of factors to consider in assessing the impact of the BBC's proposal on the impact of competition in the receiver market, including:
- 5.22.1 Is the BBC's proposed intervention in the receiver market justified?
- 5.22.2 Would the BBC's proposed intervention favour certain manufacturers over others?

#### **Is the effect of the BBC's proposals on the receiver market justified?**

- 5.23 Ofcom's preliminary view is that the effect of the BBC's proposals on the receiver market is justified since, in the absence of the implementation of content management by means of the route proposed by the BBC, it is likely (as considered in section 4.3) that the market would fail to deliver the widest range of HD content and hence maximum benefits to citizens and consumers who have purchased a HD DTT receiver.

- 5.24 It is also our preliminary view that the ability to restrict the availability of EPG data to receivers which implement content management, represents the most appropriate means for securing the benefits of a wider range of HD content for citizens and consumers (as considered in section 4.4).

#### **Would the BBC's proposals favour some equipment manufacturers over others?**

- 5.25 The BBC's claims in section 3.3.4 of its submission that if a standardised content management system is required in all receivers that this would provide a level playing field between competing products.
- 5.26 The BBC proposes to licence its Huffman Code look-up tables on a royalty-free basis and on fair, reasonable and non-discriminatory (FRND) terms to any party who undertakes to comply with the content management standards agreed and specified by the Digital Television Group. These include consumer electronics manufacturers and also organisations wishing to use the Huffman Codes as part of a receiver system incorporating Open Source software.
- 5.27 The BBC considers that, given that it is prepared to offer a licence on this basis, its actions will have little effect, if any, on competition in the receiver market. It is of the view that, since all manufacturers will be able to access Huffman Codes in this way, and the costs of implementing content management are negligible, no manufacturer will be placed at a competitive disadvantage. All manufacturers will therefore be able to offer an HD DTT receiver with full EPG functionality.
- 5.28 A category of HD DTT products that might be potentially impacted by the BBC's licensing Huffman Code look-up table licensing approach is products that incorporate Open Source software. The licensing terms for Open Source software typically require that this software is made freely available to others to use, which may be incompatible with and the licensing terms of the BBC's Huffman Code look-up tables. This issue appears to have been addressed by HD Freesat receivers that use Linux Open Source software and implement similar content management technologies that would be required by the BBC's Huffman Code look-up table licence.
- 5.29 Ofcom's preliminary view is that the BBC's proposed FRND licensing approach for its Huffman Code look-up tables, and that the terms of these licences will require the inclusion of the same content management technologies in receivers is likely to provide a level playing field between different receiver manufacturers. It is also our view that the availability of Freesat receivers that incorporate Open Source software and implement similar content management technologies to those proposed for the DTT platform, that the BBC's proposed Huffman Code licensing approach is unlikely to prevent similar receivers incorporating Open Source software from being made available to consumers on DTT.

*Q7: Do stakeholders agree that the BBC's proposed Huffman Code licensing arrangements would have a negligible effect on the market for HD DTT receivers?*

#### **5.4 Impact of the BBC's content management proposals on other HD DTT broadcasters**

- 5.30 The level of content management that is permitted to be applied to different categories of HD content may be different for the BBC, advertising and Pay TV funded broadcasters.

- 5.31 Under the BBC's proposal, broadcasters can allocate one of three content management states to individual HD programmes:
- 5.31.1 *Unrestricted copy*: the digital receiver output is unencrypted and unrestricted copies of HD content can be made onto any digital device. There are no restrictions imposed on internet distribution.
  - 5.31.2 *Multiple copy*: the digital receiver output is encrypted and unrestricted copies of the content can be made onto digital devices that are compatible with the copy management technology. Internet distribution is not permitted.
  - 5.31.3 *Managed copy*: the digital receiver output is encrypted and only one copy of the content can be made onto a DVR and one external digital device which is compatible with the copy management technology. Internet distribution is not permitted.
- 5.32 The BBC proposes to adopt rules developed by the Digital Television Licensing Authority (DTLA)<sup>19</sup>, who own the copy management technology IPR, for which of these three content management states can be applied to different categories of HD content. In summary these:
- 5.32.1 Restrict the use of the *managed copy* state to HD content that has only been previously available on a paid-for basis or which is having its first free-to-air showing in the UK and is available outside the UK on a paid-for basis;
  - 5.32.2 Allow the *multiple* and *unrestricted copy* states to be applied to any HD content.
- 5.33 In all three content management states:
- 5.33.1 HDCP is applied to the HD display output on receivers;
  - 5.33.2 No restrictions are placed on consumer recordings of HD programmes onto integrated Digital Video Recorders;
  - 5.33.3 No content management restrictions are placed on down converted standard definition versions of the HD content.
- 5.34 Ofcom's is seeking views from stakeholders as to whether the HD content management states proposed by the BBC and their permitted use for different categories of HD content adequately meet the requirements of other DTT broadcasters, before reaching a conclusion on this aspect of the BBC's proposals.
- 5.35 Ofcom's view is also that free to air HD broadcasters on Multiplex B should seek to apply the minimum necessary level of content management to HD programmes to prevent undue restrictions being placed on legitimate use of content by citizens and consumers.

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<sup>19</sup>A summary of the DTLAs licensing rules can be found at the following link:  
<http://www.dtcp.com/data/Notice%20of%20DTCP%20Encoding%20Rules%20for%20UK%20HD%20DTT%20%202009-12.pdf>

*Q8: Do the BBC's proposed content management states and their permitted use for different categories of HD content meet the requirements of other HD broadcasters on DTT?*

## Section 6

# Ofcom's preliminary conclusion

- 6.1 In view of the fuller submission provided by the BBC, which appears to address many of the concerns raised by respondents to Ofcom's first consultation, Ofcom is minded to approve in principle its request for a multiplex licence amendment subject to consultation responses, on the basis that copy management is a justified objective which ensures the broadest range of content for consumers and the means of implementation appears to us to be proportionate to that aim.
- 6.2 More specifically, Ofcom is currently persuaded that the HD DTT platform risks being placed at a disadvantage by comparison with other platforms if it is unable to provide a copy management system that is perceived by rights holders as being equally effective as those used on other digital TV platforms, and that this would threaten its important role in ensuring that everyone in the country has access to PSB content free-to-air.
- 6.3 We are also currently persuaded that compliance with the FreeviewHD trademark alone would not deliver the objective sought and therefore the content management system on DTT could be perceived by rights holders as being less effective than that on competing platforms and that this could impact on the range of HD content that can be made available on DTT to citizens and consumers.
- 6.4 Because content management can potentially have a negative as well as a positive impact on consumers and citizens, and the BBC's proposed intervention for securing content management may impact on competition in the receiver market and on competition between DTT broadcasters, we intend to attach conditions to any approval under the amended Multiplex B Licence of the encryption of EPG data. These will include:
- 6.4.1 that the BBC will respect current usage protections under copyright law and any future extension of these protections, such as those recommended by the Gower's Review of Intellectual Property<sup>20</sup>;
  - 6.4.2 that the BBC will establish an "appeals" process whereby viewers who believe their lawful usage is being impinged by the BBC's use of content management can raise their concerns to the BBC, rather than having to write to the Secretary of State, which is the current legal requirement;
  - 6.4.3 that the BBC creates with other public service broadcasters a 'user friendly' consumer guide to content management which would be published on their websites and made available to manufacturers and retailers;
  - 6.4.4 that the BBC facilitates the development of a best practice framework for the use of content management on DTT in discussion with broadcasters, manufacturers, relevant industry bodies and consumer groups;
  - 6.4.5 that the BBC is only able to require content management technologies in receivers that form part of the DTG specifications;

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<sup>20</sup> [http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/d/pbr06\\_gowers\\_report\\_755.pdf](http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/d/pbr06_gowers_report_755.pdf); see, for example, Recommendation 8 which proposes new copyright provisions which would allow format shifting.

- 6.4.6 that the BBC licenses its Huffman Code look-up tables on a royalty-free basis and on fair, reasonable and non-discriminatory (FRND) terms to any party who undertakes to comply with the content management standards agreed and specified by the DTG;
- 6.4.7 that content management cannot be applied to SD content, and down converted SD versions of HD content;
- 6.4.8 that no restrictions are placed on the recording of HD content onto an DVR which is integrated with a receiver;
- 6.4.9 that only the three proposed content management states: unrestricted copy, multiple copy and managed copy can be applied to free to air HD content;
- 6.4.10 that free to air HD broadcasters only apply the minimum level of content management needed to secure HD content from rights holders.

*Q9: Are there any issues that you consider Ofcom should take into account in assessing the BBC's proposal, that have not been addressed by this consultation?*

## Annex 1

# Responding to this consultation

## How to respond

- A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made **by 5pm on 2 April 2010**.
- A1.2 Ofcom strongly prefers to receive responses using the online web form at [http://www.ofcom.org.uk/consult/condocs/content\\_mngt/](http://www.ofcom.org.uk/consult/condocs/content_mngt/), as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.
- A1.3 For larger consultation responses - particularly those with supporting charts, tables or other data - please email [High-Definition\\_DTT@ofcom.org.uk](mailto:High-Definition_DTT@ofcom.org.uk) attaching your response in Microsoft Word format, together with a consultation response coversheet.
- A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.
- David Harrison  
Floor 6  
Dept Strategy and Market Developments  
Riverside House  
2A Southwark Bridge Road  
London SE1 9HA
- Fax: 020 7981 3706
- A1.5 Note that we do not need a hard copy in addition to an electronic version. Ofcom will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.
- A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 4. It would also help if you can explain why you hold your views and how Ofcom's proposals would impact on you.

## Further information

- A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact David Harrison on 020 7981 3794.

## Confidentiality

- A1.8 We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually 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.

- A1.9 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.
- A1.10 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/accoun/disclaimer/>

### Next steps

- A1.11 Following the end of the consultation period, Ofcom intends to publish a statement in May 2010.
- A1.12 Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details please see: [http://www.ofcom.org.uk/static/subscribe/select\\_list.htm](http://www.ofcom.org.uk/static/subscribe/select_list.htm)

### Ofcom's consultation processes

- A1.13 Ofcom seeks to ensure that responding to a consultation is easy as possible. For more information please see our consultation principles in Annex 2.
- A1.14 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at [consult@ofcom.org.uk](mailto:consult@ofcom.org.uk) . We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.
- A1.15 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Vicki Nash, Director Scotland, who is Ofcom's consultation champion:

Vicki Nash  
Ofcom  
Sutherland House  
149 St. Vincent Street  
Glasgow G2 5NW

Tel: 0141 229 7401  
Fax: 0141 229 7433

Email [vicki.nash@ofcom.org.uk](mailto:vicki.nash@ofcom.org.uk)

## Annex 2

# Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

### Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

### During the consultation

A2.3 We will be clear about who we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened Plain English Guide for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will consult for up to 10 weeks depending on the potential impact of our proposals.

A2.6 A person within Ofcom will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. Ofcom's 'Consultation Champion' will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why.

### After the consultation

A2.8 We think it is important for everyone interested in an issue to see the views of others during a consultation. We would usually publish all the responses we have received on our website. In our statement, we will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

## Annex 3

# Consultation response cover sheet

- A3.1 In the interests of transparency and good regulatory practice, we will publish all consultation responses in full on our website, [www.ofcom.org.uk](http://www.ofcom.org.uk).
- A3.2 We have produced a coversheet for responses (see below) and would be very grateful if you could send one with your response (this is incorporated into the online web form if you respond in this way). This will speed up our processing of responses, and help to maintain confidentiality where appropriate.
- A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their coversheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.
- A3.4 We strongly prefer to receive responses via the online web form which incorporates the coversheet. If you are responding via email, post or fax you can download an electronic copy of this coversheet in Word or RTF format from the 'Consultations' section of our website at [www.ofcom.org.uk/consult/](http://www.ofcom.org.uk/consult/).
- A3.5 Please put any parts of your response you consider should be kept confidential in a separate annex to your response and include your reasons why this part of your response should not be published. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only, so that we don't have to edit your response.

## Cover sheet for response to an Ofcom consultation

### BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

### CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing	<input type="checkbox"/>	Name/contact details/job title	<input type="checkbox"/>
Whole response	<input type="checkbox"/>	Organisation	<input type="checkbox"/>
Part of the response	<input type="checkbox"/>	If there is no separate annex, which parts?	

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

### DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

Name

Signed (if hard copy)

## Annex 4

# List of consultation questions

*Q1: Do you agree that copy management would broaden the range of HD content available on DTT and help secure its long term viability as a platform?*

*Q2: Do you agree that the BBC's proposed multiplex licence amendment represents the most appropriate means for securing an effective content management system on HD DTT?*

*Q3: Do you agree with the proposed change to Condition 6 in the Multiplex B Licence?*

*Q4: Do you agree that Multiplexes C and D should be granted a similar amendment to their Licences as Multiplex B?*

*Q5: Do you agree that the BBC's proposed approach for implementing content management would safeguard citizens and consumers legitimate use of HD content, and if not, what additional guarantees would be appropriate?*

*Q6: Do you agree that the BBC's proposed choice of content management technologies will have only a negligible impact on the cost of HD DTT receivers and their interoperability with other HD consumer equipment?*

*Q7: Do stakeholders agree that the BBC's proposed Huffman Code licensing arrangements would have a negligible effect on the market for HD DTT receivers?*

*Q8: Do the BBC's proposed content management states and their permitted use for different categories of HD content meet the requirements of other HD broadcasters on DTT?*

*Q9: Are there any issues that you consider Ofcom should take into account in assessing the BBC's proposal, that have not been addressed by this consultation?*

## Annex 5

# Impact Assessment

## Introduction

- A5.1 The analysis presented in this annex represents an impact assessment, as defined in section 7 of the Communications Act 2003 (the Act).
- A5.2 You should send any comments on this impact assessment to us by the closing date for this consultation. We will consider all comments before deciding whether to implement our proposals.
- A5.3 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)
- A5.4 The following impact assessment relates to the BBC's request for a multiplex licence amendment to support its content management plans on the HD DTT platform.

## The citizen and/or consumer interest

- A5.5 The BBC's proposed licence amendment would enable the BBC to restrict the availability of HD EPG data to receivers which implement content management. This it argues will bring benefits to citizens and consumers by extending the range and attractiveness of HD content that broadcasters can make available on DTT. In addition, they argue that this intervention will enable DTT to compete effectively with other digital TV platforms which implement similar content management systems for HD content, helping ensure that it can continue to fulfil its important role in ensuring everyone in the country has access to PSB content free to air.
- A5.6 Content management can also have a potential negative impact on citizens and consumers if:
- it limits the legitimate use of free to air broadcast content;
  - its impact on how content can be used and copied is not clearly understood by citizens and consumers.
- A5.7 The BBC's proposed approach for applying content management on DTT could also have a negative impact on consumers and citizens if it were to unduly limit the range of HD receivers available to consumers in the market.

## Ofcom's policy objective

- A5.8 The overarching objective Ofcom is seeking to achieve in reaching a decision on the BBC's proposed multiplex licence amendment is to ensure that the DTT platform continues to provide the best possible benefits to consumers and citizens who purchase HD DTT receivers and that the BBC's proposal is the most proportionate means for securing these benefits.
- A5.9 In particular we are seeking to ensure that broadcasters on the DTT platform can offer a wide range of attractive content to consumers and citizens so that it can continue to perform its important role of ensuring that everyone in the country has access to PSB content free to air.
- A5.10 The first HD services launched on DTT on 2 December 2009 and the full commercial launch of these HD services and HD DTT receivers is expected to occur in the first half of 2010. In order to be effective in ensuring receivers entering the market are equipped with content management the BBC's proposed licence would need to be implemented in time for this full commercial launch.
- A5.11 There are a number of different potential options for implementing content management on DTT that have been considered by the BBC including:
- *No licence amendment:* here compliance with the FreeviewHD trademark, which currently requires the inclusion of content management in receivers, is the only mechanism used to encourage the adoption of content management in receivers entering the market;
  - *Multiplex licence amendment (the BBC's proposal):* here the restriction of EPG data to HD receivers which implement content management is used to provide an additional incentive beyond the FreeviewHD trademark for content management to be included in receivers;
  - *HD content encryption:* here PSB and other HDTV broadcast content are encrypted and can only be decrypted on receivers that support content management.
  - *Direct regulatory intervention in the receiver market:* here receivers are required by regulation to implement content management.
  - *Content management required but the content management technologies are unspecified:* here manufacturers are provided with an additional incentive to implement content management in their receivers using one of the licence amendment, HD content encryption or direct regulatory intervention approaches but manufacturers are free to choose which content management technologies to implement.

## Analysis of the different options

- A5.12 Ofcom has considered which option would secure the associated benefits of a wider range of content on the DTT platform for consumers, broadcasters and receiver manufacturers and would also have the least detrimental impacts on these stakeholders.

***No multiplex licence amendment (the counterfactual)***

A5.13 This option is considered in section 4.3 of this document. Ofcom's current view is that the FreeviewHD trademark is unlikely to be a sufficient to prevent the sale of a material number of HD DTT receivers lacking content management. As a result, the content management system on DTT is likely to be considered by rights holders as less effective than those on other competing digital TV platforms, which could lead to reduction in the range of HD free to air content they are prepared to make available on DTT compared to other platforms.

**Impact on consumers**

A5.14 Under this approach consumers would be able to purchase receivers without the FreeviewHD trademark that do not implement content management. This could provide two potential benefits to consumers:

- a small reduction in the price of the receivers they purchase. We estimate, that based on the additional licensing cost estimates provided by the BBC for the content management technologies to be included in receivers, that this saving is likely to be negligible and could be less than £1;
- the ability to make unrestricted use and copying of HD content, independent of whether this use is permitted by rights holders.

A5.15 A disadvantage of this approach is that the widespread availability of receivers without content management could reduce the range of content available to consumers on the HD receiver equipment they have purchased. This potentially impacts consumers negatively in two ways:

- it would reduce their access to higher value HD content on both receivers that do and do not implement content management. This loss in the value of content over the lifetime of a receiver is likely to be much greater than the very small price reduction (estimated to be <£1) for a receiver without content management;
- the reduced range of appealing HD content would reduce the take up of HD receivers, reducing receiver equipment economies of scale and increasing receiver prices for consumers.

A5.16 In addition, under this approach there would be no control over how broadcasters could apply content management on receivers which implement content management. This creates a risk that high levels of content management could be applied to HD content, even though, as identified above, the range of that higher value HD content may itself be reduced.

**Impact on broadcasters**

A5.17 The lack of an effective content management system on DTT caused by the availability of receivers without content management would make it more difficult for broadcasters to secure content from rights holders. This has a number of potential associated disbenefits for broadcasters:

- it would reduce the attractiveness of the HD service offer and number of viewers. For commercial broadcasters this would reduce the advertising revenues that they would be able to secure from their HD services;
- it would make it potentially more expensive for broadcasters to secure content from rights holders;
- it may mean broadcasters would be unable to offer the same content on DTT as on other platforms which provide effective content management systems. This may increase broadcaster content acquisition costs;
- it could prevent broadcasters from offering the same TV programme schedules for the same HD TV channels delivered on different platforms. This would increase broadcasters operating costs, who would need to provide different programme streams for the same TV channel on different TV platforms.

#### Impact on receiver manufacturers

A5.18 Manufacturers can provide receivers with full functionality without content management potentially increasing competition in the receiver market. However, the availability of receivers without content management would also reduce the range of attractive HD content available on the DTT platform reducing the value of HD receivers to consumers. This potentially has a negative impact on receiver manufacturers in two ways:

- it would reduce the total number of receivers they are able to sell to consumers since there would be a reduced number of viewers on the DTT platform;
- it would increase the unit production costs as a result of poorer economies of scale.

#### **Multiplex licence amendment (the BBC's proposal)**

A5.19 This option is considered in section 4.4 of this document and provides an additional incentive to the FreeviewHD trademark for manufacturers to include content management in HD DTT receivers, by restricting access to EPG data to receivers which implement content management.

A5.20 Ofcom's current view is that this additional incentive would provide a content management system on the DTT platform that is considered by rights holders to be effective. It is therefore more likely that this approach would enable broadcasters on the DTT platform to secure a wider range of attractive HD content from rights holders than an approach where a licence amendment is not granted as requested by the BBC.

#### Impact on consumers

A5.21 Consumers would benefit under this approach from being able to access a wider range of higher value HD content.

A5.22 However, this option would remove the option for consumers to purchase fully functioning receivers which do not impose any content management restrictions on how HD content can be used and copied.

A5.23 We believe that the potential consumer benefits of being able to purchase receivers without content management would be outweighed by the benefits of being able to access a wider range of content because:

- the saving to consumers of being able to purchase a receiver without content management is likely to be less than £1 per receiver which would be more than offset by the citizen and consumer benefits of having access to a wider range of content on the HD DTT platform over the lifetime of the product;
- the conditions which Ofcom would attach to any approval under an amended Multiplex B Licence, as set out at paragraph 6.4, would ensure that consumer rights to use and copy content are protected and therefore significantly reduce the consumer benefits of being able to access content on a receiver without content management. Ofcom's current intention is to make the BBC's commitments aimed at protecting consumer rights to use and copy content a condition of it being able to restrict the availability of EPG data for the purpose of securing content management.

#### Impact on broadcasters

A5.24 The availability of an effective content management system on DTT would remove the costs to broadcasters (identified in paragraph A5.17) associated with the *no licence amendment* approach.

#### Impact on receiver manufacturers

A5.25 Under this approach manufacturers would be unable to provide receivers that offer full functionality but do not include content management potentially restricting their commercial freedom in the receiver market.

A5.26 However, a requirement that receivers implement content management would also increase the range of attractive HD content available on the DTT platform increasing the value of HD receivers to consumers. This has two potential benefits for receiver manufacturers:

- it would increase the total number of receivers they are able to sell to consumers;
- it would increase the cost savings that they are able to achieve through greater economies of scale.

A5.27 The major manufacturers planning to provide products for the full commercial launch of HD services on DTT this summer are all planning to use the Freeview HD trademark and implement content management. This approach therefore is likely to have no additional impact on the product development plans of these manufacturers.

#### **HD content encryption**

A5.28 As with the *multiplex licence* approach, this approach seeks to provide an additional incentive for manufacturers to include content management in HD DTT receivers, in addition to the FreeviewHD trademark. This would be achieved by encrypting HD programmes and only permitting the content to be decrypted on receivers which implement content management.

A5.29 This approach would be potentially technically more robust and difficult to circumvent by manufacturers wanting to offer full receiver functionality without content management than the restriction of HD EPG data. This is because the restriction of EPG data relies on keeping Huffman Code look up tables secret from third parties who have not taken a licence from the BBC to use these codes, whereas content encryption relies on content scrambling and Conditional Access technology which has proven to be sufficiently robust for Pay TV platforms.

A5.30 However PSB content is currently required to be broadcast in a free to air format on DTT and a significant change to regulation would be required to permit these services to be encrypted. In addition, most of the HD DTT receivers currently under development for the full commercial launch of HD services on DTT in first half of 2010 would be incompatible with a content encryption approach.

#### Impact on consumers

A5.31 This approach would bring the same benefits to consumers of broadening the range of HD content as the *multiplex licence approach*.

A5.32 However this approach has two associated impacts for consumers that would not be incurred with the *multiplex licence approach*:

- it could delay the full commercial launch of HD services on the DTT platform which would delay the benefits consumers are able to gain from accessing HD services;
- it would require the inclusion of decryption technology as well as content management technologies in HD receivers which could increase their costs to consumers.

#### Impact on broadcasters

A5.33 The availability of a content management system on DTT that is considered to be effective by rights holders would bring the same benefits to broadcasters as those identified in the *multiplex licence approach*.

A5.34 However this approach has three associated disbenefits to broadcasters that would not be incurred if the multiplex licence approach were adopted:

- it could delay the full commercial launch of HD services on DTT and the commercial benefits that can be secured by offering these services to consumers;
- in particular, a delay to commercial launch of HD services could undermine the investments currently being made by broadcasters for the advertising launch of Freeview HD services;
- broadcasters would incur additional investment and operating costs to encrypt HD content.

#### Impact on receiver manufacturers

A5.35 Under this approach manufacturers would be unable to provide receivers that offer full functionality but do not include content management reducing their commercial freedom in the receiver market.

A5.36 As with the *multiplex licence* approach, a requirement that receivers implement content management would increase the range of attractive HD content available on the DTT platform increasing the value of HD receivers to consumers. This has two potential benefits for receiver manufacturers:

- it would increase the total number of receivers they are able to sell to consumers;
- it would increase the cost savings that they are able to achieve through greater economies of scale.

A5.37 However, this approach has additional costs for manufacturers that would not be incurred under the licence amendment approach. These are:

- the majority of receiver products that major manufacturers are developing and planning to provide for the full commercial launch of HD services on the DTT platform would not support a content encryption approach. To provide products that are compatible with content encryption they would need to incur additional product development costs and delay the availability of their products in the market;
- they would incur additional component and licensing costs in order to provide the ability to decrypt content in their products.

#### ***Direct regulatory intervention in the receiver market***

A5.38 As with the *multiplex licence* and *content encryption* approaches, this approach seeks to provide an additional incentive for manufacturers to include content management in HD DTT receivers, in addition to the FreeviewHD trademark. This would be achieved through regulation that requires content management to be included in receivers.

A5.39 However, Ofcom has not been granted those powers by Parliament and is not therefore in a position to mandate the use of content management or to regulate its implementation by receiver manufacturers.

A5.40 The potential benefits this approach would bring to consumers, broadcasters and receivers manufacturers would be the same as those for the *multiplex licence* approach but the likely delay this approach would cause to the commercial launch of HD services on the DTT platform would delay the ability of these stakeholders to secure these benefits.

#### ***Content management required in receivers but the content management technologies are unspecified***

A5.41 Here manufacturers are provided with an additional incentive to implement content management in their receivers using one of the licence amendment, HD content encryption or direct regulatory intervention approaches described above but are free to choose which content management technologies to implement.

A5.42 The freedom provided to manufacturers over which content management technologies to implement would potentially increase innovation and competition in the receiver market.

A5.43 However, this approach has a number of significant disadvantages for consumers, broadcasters and receiver manufacturers compared to the BBC's licence amendment proposal where manufacturers would be required to implement the same content management technologies in receivers. These include:

- rights holders are unlikely to consider that the range of unspecified and different content management technologies implemented by manufacturers would provide an effective content management system on the DTT platform. This would result in the same disadvantages to consumers, broadcasters and receiver manufactures as those described under the *no licence amendment* approach;
- the interoperability between HD receiver equipment and other consumer devices would be reduced due to the use of a divergent set of content management technologies. This would reduce the ability of consumers to transfer and copy content onto other devices in cases where this is permitted by the content management system.

### **The preferred option**

A5.44 As set out in section 6 of this document, Ofcom's currently preferred option for securing an effective content management system on DTT is that set out in the BBC's proposals for a licence amendment enabling the restriction of EPG data subject to Ofcom's approval. We believe that this option would secure the associated benefits of a wider range of content on the DTT platform for consumers, broadcasters and receiver manufacturers and would also have the least detrimental impacts on these stakeholders.

## **Annex 6**

# **The BBC's submission and covering letter**

David Harrison  
Strategy and Market Developments  
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2a Southwark Bridge Road  
London  
SE1 9HA

8 December 2009

Dear David,

### **HD on DTT content management proposals**

Thank you for your letter of 9 November 2009, in relation to the proposals for HD on DTT content management. This letter and the attached submission provides BBC Free-to-View Ltd's response to the specific questions raised in Ofcom's letter.

The attached submission sets out:

1. The proposed Freeview HD content management system – and the anticipated benefits of this approach to citizens and consumers, and to the DTT platform;
2. The potential disadvantages of the proposed approach for citizens and consumers – and proposals for how these would be addressed and/or mitigated; and
3. The other potential approaches which could be adopted – and the reasons why these would be unable to deliver better outcomes for citizens and consumers than the proposed approach.

**The role of the BBC in representing the DTT platform**

Under the conditions of the capacity reservation order enacted by Government in July 2008, BBC Free to View Ltd is required to carry commercial PSBs within the capacity assigned to DTT Multiplex B. Currently, Multiplex B provides the only capacity available for the broadcast of HD television services on the DTT platform. If the DTT platform is to build an attractive and competitive HD service offering it is essential that the BBC and the other broadcasters using this capacity are able to offer the best possible range of HD content on this multiplex.

Without an effective content management approach the BBC and commercial PSBs are likely to find it substantially more difficult to acquire HD content for free-to-air broadcast on the DTT platform. This situation would place the DTT platform at a substantial disadvantage relative to all other HD television platforms in the UK, all of which already implement content management controls.

### **The BBC's request to Ofcom**

As set out in Alix Pryde's letter to Greg Bensberg of 27 August 2009, the BBC is seeking to amend Condition 6, paragraph (7) of its multiplex licence so as to permit the carriage of compressed SI EPG (Service Information Electronic Programme Guide) data which relates to the HD content broadcast on Multiplex B. Also, as discussed with Ofcom, the BBC is seeking confirmation that Ofcom would be prepared to make equivalent changes to the Multiplex C and Multiplex D licences, were Arqiva to request such changes, solely in respect of SI EPG data relating to the HD services on Multiplex B which are 'cross-carried' on these multiplexes.

The BBC confirms that the sole purpose of linking access to the Huffman 'Look-Up Tables'<sup>21</sup> to the proposed HD content management system is to secure the best possible range of HD content for broadcast on the DTT platform.

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<sup>21</sup> These Huffman 'Look-Up Tables' provide the information necessary to decompress SI data – as described in Appendix 1 of the attached submission to Ofcom.

The BBC also confirms that it will provide royalty-free licences to access these 'Look-Up Tables' on fair, reasonable and non-discriminatory terms to any party who undertakes to comply with the associated conditions in respect of HD content management. The BBC confirms that all parties seeking to licence access to these 'Look-Up Tables' will be treated equally regardless of whether they are consumer electronics manufacturers or organisations that wish to make use of this functionality within a system incorporating Open Source software, provided that it is clear that the tables themselves would remain the BBC's IPR, which would need to be separately licensed by a subsequent user or developer on terms which ensured the effectiveness of HD content management on the DTT platform.

While the BBC would hope that Ofcom's wider review of this matter can be completed quickly, the importance of giving full consideration of all of the issues raised by responses to Ofcom's previous consultation is understood. The BBC would, of course, be happy to provide any further assistance necessary to support further review of these issues.

Yours sincerely,

Graham Plumb  
Acting Controller, BBC Distribution

## **HD on DTT content management proposals**

### **BBC submission in response Ofcom's letter of 9 November 2009**

#### **1. The anticipated benefits to citizens and consumers, and to the DTT platform, of the proposed approach**

The proposed Freeview HD content management approach will ensure that the platform provides consumers with free-to-air access to the best possible range of HD content.

##### **1.1 Background – HD in the UK**

- There is increasing consumer awareness of and demand for high definition (HD) content. Currently, HD broadcasts are only available in the UK on pay-TV platforms and free-to-air satellite.
- Due to capacity and technology factors, it was not previously possible to deliver HD content on the DTT platform. However, the combination of DVB-T2 technology and the MPEG-4 video encoding standard have recently enabled the development of HD services delivered via the DTT platform.
- Over the last eighteen months, the BBC and industry partners have worked together to deliver a Freeview HD portfolio comprising public service broadcaster (PSB) HD content.
- The number of HD services available to consumers has grown across platforms in the last few years. Additionally, as broadcast content production migrates from standard definition (SD) to HD, other platforms have been able to offer increasingly strong HD schedules.
- To ensure value to all consumers and the opportunity for effective competition it is vital that Freeview HD is also able to offer a wide range and choice of HD content.

## 1.2 The production and acquisition of high quality HD content

- The BBC and other PSBs are committed to making available a wide range of HD content through the new Freeview HD platform.
- The majority of this HD content is likely to be originated by UK production houses and/or directly commissioned by the PSBs. However, to ensure the widest possible choice of content and value for consumers, the PSBs will also acquire HD content which has been produced outside the UK.
- Inevitably, a proportion of this acquired HD content will previously only have been made available for home viewing as pre-recorded media or broadcast on pay-TV platforms. Such acquired HD content is likely to include films, drama and landmark factual material.
- The BBC and other PSBs are also likely to enter into co-production arrangements where HD content will be part-funded by programme makers and other broadcasters who will wish to broadcast this content on pay-TV platforms elsewhere in the world and/or obtain secondary value from sales of pre-recorded Blu-ray sales or 'paid-for' HD content downloads.

## 1.3 Rights-holders' concerns in relation to free-to-air broadcasting

- Rights-holders are concerned that the broadcast of their HD content in any part of the world should not devalue this content in other markets, including secondary usage markets<sup>22</sup>.
- BBC negotiations for the acquisition of UK broadcast rights with individual rights-holders have highlighted concerns in relation to the free-to-air broadcast of their content within the UK (currently via satellite and cable). The BBC is also aware that other PSBs have experienced similar challenges in acquiring HD content from rights-holders.
- To date, it has been possible to alleviate these concerns by making clear that the presence of content management systems on the Sky, Freesat and Virgin Media platforms ensures that HD content cannot easily be copied multiple times or uploaded to the internet.

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<sup>22</sup> 'Secondary usage' rights include sales of Blu-ray discs and the right to sell in other markets (including different windows) and territories. For example, BBC Worldwide has the right to commercially exploit BBC produced content, and production agreements with independent producers with whom the BBC works often grant those parties the right to undertake secondary exploitation of content.

- However, during the course of these negotiations it has been made clear to the BBC by some rights holders that they would be unable to supply certain HD content early in its release ‘window’ to a free-to-air platform which did not provide a content management system. In particular, for content where the rights-holders are generating appreciable revenues from Blu-ray and pay-TV rights sales, they would not want the UK broadcast of this content on the Freeview HD platform to enable widespread unsanctioned internet distribution or multiple copying of this content.
- Similarly, it is also possible that the BBC would find it more difficult to secure co-production funding for high-value HD programmes were there no controls on this content following its broadcast within the UK.

#### **1.4 What is meant by ‘content management’?**

- In the context of the Freeview HD platform, ‘content management’ refers only to the introduction of limited controls on the copying and internet distribution of recorded HD content.
- The proposed system does not apply to standard definition broadcasts and places no restrictions on down-converted standard definition copies of HD content.
- There is absolutely no intention of using the proposed system to place any restrictions on consumers’ legitimate access to and use of HD broadcasts, for example: by encrypting HD video and audio transmissions; or by limiting the period during which HD content can be viewed, or the number of times any recording can be viewed.

#### **1.5 The technology proposed**

- Over the last 18 months the broadcasting and receiver equipment industries have been working in partnership to develop a specification for the next generation of Freeview boxes which will permit the reception of free-to-air HD content. Through this process the BBC, other PSBs and industry stakeholders who participate in the DTG have developed a solution which will deliver the strongest possible Freeview HD content portfolio to consumers, while at the same time

guaranteeing that existing consumer rights to view and record content are preserved.

- At present, no existing DTT receivers are equipped to receive HD broadcasts. However, manufacturers are now in the final stages of testing HD-compatible DTT products, which are expected to become available to consumers from early 2010. Although these first-generation receivers will include content management functionality, the incorporation of these features is linked only to the use of the new Freeview HD trademark.
- These are the key features of the proposed content management system:
  - All HD video and audio content is broadcast unencrypted (free-to-air).
  - Signalling associated with each broadcaster's service identifies the level of content management associated with specific programmes.
  - Receivers respond to this signalling to ensure that appropriate content management is applied to digital outputs, copies of HD content and network interfaces.
  - Even in the most restrictive signalling state a consumer will be able to make: (i) one HD copy of content on an internal (or an associated removable) storage device; plus (ii) one HD copy on another associated and compatible storage device in the consumer's own home or on a recordable Blu-ray disc; plus (iii) unlimited SD copies of content.
- Further details of the framework for deploying the content management technology are set out in Appendix 1. Full details of the functionality available to citizens and consumers in each of the three content management states supported by the Freeview HD platform are set out in Appendix 2.

## **1.6 Benefits to consumers of a standardised content management solution**

- The breadth of content available for consumers to watch via Freeview HD will be constrained without an appropriate degree of content management. In particular, without content management, it is unlikely that PSBs will be in a position to broadcast some acquired HD content

on the Freeview HD platform. This would, clearly, be a disadvantage to consumers.

- The proposed approach ensures that a wide range of content can be made available free-to-air as early as possible following its broadcast release, including content which would otherwise only be made available on pay-TV platforms (i.e. free-to-air content availability 'windows' will be shortened). This will benefit all consumers, as they can enjoy leading-edge content without subscription or the need to purchase this content on Blu-ray, via pay-per-view or as a 'paid-for' download.
- As content management ensures the strongest possible mix of HD content, consumers have an incentive to invest in HD receivers. As the receiver market grows, the range of available devices increases, thereby increasing consumer choice and exerting a downward pressure on equipment prices.
- All consumers benefit – including those watching PSB services on satellite and cable – from consistent schedules across platforms. It would be undesirable and expensive for broadcasters to transmit different HD programming on DTT, satellite and cable platforms, as a direct result of content management concerns relating to Freeview HD. It would also be highly inconvenient for consumers to have to navigate through different HD schedules for the same channels on different platforms.
- It is also anticipated that consumers will benefit from the greater investment in HD content by UK broadcasters and independent producers, which is expected to be partially funded by the value obtained from the commercial exploitation of 'secondary usage' rights.

### **1.7 Benefits to the DTT platform of a standardised content management solution**

- Due to the rapid growth of the HD market, the development and longevity of the Freeview HD platform would be constrained without appropriate content management.

- A strong PSB HD portfolio on Freeview will encourage HD migration across the rest of the DTT platform, thereby supporting the UK broadcast industry's move to HD across all platforms.
- Implementing an appropriate content management system on Freeview HD ensures that the platform is able to compete effectively with other free-to-air and subscription HD platforms.
- Consumers will benefit from the provision of a compelling, competitive and viable alternative to the HD offerings available on other platforms, allowing them to choose the HD platform which best meets their viewing needs.

**In summary, the BBC believes that consumers and Freeview HD will suffer significant detriment if the proposed content management approach is not implemented.**

## **2. Proposal for addressing the potential disadvantages to citizens, consumers and manufacturers associated with the proposed approach**

**The BBC considers that any potential disadvantages to citizens, consumers and manufacturers (examined below) would be offset by the benefits to consumers, the industry and the platform.**

### **2.1 Costs associated with implementing the proposed content management system**

- Content management is, broadly, a software issue rather than a hardware issue. The chipsets used by receivers and digital recorders will have the capability to support: HDCP over HDMI output; AES or triple-DES encryption on storage devices; and DTCP over local area network interfaces.
- Receiver manufacturers have already incorporated these content management technologies into products sold across the world. This suggests that the content management-related software development costs have already been borne by receiver manufacturers, given that these content protection technologies are already deployed on platforms elsewhere. HDCP, for instance, is widely used across the world and is already embedded in every 'HD Ready' television and Virgin Media, Freesat and Sky HD device in the UK.
- As a result there are few incremental development costs for receiver manufacturers arising from the requirements of the Freeview HD proposal. Furthermore, all the technologies other than HDCP will only be required in the more advanced, high-end receivers with copying and export functionality built-in.
- The licensing costs of these various requirements are minimal when viewed as a proportion of total manufacturing costs. For example, DTCP licensing costs range from \$0.02 to \$0.10 per device (depending on volume) relative to total manufacturing and development costs in excess of \$100 per device (for a hard-disk recorder).
- It is likely that broadly the same costs will be incurred by all manufacturers of compliant receivers of a similar functionality. The content management requirement will not, therefore, change the relative position of the various manufacturers and is unlikely to affect competition.
- The proposed content management approach uses DVB-standard signalling for content management and is aligned with current European standards. While some manufacturers have expressed concern that the UK has not

waited for a pan-European solution to be agreed (ideally encompassing all aspects of content management and ideally reducing their development costs) such an approach might anyway be unacceptable in the UK (for example, perhaps requiring encryption of video and audio transmissions) and would inevitably substantially delay the launch of Freeview HD services.

- The impact on consumers of any content management-related increase in receiver prices is, therefore, likely to be negligible. A flat-rate price increase in the price of all products (in this case, related to licensing) is unlikely to have a large effect on consumption as the increment is small in absolute terms, and is very small relative to the price of the product.
- More consumers will invest in Freeview HD devices if they can access a rich content mix which is identical to that available free-to-air or free-to view on other HD platforms, an outcome which can only be secured via an appropriate content management system. Manufacturers will, therefore, have more chance of higher-volume sales which, in turn, will generate economies of scale and increased turnover and, thus, offset the marginal additional development and licensing costs.
- The availability of the strongest possible Freeview HD content portfolio will create higher consumer demand for receivers, leading to more manufacturers entering the market - which benefits consumers in terms of product choice.
- Competition between manufacturers will exert downward pressure on prices - which benefits consumers in terms of value for money.

**In summary, the BBC believes that any additional costs associated with the proposed content management approach will be minimal and could be fully offset by the downward pressure on prices resulting from a successful Freeview HD platform. In any case, any small increment will be significantly outweighed by the benefit to consumers of having the choice of an additional free-to-air platform offering strong HD content.**

## **2.2 Implications for consumers' access to and use of broadcast content**

**Consumers' rights to access and use broadcast content will be safeguarded by the proposed operational framework for Freeview HD content management.**

### **2.2.1. Consumers' access to and use of broadcast content under UK law**

- The BBC and the industry in general are concerned to ensure that consumers' existing rights under UK copyright legislation are not negatively impacted by the content management system introduced for Freeview HD.
- The BBC notes that current UK legislation allows citizens and consumers to:
  - make a recording of a broadcast for the purpose of enabling it to be viewed at a more convenient time ('time-shifting');
  - make a copy of an audio-visual work in the course of instruction or of preparation for instruction; and
  - in the case of an educational establishment, make a recording of a broadcast for the educational purposes of that establishment, usually under the terms of the ERA licensing scheme (under which arrangements have been put in place for licensing content to educational establishments on behalf of rights owners).
- In addition, there are three exceptions which allow 'fair dealing'<sup>23</sup> for the purposes of:
  - non-commercial research or private study (please note that this does not currently apply to audio-visual works);
  - criticism or review; and
  - reporting current events.
- The BBC also recognises that UK copyright legislation may evolve to reflect other reasonable uses of broadcast content by individuals and organisations.

### **2.2.2. Application of Freeview HD content management by broadcasters**

- Under the proposed Freeview HD content management system each broadcaster will be able to signal an appropriate content management state on a programme-by-programme basis.
- As set-out in Appendix 2, the Freeview HD platform standard provides three content management states:
  - 'unrestricted' (unrestricted copying with no copy protection);
  - 'multiple copy' (unrestricted copying, other than to the internet);
  - and
  - 'managed copy' (allows two HD copies<sup>24</sup>).

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<sup>23</sup> 'Fair dealing' allows copies to be made of a copyright work for the purposes specified in the Copyright, Designs and Patents Act 1988 (CDPA), as summarised above, provided that this use is 'fair'.

<sup>24</sup> One original HD recording on a DTR (or similar) plus one additional HD copy on a media server, Blu-ray, portable media player or similar device.

- More restrictive content management states, such as a ‘copy never’ state, are not supported by the Freeview HD platform.
- In respect of content broadcast on the BBC’s channels, the BBC expects to signal the vast majority of HD programmes in the ‘multiple copy’ content management state. This is likely to be the case for almost all HD content which has been produced or commissioned by the BBC, as well as the majority of acquired and co-produced content.
- For the reasons identified previously<sup>25</sup> the ‘multiple copy’ content management state is necessary to ensure that third parties are able to exercise their legitimate secondary usage rights. Where the value of these rights is maximised, rights holders should have confidence in investing in HD content without any adverse impact on their prospects for generating a return on their investment. The protection of these rights therefore ensures that consumers can benefit from as wide a range as possible of quality HD content.
- The ‘managed copy’ state is expected to be applied only to a small proportion of acquired or co-produced HD content which is broadcast by the BBC.
- The BBC may also choose to broadcast some HD content in the least restrictive ‘unrestricted’ state, for example where there could be educational benefit by enabling the widest possible distribution of this content. However, the signalling of this unrestricted content management state would be conditional on the BBC negotiating terms with producers, performers and other rights-holders who permitted such distribution.

### 2.2.3. Content management signalling – involvement of the DTLA

- Details of the framework proposed by the **Digital Transmission Licensing Administrator (DTLA)**<sup>26</sup> for content management signalling on the Freeview HD platform are available for review at <http://www.dtcp.com/>. This framework was developed following extensive discussions, and it has been reviewed and accepted by the DTG as part of the HD D-Book version 6.1 (D-Book v6.1)<sup>27</sup>.

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<sup>25</sup> See paragraph 1.3 and footnote 1.

<sup>26</sup> Digital Transmission Content Protection (DTCP) technology was developed jointly by five companies (Intel, Hitachi, Panasonic, Sony and Toshiba), who formed the Digital Transmission Licensing Administrator to license the DTCP technology.

<sup>27</sup> The ‘D-Book’, published by the Digital Television Group (DTG) sets out detailed technical standards for digital terrestrial television in the UK.

- Crucially for consumers, this framework limits the requirement for broadcasters to apply the ‘managed copy’ content management state. In summary, a content rights-holder would only be able to insist on the signalling of the ‘managed copy’ state for HD content which has previously only been available on a paid-for basis (e.g. via ‘pay-TV’ platforms, paid-for downloads or on pre-recorded Blu-ray), or for the first showing of HD content which is expected to be made available elsewhere on a paid-for basis (e.g. co-productions which have been part-funded by pay-TV operators).

#### **2.2.4. Impact of the proposed Freeview HD content management proposal on consumers’ rights to access and use broadcast content**

- The BBC would not put in place a content management approach which did not enable citizens and consumers to access and use broadcast content under either current or future legislation.
- The Freeview HD content management proposal:
  - fully respects all existing access and usage rights in respect of broadcast content;
  - is equivalent to HD content management provisions applied on other platforms; and
  - has the flexibility to accommodate future developments in copyright law.
- Critically, the proposed approach will not:
  - prevent consumers from viewing, time-shifting or flexibly sharing HD content within their own homes for their own use;
  - prevent the legitimate viewing, copying or replay of HD content for educational, criticism, review or reporting purposes;
  - apply to any existing standard definition reception and recording systems; or
  - create any restriction on the ability to make standard definition copies of content which is broadcast in an HD format.
- As detailed in Appendix 2, consumers will never be prevented from making a minimum of two digital HD format copies of all broadcast content. Consumers will also be able to make unlimited standard definition copies of all HD content.
- Educational establishments will also be able to make comprehensive use of HD broadcast content including, where necessary, making copies of broadcast content on Blu-ray or compatible networked devices (e.g. computers with DTCP-compatible client software).

- The BBC notes that were UK law to be amended so as to permit ‘format-shifting’, as proposed by the Gowers Review<sup>28</sup>, the Freeview HD content management standard already supports the transfer of digital copies of content onto other devices. Even in the most restrictive content management state, consumers are able to transfer a minimum of one additional HD copy onto other devices, including portable devices, with the only requirement being that encryption is preserved to prevent uploading of this HD content to the internet. Where a less restrictive content state is signalled, citizens and consumers will be able to make unlimited copies of HD content.

#### **2.2.5. Ensuring that consumers understand Freeview HD content management**

- The BBC acknowledges that some citizens and consumers may be concerned that the introduction of content management to the Freeview HD platform could unreasonably restrict their access and use of broadcast content.
- The BBC recognises the need to:
  - explain clearly to the public why Freeview HD content management is being introduced; and
  - assure consumers that the introduction of this technology will not restrict their legitimate access to and use of content.
- The BBC also recognises the importance of reassuring consumers that no existing standard definition reception or recording equipment will be affected by the introduction of Freeview HD content management.
- The BBC intends to work with the other PSBs and with Freeview to create a ‘user-friendly’ guide to content management. It would be our intention that this can be widely published on all relevant websites, including those provided by the BBC, other broadcasters and Freeview. The guide could also be made available to other partner organisations (such as manufacturers and retailers), to be included in their communications.

#### **2.2.6. Proposal to create a framework for the operation of content management**

- The BBC proposes that an industry coalition could develop and implement a good practice framework – possibly in the form of a code of practice – for the operation of Freeview HD content management.

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<sup>28</sup> The Gowers Review of Intellectual Property, published in 2006.

- To enable the creation of such a framework, the BBC would be prepared to facilitate discussions between broadcasters, manufacturers, relevant industry bodies (such as the DTG) and consumer groups.
- It is suggested that this framework would:
  - be clearly drafted in a ‘user-friendly’ way by a coalition of industry organisations;
  - include a simple explanation of content management principles and practice – for example:
    - clarifying that the Freeview HD content management system will only be applied to limit the copying and internet distribution of content rather than restricting the number of times a recording can be viewed or how long a recording can remain on a consumer’s device; and
    - explaining how the BBC and other PSBs expect to apply content management signalling to their services.
  - be clearly ‘owned’ and supported by the industry coalition, thereby demonstrating their endorsement and their commitment to upholding the framework;
  - state how consumer queries and complaints would be addressed;
  - illustrate how the industry is also committed to self-regulation;
  - demonstrate how the implementation of Freeview HD content management will protect consumers’ legitimate access to and use of content;
  - be regularly reviewed, to ensure that it reflects developments in, for example, technology, legal frameworks (e.g. copyright law) and consumers’ content use (including being informed, where appropriate, by queries and complaints);
  - be widely promoted and communicated, so that consumers are aware of whom to contact if they have content management queries and complaints; and
  - provide a simple guide to the process by which consumers can submit queries or complaints, illustrating the stages through which these submissions are handled and responses provided.

#### **2.2.7. Proposed process for handling consumer enquiries in relation to content management**

- Information about the process for handling enquiries would be clearly communicated to consumers through a variety of channels, including

websites provided by the BBC, other broadcasters and Freeview. The information could also be made available to other partner organisations (such as manufacturers and retailers), to be included in their Freeview HD-related communications.

- In the event of a content management-related query, consumers would be advised to contact the broadcaster of the programme to which their query related.
- In responding to the query about a programme, the broadcaster would also steer the consumer towards other sources of information which might be useful – for example, their own guides, the CDPA, the Gowers Review or the IPO<sup>29</sup>.
- Any consumer who considered that their rights had been infringed by the content management signalling applied to a particular broadcast programme would be expected to address their complaint to the relevant broadcaster.
- Each broadcaster would be expected to follow the processes agreed within the suggested industry framework in responding to any complaints. It would, however, be for the individual broadcaster receiving any complaint to determine its own response, taking account of all relevant information.

**In summary, the BBC believes that Freeview HD content management will not place any restrictions on consumers' legitimate access to and use of content, either now or in the future. The BBC recognises that consumers need more information about the introduction of this technology, the benefits it offers (primarily, access to the strongest possible content portfolio) and the very limited restrictions it involves. It is vital for broadcasters to reassure viewers that their existing Freeview equipment will continue to work and that consumers' rights will continue to be respected once Freeview HD content management has been implemented.**

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<sup>29</sup> The Intellectual Property Office is the government body responsible for Intellectual Property (IP) rights in the United Kingdom. These rights include: patents, designs, trade marks and copyright.

**3. Potential alternative approaches that would impact less on the receiver market, and the extent to which those alternatives would be able to deliver similar outcomes and benefits for citizens and consumers**

**The BBC believes that no other content management approach would deliver the same degree of consumer benefit while minimising unwanted outcomes for consumers and receiver manufacturers.**

**3.1. Background**

- Working with other broadcasters and the wider digital television industry, the BBC has considered a range of approaches in an effort to deliver the best possible outcomes for citizens and consumers.
- Initial discussions in respect of content management for HD services on the DTT platform began in Autumn 2008, within the framework of the DTG. Over the last twelve months the BBC has engaged with ITV, C4, S4C and Five in reviewing a range of options which could potentially be applied. The BBC has also maintained extensive dialogue with a wide range of receiver manufacturers.
- Throughout this process the primary objective of all parties has been to produce significant consumer benefits through improved access to HD content on the DTT platform.

**3.2. Potential approaches to Freeview HD content management**

The approaches considered have included:

1. No support for HD content management.
2. A standardised approach to content management systems, where compliance with this standard would be optional (for example, linked only to the Freeview HD trademark licence).
3. A standardised approach to content management systems, where compliance with this standard would be essential (eventually selected as the best option).
4. A standardised approach to content management systems, where compliance would be mandated by regulation.

5. A standardised approach to content management systems, where compliance would be ensured through the encryption of video and audio content.
6. A functional approach to content management systems, where the behaviour of receivers would be defined but where the means of implementing content protection would be left to each receiver manufacturer.

The implications of each of these approaches – for broadcasters, receiver manufacturers and consumers – are summarised in Table 1 below.

**Table 1: Comparison of potential Freeview HD content management approaches**

	Approach	Description	Implications for broadcasters	Implications for receiver manufacturers	Implications for consumers
1	No content management	<ul style="list-style-type: none"> <li>No reference to content management in standard documents.</li> </ul>	<ul style="list-style-type: none"> <li>Difficult to acquire certain HD content.</li> </ul>	<ul style="list-style-type: none"> <li>Nothing to implement.</li> <li>No cost.</li> <li>Less attractive platform, hence smaller market.</li> </ul>	<ul style="list-style-type: none"> <li>Limited choice of HD content.</li> </ul>
2	Standardised solution but optional implementation through the Freeview HD trademark	<ul style="list-style-type: none"> <li>Content management solution specified in DTG D Book.</li> <li>Freeview HD trademark licence only available if fully implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Would become difficult to acquire certain HD content if non-compliant receivers enter the market.</li> </ul>	<ul style="list-style-type: none"> <li>Standardised implementation.</li> <li>Small costs.</li> <li>Unequal competition between Freeview HD licensed and non-compliant receivers.</li> <li>Less attractive platform, hence smaller market.</li> </ul>	<ul style="list-style-type: none"> <li>Limited choice of HD content.</li> <li>Non-compliant receivers may also not provide extra functions (subtitles, audio description, etc.)</li> </ul>
3	Standardised solution with mandatory implementation linked to access to SI data	<ul style="list-style-type: none"> <li>Content management solution specified in DTG D-Book.</li> <li>Access to SI data only possible if content management implemented.</li> </ul>	<ul style="list-style-type: none"> <li>A small change is needed to some DTT multiplex licences.</li> <li>Will enable broadcasters to acquire content which would otherwise only be available on pay-TV platforms.</li> </ul>	<ul style="list-style-type: none"> <li>Standardised implementation.</li> <li>Small costs.</li> <li>Fair competition possible.</li> <li>Non-compliant devices very unlikely as EPG functions would be compromised.</li> </ul>	<ul style="list-style-type: none"> <li>Widest possible choice of free-to-air HD content.</li> <li>Very few restrictions on access and use of content.</li> <li>Consistent receiver behaviour.</li> </ul>
4	Standardised solution with mandatory implementation defined in regulation	<ul style="list-style-type: none"> <li>Content management solution specified in DTG D Book.</li> <li>Regulation amended to require D-Book compliance for all UK devices.</li> </ul>	<ul style="list-style-type: none"> <li>Would need significant changes to licences and possibly legislation.</li> <li>Unlikely to be able to secure Ofcom or Government support.</li> <li>Potential state aid concerns.</li> </ul>	<ul style="list-style-type: none"> <li>Standardised implementation.</li> <li>Small costs.</li> <li>Fair competition possible.</li> <li>Non-compliant devices prevented.</li> <li>But could limit innovation in other areas.</li> </ul>	<ul style="list-style-type: none"> <li>Widest possible choice of free-to-air HD content.</li> <li>Very few restrictions on access and use of content.</li> <li>Consistent receiver behaviour.</li> </ul>
5	Standardised solution with mandatory implementation tied to	<ul style="list-style-type: none"> <li>Content management solution specified in DTG D-Book.</li> <li>Encryption based</li> </ul>	<ul style="list-style-type: none"> <li>Would require a significant change to multiplex and PSBs' licences.</li> <li>Would take a</li> </ul>	<ul style="list-style-type: none"> <li>Standardised implementation.</li> <li>Increased costs (content protection plus encryption).</li> </ul>	<ul style="list-style-type: none"> <li>Widest possible choice of free-to-air HD content.</li> <li>Very few restrictions on</li> </ul>

	encryption of video and audio	<p>on secret keys.</p> <ul style="list-style-type: none"> <li>• Access to key would be conditional on D-Book compliance.</li> </ul>	<p>significant period of time to implement – delaying launch by 12 months.</p>	<ul style="list-style-type: none"> <li>• Fair competition possible.</li> <li>• Non-compliant devices prevented (unless encryption is 'cracked').</li> </ul>	<p>access and use of content.</p> <ul style="list-style-type: none"> <li>• Consistent receiver behaviour.</li> <li>• More expensive receivers.</li> </ul>
6	Functional specification with mandatory implementation (variant of options 3-5)	<ul style="list-style-type: none"> <li>• Content management behaviour specified for receivers, but implementation up to manufacturers.</li> </ul>	<ul style="list-style-type: none"> <li>• Might still become difficult to acquire certain HD content if some receivers do not always behave as specified.</li> </ul>	<ul style="list-style-type: none"> <li>• No clear standard to implement.</li> <li>• Variable costs.</li> <li>• No clear testing regime.</li> <li>• Unequal competition between compliant and non-compliant receivers.</li> <li>• Less attractive platform, hence smaller market.</li> </ul>	<ul style="list-style-type: none"> <li>• Limited choice of HD content.</li> <li>• Potentially inconsistent operation, even between compliant products.</li> </ul>

### **3.3. Consideration of alternative approaches to Freeview HD content management**

#### **3.3.1. Option 1 – No content management**

For the reasons referred to in Section 1 of this response, without an effective content management system it is likely that the Freeview HD platform would struggle to compete with the UK's other television platforms (which already provide content management systems). The effects of such an approach would be detrimental to consumers, equipment manufacturers and broadcasters.

#### **3.3.2. Option 2 – Standardised solution with optional implementation through the Freeview trademark**

The BBC, the DTG and manufacturers have considered in detail whether satisfactory outcomes could be reached for consumers, manufacturers and broadcasters were the implementation of content management to be tied directly to the new Freeview HD trademark. While such an approach would not require regulatory intervention, the use of the Freeview HD trademark is optional for manufacturers.

If the implementation of content management were delivered only via the use of the Freeview HD trademark, a significant number of non-compliant products would enter the UK market.

##### A. Benefits and application the Freeview HD trademark:

- It is expected that the majority of manufacturers will want to apply to use the Freeview HD trademark licence to label and market their new DVB-T2-compliant HD receivers. The trademark will provide significant advantages in clearly and simply identifying products as being compatible with new HD services on the Freeview platform. Manufacturers are also likely to gain benefits from association with an already highly recognised brand (Freeview) and from the promotion of the Freeview HD identity within marketing campaigns and communication activities which will take place throughout 2010 (and beyond).
- For standard definition products, the use of the Freeview trademark licence is conditional on the implementation of a minimum level of

functionality (as defined by the relevant sections of the DTG D-Book). However, the associated compliance checking process and other terms of the licence do not place extensive obligations on manufacturers. Broadly, any manufacturer who makes a receiver which is designed to meet this minimum level of functionality is able to use the Freeview trademark licence.

- However, in order to safeguard the reputation of the new Freeview HD brand identity, Freeview requires that HD receivers support a comprehensive set of functionality requirements. These include content management functionality, as well as a range of features which provide additional value to consumers such as sub-titling, audio-description and automatic retuning. Furthermore, Freeview has insisted that trademark-compliant receivers must incorporate Freeview branding within their Electronic Programme Guide (EPG) display. The Freeview HD trademark licence also introduces a more comprehensive compliance testing regime which requires third-party testing of the functionality and operation of new products prior to manufacturers being granted the right to use the Freeview HD trademark.
- As a shareholder in Freeview, the BBC fully supports the application of more comprehensive functionality and compliance requirements for new Freeview HD products. The BBC considers that consumers will benefit from these requirements through: (i) the development of a strong Freeview HD platform which remains competitive with other television platforms; and (ii) highly functional and reliable products.
- However, there is a risk that a significant number of receivers will not carry the Freeview HD logo and will not, therefore, be required to implement content management systems. There is clear evidence from currently available DTT receivers that a Freeview licence is not seen as necessary. There are also additional reasons why manufacturers may be even less likely to use the Freeview HD logo.

B. Availability of standard definition products which do not use the Freeview trademark:

- There are already a significant number of DTT products in use and being marketed within the UK that do not use the current Freeview trademark. Most significantly, BT Vision does not currently use the Freeview trademark on its current products. While their products are compatible with many parts of the D-Book standard, BT Vision has chosen not to incorporate full Freeview compatibility and certification. This choice does not prevent BT Vision from informing consumers that their products provide “access to Freeview channels”. In practice, the only restriction is that they are unable to use the Freeview logo in their marketing or on their products and packaging. Similarly, Top Up TV did not originally use the Freeview trademark to market its products and services, although more recently Top Up TV has become a licensee of this trademark.
- In addition, there are also a significant number of low-cost receivers where manufacturers have chosen not to apply to use the Freeview trademark licence, to reduce costs associated with testing requirements and to ensure that the same product labelling can be used in other countries.
- The BBC is not aware of any research which explicitly identifies the number of DTT receivers in circulation that do not use the Freeview trademark.
- However, based on recent research carried out by GfK (and published in Ofcom’s 2009 Q2 Digital Television Update) there are estimated to be a total of around 433,000 BT Vision subscribers using this service on their primary set.
- The BBC estimates that at least 3% of (the c.18 million) DTT households are currently using devices that do not use the Freeview trademark.

C. Risk that some manufacturers will not use the Freeview HD trademark:

- In addition, there are a number of reasons why the risk of a manufacturer not applying to use the Freeview HD logo is higher than for standard definition devices. Table 2 below sets out a number of factors which manufacturers are likely to assess when considering the benefits of agreeing to the terms of the Freeview HD trademark licence.



**Table 2: Factors and related concerns influencing use of the Freeview HD trademark**

Factor	Potential concerns
Cost of implementing comprehensive functionality requirements	Compliance with the Freeview HD trademark licence requires the incorporation of a range of new features which have been defined in D-Book v6.1 (such as: sub-titling, audio-description and automatic retuning). While these features will provide benefits to many users, their implementation will result in software development and testing costs. Given complete freedom it is unlikely that manufacturers would choose to incorporate all of these features into their products. For example, very few standard definition Freeview devices include audio-description functionality today (although this was standardised more than five years ago).
Cost of third-party compliance testing	In order to deliver a reliable and consistent consumer experience Freeview requires that all Freeview HD receivers demonstrate compliance through comprehensive third-party testing. Manufacturers who are seeking a Freeview HD trademark licence for their products have to meet the cost of this third party testing. Several manufacturers have indicated that they would much prefer a self-certification testing regime to avoid these costs.
Reluctance to include Freeview branding within on-screen EPG	More sophisticated products, including certain high-end iDTVs, already incorporate EPGs which provide access to selected additional services, such as the internet, YouTube, news and weather reports. Freeview's requirement that EPGs must carry Freeview branding creates some tensions with some of the largest manufacturers (including Sony, Panasonic and Samsung) who may wish to create their own 'portals' to a range of other services and content.
Desire to obtain competitive advantage by providing no content management controls	Given complete freedom, some manufacturers would want to avoid any costs associated with implementing content management technologies, and they would want to provide consumers totally unrestricted use of all content (including allowing unencrypted HD copies to be uploaded to the internet). These manufacturers would argue that it is the responsibility of broadcasters and rights-holders to enforce content rights through technologies such as conditional access; and that, in any case, manufacturers are not responsible for how consumers may choose to use a product.
Commitment to business models which are not fully aligned	Top Up TV and BT Vision have business models which, although dependent on access to Freeview channels, are not fully aligned with the Freeview brand. It is, therefore,

with the Freeview brand	possible that they will not choose to make products which meet all requirements of the Freeview HD trademark.
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- The BBC has considered whether there are ways to make the terms of the Freeview HD trademark licence as attractive as possible. Although there are steps which could be taken (e.g. by convincing Freeview to make certain features optional or by allowing self-certification of compliance), each of these actions would have detrimental effects on consumers.
- Even if the majority of manufacturers' concerns could be eliminated, it is unlikely that all manufacturers would be prepared to accept the terms of the Freeview HD trademark licence. Critically, the Freeview HD trademark licence would still have to require the incorporation of content management functionality, and this factor alone could be enough to make some manufacturers refuse to accept the trademark licence terms.

#### D. Impact on wider market of a small number of 'non-compliant'<sup>30</sup> products:

Once a small number of 'non-compliant' products become available, it is likely these would be selected by some consumers on the basis that these products would:

- be slightly cheaper than Freeview HD trademarked products (largely due to the omission of other added-value features and comprehensive compliance testing, rather than the very small savings possible in relation to the omission of content management); or
- provide the ability to make unrestricted copies of HD content and to distribute these copies across the internet.
- Even if the absence of content management functionality were not highlighted by manufacturers when marketing these 'non-compliant' products, it is likely that a small minority of well informed and technically expert consumers would draw attention to these 'features'. By raising the profile of this unrestricted copying and internet distribution functionality it is probable that demand for

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<sup>30</sup> In this section the term 'non-compliant' is used specifically to identify products which do not incorporate content management functionality (rather than any other functionality required by the D-Book or the conditions of the Freeview HD trademark licence)

‘non-compliant’ products would increase, as would the propensity of some consumers to make use of these ‘features’.

- Those manufacturers who were producing content management compliant devices would be at a disadvantage in competing against ‘non-compliant’ products (both in terms of price and the perceived benefits of unrestricted copying). This unequal competition could cause one or more of the large volume manufacturers to remove content management functionality and Freeview HD labelling (and full compliance) from their products.

E. Impact of a significant number of ‘non-compliant’ products:

- Rights-holders would raise substantial objections if a significant number of UK consumers were using ‘non-compliant’ products to distribute HD content across the internet.
- In response, non-UK content owners and producers could:
  - increase the price of HD broadcast rights sold to PSBs – to reflect reduced income from other sources (for example ‘paid-for’ internet downloads or Blu-ray sales);
  - refuse to make available their most valuable content early in its release window, for free-to-air broadcast in the UK; and/or
  - reduce or cancel their investment in co-produced content.
- Depending on the health of the UK free-to-air television market, UK content rights-holders might be able force higher ‘first-showing’ broadcast rights charges to reflect the loss of secondary income from ‘paid-for’ content sales – as a direct result of widespread internet distribution of their content following transmission on the Freeview HD platform.

**F. Implications:**

- If content management is not mandatory, it is inevitable that some manufacturers will choose to produce products which enable the unrestricted copying and distribution of all HD content broadcast on the Freeview HD platform.
- While it may be possible for PSBs to convince rights-holders to ignore the availability of a small number of products which enable illegal copying and distribution, if the availability of such products were to become commonplace, rights-holders would inevitably be concerned that their content was being devalued.
- As a result PSB broadcasters will find it more difficult (or more expensive) to source HD content, with all the consequences set out above.

**Overall, reliance on a trademark based approach creates a significant risk that a significant number of non-compliant set-top boxes would enter the UK market, with a negative impact for consumers and other manufacturers.**

### **3.3.3. Options 3, 4 and 5 – Standardised solution with mandatory implementation of content management**

The only way to remove the risk of non-compliant boxes in the market is to make the inclusion of content management solutions mandatory.

#### **A. Externality and justification for the imposition of mandatory requirements:**

- Consumers' purchasing decisions are generally determined by direct and personal costs and benefits. Understandably, they do not take into account the potential detriments that their purchase decisions could cause to themselves and others.
- In selecting a 'non-compliant' product consumers would be very unlikely to consider the negative effect this could have on:
  - (i) the cost of acquiring HD content; or
  - (ii) the breadth of HD content which will be available to them in the medium-term.
- In order to counter these negative effects it is appropriate to consider some form of mandated solution.

- In considering the most appropriate form for a solution, regard has been had to whether the proposed solution:
  - (i) is proportionate to the potential harm which would otherwise arise;
  - (ii) minimises any unwanted effects on citizens, consumers, manufacturers (and the wider market) and broadcasters; and
  - (iii) is no more onerous than is necessary to achieve the intended aims.

**B. Proportionate response:**

- As set out throughout this response, there is considerable evidence to suggest that, without a mandatory content management system, consumers will suffer as a direct result of increased content acquisition and co-production costs. This would result in a narrower choice of HD content, a weaker Freeview HD platform and weaker inter-platform competition more generally.
- The introduction of a mandatory content management system is wholly proportionate in the context of this potential harm and an environment where all other HD broadcast platforms in the UK already use content management.

**C. Unwanted effects:**

- Inevitably, the mandatory introduction of a content management system will create a small number of unwanted effects on citizens, consumers, manufacturers and broadcasters. However, the BBC is confident that each of these effects will be almost entirely mitigated.
- Table 3 below summarises these unwanted effects and the mitigation which will be applied to ensure the best possible outcomes for all parties.

**Table 3: Summary of unwanted effects and mitigation**

Affected party	Unwanted effect	Mitigation
Citizens and consumers	Very small increase in receiver prices	Stronger content will create a successful platform, hence increased competition leading to lower equipment prices
	Potential limitations to access and use of content	All existing rights protected
		Less restrictive than other HD platforms
		Highly flexible signalling, which can be modified
Receiver manufacturers	Very small increase in receiver costs	Stronger content will create a successful platform, hence increased sales volumes leading to greater efficiencies
	Unable to compete on the basis of unrestricted copying 'features'	
Broadcasters	Consumer concern over introduction of content management	'User-friendly' explanation of benefits
		Self-regulation and effective complaints processes.

#### D. Least onerous solution:

- As set-out in Table 1, mandatory compliance with a content management system could be achieved through several approaches including: linking implementation to access to SI data; requiring implementation through regulation; or requiring implementation by encrypting video and audio.
- The proposed solution only requires minor changes to the Multiplex B, C and D licences to permit the delivery of certain SI data in a compressed format.
- The BBC has elected to minimise the requirements associated with access to the Huffman 'Look-Up Tables' (which are required to make use of compressed SI data). Rather than insisting on full implementation of all functionality required by the Freeview HD trademark licence, the BBC only requires that products incorporating these 'Look-Up Tables' implement the content management functionality defined in the D-Book.
- For the reasons discussed in Section 3.3.2 of this response, the BBC is hopeful that most manufacturers will want to use the Freeview HD trademark. Nevertheless, the proposed approach ensures that manufacturers will be able to obtain full access to SI data while

remaining free to choose whether or not to use the Freeview HD trademark on their products. This is an important protection in ensuring healthy competition between products and prevents any restraint on platform operators (including BT Vision and Top Up TV) from developing HD on DTT-compatible products.

- More significant regulatory intervention is, of course, a valid approach. However, it is unclear how consumers would benefit from changes to the regulation of the DTT platform which forced compliance with particular broadcast standards (Option 4 – Table 1) or which introduced a full CA system whereby broadcast video and audio would be encrypted (Option 5 – Table 1). Both of these approaches would require significantly greater regulatory changes than simply enabling SI compression. Consideration of these changes by Ofcom and, potentially, by Government could take many months and could effectively prevent the launch of HD services on the DTT. These approaches are, therefore, unattractive to all parties.

#### F. Industry consensus supporting the mandatory implementation of content management:

- Following extensive discussions within the DTG, a majority consensus was reached among broadcasters and receiver manufacturers that a mandatory content management system would be in the best interests of all parties. Agreement was secured at the DTG Council meeting on 29 September 2009 that the standardised approach should be based on licensed access to the Huffman ‘Look-up Tables’ (which are required in order to make use of compressed SI data). Following further clarification in relation to specific concerns raised by a minority of manufacturers, the DTG D-Book v6.1 was published on 8 November 2009.
- Some manufacturers have expressed concerns over the adoption of a UK-specific content management solution, and they have argued that the platform should either adopt a standardised CA approach or make do with no content management. It should be noted that these options were not considered acceptable by the majority of DTG members.

### **3.3.4. Option 6 – functional approach where the behaviour of receivers would be defined but where the means of implementing content protection would be left to each receiver manufacturer**

Collectively, manufacturers indicated that they would much prefer a fully standardised content management system, thus ensuring a ‘level playing field’ for competing products. For this reason, manufacturers did not want to adopt a content management approach which only specified the behaviour of receivers and did not specify the standards which should be used.

Consumers are also likely to benefit from the use of a limited set of content management technology standards. Overall product development costs are likely to be lower, minimising consumer prices and consistent standards are expected to facilitate comprehensive and robust testing of products (at least for those products which go through the testing required to use the Freeview HD trademark) – leading to a better consumer experience.

**In summary, the BBC believes that the current content management proposal is a proportionate approach which delivers the strongest possible Freeview HD content portfolio for consumers. It will deliver maximum consumer benefits while minimising unwanted outcomes for consumers – and, more generally, for receiver manufacturers and broadcasters. Implementing the proposed approach will ensure that the maximum number of manufacturers are encouraged to produce HD-compatible devices, ensuring wide consumer choice and a healthy and competitive platform.**

## Appendix 1

### A.1.1 Summary of standards used

- All content management functionality will be implemented using industry-standard technologies such as HDCP, DTCP and AAC3.
- The application and choice of these standards is defined in the DTG D-Book v6.1 (published on 8 November 2009).
- The DTG has also agreed amendments to the DTLA Encoding Rules specifically for the UK DTT transmission service, restricting rights-holders from unnecessarily insisting upon the application of the most restrictive content management state<sup>31</sup>.
- Agreement on the content management functionality and standards was reached with the DTG following extensive consideration of other content management options. It was the conclusion of the DTG Council that the interests of consumers and the UK digital television industry (including broadcasters, retailers and manufacturers) would best be served by the proposed content management solution.

### A.1.2 Associating content management with SI compression functionality

- D Book v6.1 proposes that selected text strings in the service information (SI - which includes EPG data associated with HD services) broadcast in respect of the HD multiplex should be compressed according to a Huffman algorithm optimised for use in the transmission of digital television services. This is an important capacity-saving measure, and provides significant spectrum efficiency advantages - allowing more capacity to be reserved for programme content.
- The 'Look-Up Tables' needed to uncompress the Huffman-encoded strings were created by the BBC and are available to receiver manufacturers under a no-cost Licence Agreement from the BBC.
- The terms of this Licence Agreement require that any receiver incorporating these 'Look-Up Tables' must implement the content management functionality defined in the D-Book standard.

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<sup>31</sup> The DTLA's 'Notice of Encoding Rules of UK DTT Transmission Service' is available at <http://www.dtcp.com/>

- In order to carry the new 'Freeview HD' brand logo under the Freeview HD trademark licence, a receiver must meet the requirements of the DTG's D-Book in full, as evidenced by successful completion of extensive interoperability tests. These tests confirm that devices can decompress SI data and implement the content management functionality defined in the D-Book.
- These licensing and testing provisions ensure that any receiver which is labelled as Freeview HD-compatible – or, indeed, any receiver which is capable of decoding and displaying EPG data associated with Freeview HD services (even where a manufacturer does not choose to obtain and use the Freeview HD trademark) must implement the agreed content management functionality.
- Together, these conditions will ensure there is little or no scope for manufacturers to produce receivers which provide unrestricted copying and internet distribution of HD content – a situation which could leave UK broadcasters unable to acquire (at reasonable cost) certain high value content and/or make it impossible for consumers to view certain content on the Freeview HD platform.

## Appendix 2

### A.2.1 Summary of functionality available to citizens and consumers under each content management state (see notes below)

Content management state	Examples of content which could be signalled in this state	Local environment (e.g. within a single household) [1]						Wider sharing [6]		
		Record on DTR [2]	View on secondary display [3]	Copy to Blu-ray	Copy to secondary devices	Copy to HD PMP [4]	Copy to DVD or other SD devices [5]	Duplication of HD Blu-ray copies	Duplication of SD copies	Upload HD to internet
'Unrestricted copy'	<ul style="list-style-type: none"> <li>• Older PSB commissioned programmes</li> <li>• Acquired content which has already been broadcast on US public networks</li> </ul>	Yes	Yes	Unlimited copies – with no encryption	Unlimited copies – encryption optional	Unlimited copies – encryption optional	Unlimited copies – with no encryption	Second-generation copies possible (with no encryption)	Unrestricted and to any device	Unrestricted
'Multiple copy'	<ul style="list-style-type: none"> <li>• UK PSB commissioned programmes</li> </ul>	Yes	Yes	Unlimited copies – but with encryption	Unlimited copies – but with encryption	Unlimited copies – but with encryption	Unlimited copies – with no encryption	Second-generation copies possible – but these retain encryption	Unrestricted and to any device	Not permitted
'Managed copy'	<ul style="list-style-type: none"> <li>• First-run content intended for</li> </ul>	Yes	Yes	One additional HD format copy permitted on one other device (in addition to original DTR			Unlimited copies – with no	Second generation copies not	Unrestricted and to any device	Not permitted

	pay-TV networks • First showings of acquired movies			recording)	encryption	permitted		
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- [1] The content management system supports the copying and distribution of HD content between a range of (compatible) devices within the home, including portable devices owned by that household.
- [2] DTR = Digital Television Recorder - a device capable of receiving and recording HD content on an internal hard-disc (or associated external storage device).
- [3] With a suitable home network consumers will be able to view any content stored on their DTR or Blu-ray recorder on secondary (network-connected) displays.
- [4] HD PMP = HD-capable Personal Media Player - e.g. an HD-capable 'iPod'-type device.
- [5] The content management system places no restriction on the copying of SD content, or on the conversion of HD content to SD for recording or distribution.
- [6] The content management system makes provisions for consumers to share HD content with others, albeit with restrictions on the capability to upload encrypted HD content to the internet or the production multiple Blu-ray copies of the highest value content.

### **A.2.2. Terminology used in describing signalling states**

The BBC notes that considerable consumer confusion has resulted from the use of the term ‘encryption’ in describing the content management states. It must be emphasised that encryption is only ever applied to content which is recorded on storage devices or distributed over digital interfaces. Audio and video content will always broadcast free-to-air and unencrypted. To reduce confusion, the BBC has used more clearly descriptive technology throughout this response to describe each of the technical terms used by the DTLA.

<b>Simplified terminology</b>	<b>DTLA terminology</b>
‘Unrestricted copy’	‘Copy freely with no encryption’
‘Multiple copy’	‘Copy freely with encryption’, also known as ‘EPN’
‘Managed copy’	‘Copy one generation’

### **A.2.3 Legal note**

The signalling of content management states by broadcasters in respect of any programme does not indicate any form of entitlement to copy or distribute this content. The responsibility resides with citizens and consumers to respect all rights associated with video and audio works.

It should be noted that the content management approach implemented for Freeview HD will frequently enable far more extensive copying and distribution of broadcast content than is likely to be considered acceptable to the majority of rights-holders or is legitimate under current UK law.

## Annex 7

## Glossary of technical terms

AACS	Advance Access Content System. The DRM system used to encrypt and manage the copying of HD content on Blu-ray DVD.
AES-128	Advanced Encryption Standard – uses a 128 bit key-length block cipher to securely encrypt content.
Bandwidth	The amount of information that can be transmitted in a given period of time. A large amount of bandwidth is generally associated with better picture quality. Compression techniques reduce the bandwidth required, especially for transmission and storage.
Blu-ray DVD	A high capacity DVD format which is designed for HDTV. AACS encryption is a standard feature of Blu-ray.
DRM	Digital Rights Management. Any system designed to manage the use of an item of intellectual property in order to restrict its use to those who have the right to do so.
Down-convert	The process of producing a lower resolution version of some content, typically to create an SD version of an HD TV programme, so that it can be viewed or recorded on SD equipment.
DSO	The process of switching over the current analogue television broadcasting system to digital, as well as ensuring that people have adapted or upgraded their televisions and recording equipment to receive digital TV.
DTCP	Digital Transmission Content Protection. A DRM encryption scheme for data networks, which will commonly be used to distribute content in the home in future. The DTCP system can detect whether devices are local or are connected via the internet.
DTG	The Digital Television Group. A cross-industry body that draws up a specification for DTT equipment which ensures their interoperability.
DTT	Digital Terrestrial Television, currently most commonly delivered through the Freeview service.
DTLA	Digital Transmission Licensing Authority. The licensing body for DTCP content protection.
DVB	Digital Video Broadcasting. A set of internationally accepted open standards for digital broadcasting, including standards for distribution by satellite, cable, radio and handheld devices
DVB-T / DVB-T2	Terrestrial Digital Video Broadcasting. DVB-T2 is a second generation standard which is used for Freeview HD broadcasts.
DVR	See PVR
EPG	Electronic Programme Guide. A programme schedule, typically broadcast alongside digital television or radio services, to provide information on the content and scheduling of current and future programmes.

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Free to air (FTA)	Broadcast signals that are 'in the clear' (unencrypted) and do not require payment at the point of reception
Free to view (FTV)	Broadcast signals that are encrypted but do not require payment at the point of reception
Freesat	A UK-based free-to-air satellite service operated by a Joint Venture between the BBC and ITV PLC.
HD (HDTV)	High Definition (High Definition Television). A TV system which provides a clearer, sharper picture through higher resolution. HD transmission may be in 720p, 1080i or 1080p standards, where the number refers to the number of lines of vertical resolution (an HD format must display at least 720 lines), 'p' refers to progressive and 'i' to interlaced.
HDCP	High-bandwidth Digital Content Protection. A DRM scheme which encrypts and protects the connection between a piece of digital video equipment and an HD display. Typically used on HDMI connections.
HDMI	High-Definition Multimedia Interface. A connection standard used to convey uncompressed digital signals between items of HD equipment. The standard requires support for HDCP encryption.
Huffman Coding	A compression technique which is based on the frequency of occurrence of data items. It replaces the most common items with short codes which are then listed in a 'lookup table'. Access to the lookup table is essential to reconstruct the original information from the compressed version.
IPTV	Internet Protocol Television. The term used for television and/or video signals that are delivered to subscribers or viewers using Internet Protocol (IP), the technology that is also used to access the Internet. Typically used in the context of streamed linear and on demand content, but also sometimes for downloaded video clips.
Linux	An Open Source (free) computer operating system, which is based on Unix. It can be used as an alternative to Windows on a PC but is increasingly being used in complex home entertainment equipment such as PVRs.
MPEG	Moving Pictures Expert Group. Group which established a set of international standards for compression and transmission of digital audio-visual content. Most digital television services in the UK use MPEG-2, but MPEG-4 offers greater efficiency and is commonly used for new services including TV over DSL and High Definition TV.

Multiplex (Mux)	A digital stream or service that carries multiple interleaved signals or streams of information on a carrier at the same time in the form of a single, complex signal. The individual signals are then separated at the receiving end. In TV broadcasting, a multiplex carries a collection of compressed digital channels which typically occupy the same bandwidth as a single analogue service. May be abbreviated to 'mux'.
Ofcom	Office of Communications. The UK's independent regulator and competition authority for broadcasting, telecommunications and radiocommunications matters
Open Source	Any one of a number of licensing schemes for computer software where there is not only no charge for the software but any user is free to modify the program. This is possible because the normally confidential source code is made freely available.
PSB	Public Service Broadcasting, or Public Service Broadcaster. The Communications Act in the UK defines the PSBs to include the BBC, the channel 3 licensees, Channel 4, Five and S4C
PVR (DVR)	Personal Video Recorder (may also be referred to as a Digital Video Recorder). A device, usually built into a set-top box or TV set, which records content digitally onto a hard disk or flash memory. The unit may have several tuners to record programmes simultaneously, as well as enabling facilities such as live pausing.
Resolution	The number of columns and lines of pixels used to construct a digital image. E.g. 1920 x1080 for 1080i HDTV
S4C	Welsh national broadcaster
SD	Standard Definition. In the UK, this is the 625 line system, of which 576 lines are visible – a lower resolution than HDTV.
SI	Service Information. Additional data which is broadcast alongside the pictures and sound which indexes the services available. It enables receivers to tune in and receive the broadcast services and also to provide the EPG.
STB	Set-top Box. A receiver/decoder for digital broadcast signals
Triple-DES	Triple – Data Encryption Standard. Used to securely encrypt content, it is less secure than AES-128.
VoD	Video on Demand. A service or technology that enables TV viewers to watch programmes or films whenever they choose to, not restricted by a linear schedule.