

## The Future of Digital Terrestrial Television

### Sky's response to Ofcom's consultation

1. In paragraph 5.88 and Question 7 of the consultation, Ofcom has asked organisations to indicate whether they are interested in launching MPEG-4 only services on one or more multiplexes, and if so how such an early adoption would avoid undermining the proposed transition to a more efficient combined MPEG-4/DVB-T2 launch in 2009.
2. As Ofcom is already aware, Sky/Picnic and NGW have already presented to Ofcom such a proposal to broadcast in MPEG-4 only:
  - a. Sky's original proposal for Picnic, as announced in February 2007, was that its services would be broadcast in MPEG-4.<sup>1</sup>
  - b. In November 2007, NGW submitted an application to Ofcom requesting permission for services on Multiplexes C and D to be broadcast in MPEG-4 only. It is understood that this application is currently being considered by Ofcom.
3. Were it approved by Ofcom, both Picnic and NGW remain committed to launching MPEG-4 (only) services (on Mux C) at the earliest opportunity (i.e. during 2008).
4. Ofcom's consultation document, however, proposes "linking" the introduction of MPEG-4 to the separate DVB-T2 technology such that MPEG-4 could only be introduced to DTT once DVB-T2 is ready for (commercial) deployment. Further, under Ofcom's current proposals, the introduction of these technologies would (initially) only be permitted on the "cleared" Mux B.
5. Ofcom sets out the benefits it considers will result from upgrading multiplex(es) to both MPEG-4 and DVB-T2, such as a potential increase in platform capacity by up to 160%. Whilst Ofcom does engage in some discussion of the incremental benefits (i.e. an increase in DTT capacity) that may be realised from the upgrading, separately, to MPEG-4 and DVB-T2, Ofcom indicates that:

*"The adoption of DVB-T2 and MPEG-4 together maximises the increase in the capacity of the platform at this point which will bring forward the realisation of additional value for viewers. This is particularly so if the DVB-T2 upgrade is carried out in line with DSO".<sup>2</sup>*
6. Sky does not disagree with the statement about the maximisation of increase in capacity from an introduction of both of these new technologies. Sky/Picnic support the (appropriate) introduction of technologies that would improve the effective amount of capacity of platforms, and the efficiency of its use, both through (in relation to DTT) active participation in the DVB and DTG, and active support of a "horizontal market" box manufacturing arrangements.

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<sup>1</sup> Whilst Sky's formal licence application to Ofcom in April 2007 concerned broadcasting its DTT services only in MPEG2, Picnic continues to wish to transition its DTT services to MPEG-4 as soon as possible.

<sup>2</sup> See paragraph 5.23 of the consultation.

7. Sky considers, however, that the requirement to link MPEG-4 and DVB-T2 is not appropriate or necessary, and could in fact be detrimental to the ongoing development to the range of services available via DTT. Such a proposal would not necessarily result in the most efficient or beneficial use of DTT capacity, as it is likely, at least in the short term, to prevent the launch of additional services on DTT (i.e. in MPEG-4 only, a technology that is already available for deployment in relation to linear broadcast services on DTT <sup>3</sup>).
8. Whilst proposals to enable the introduction of new technologies that increase capacity and improve usage on the DTT platform can be consistent with Ofcom's duties (for example to secure the optimal use for wireless telegraphy of the electro-magnetic spectrum, and to secure the availability throughout the United Kingdom of a wide range of television and radio services), linking their introduction where that results in broadcasters deciding to remain using MPEG-2 would clearly not be consistent with Ofcom's duties.<sup>4</sup> The proposal to allow the introduction (at this stage, at least) of these new technologies on only one multiplex, the (PSB) Mux B, whilst continuing to restrict their application on other (commercial) multiplexes, also risks being inconsistent with Ofcom's duties to act proportionately and target regulatory activity only at cases where action is required.<sup>5</sup>
9. Ofcom acknowledges in the consultation that the introduction of each of these technologies (individually) will provide benefits. However, Ofcom gives insufficient consideration to these benefits and does not take sufficient account of the difficulties (and consequent impact of timing) that, in particular, the introduction of DVB-T2 (in conjunction with MPEG-4) is likely to cause.
10. Ofcom indicates that launching in MPEG-4 only would be problematic, due to:
  - (i) the potentially significantly higher cost of the introduction of DVB-T2 in the future, through the need to displace existing services from converted mux(es);<sup>6</sup>
  - (ii) a potential "delay" of up to 15 year for the introduction of DVB-T2;<sup>7</sup>
  - (iii) the lack of incentives on the institutions "controlling" the DTT platform, and the regulatory arrangements regarding the platform, given their fragmented nature, to introduce both technologies in a timely manner, without regulatory intervention.<sup>8</sup>
11. Ofcom seeks to classify this fragmentation as leading to a likely case of "*significant risk of market failure*",<sup>9</sup> thus justifying its need for intervention by way of mandating a link between the introduction of these two technologies.

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<sup>3</sup> Ofcom will be aware that MPEG-4 (only) is already deployed by BT Vision in its hybrid DTT set top boxes for use in conjunction with BT Vision's VOD services. Further, Ofcom should note that MPEG-4 compatible iDTVs and set top boxes are already available in the UK and it can be expected that, by 2010, dual (MPEG-2/MPEG-4) decoders to have become a more standard feature in many models of reception equipment.

<sup>4</sup> This includes those duties under sections 3(2)(a) and 3(2)(c) of the Act, together with Ofcom's duty to have regard to the desirability of encouraging investment and innovation in relevant markets (see s.3(4)(d) of the Act).

<sup>5</sup> It is noted that Ofcom has not indicated any timescale for a review of the existing technical guidelines which currently prevent the adoption on DTT of new technologies - see paragraph 5.46, 3<sup>rd</sup> bullet, and paragraph 5.89 of the consultation.

<sup>6</sup> See paragraph 5.20 of the consultation.

<sup>7</sup> See paragraphs 5.55 and 5.59 of the consultation.

<sup>8</sup> See paragraph 5.31 of the consultation.

<sup>9</sup> See paragraphs 5.51 and 5.69 of the consultation.

12. Ofcom reinforces its argument about the need for intervention on a temporal basis - to enable (and ensure) the linked introduction of both technologies by the time of DSO in the Granada region in 2009, presumably to benefit from the process (and ensure the opportunity is not missed) of consumers purchasing or replacing reception equipment in one of the largest TV regions in the UK.<sup>10</sup>

#### **Comments on Ofcom's analysis**

13. Sky has a number of comments on the analysis in the consultation which should be taken into account in reaching a decision on the linked introduction of these technologies:

##### *Timetable*

14. In paragraph 5.22, Ofcom envisages that the standard for DVB-T2 will be agreed in Spring 2008 and is likely to be available for deployment in consumer equipment by the time of Granada DSO. Whilst Sky understands that DVB standardisation remains on track for completion this Spring, given that DVB-T2 is unproven and not yet widely used (in contrast to MPEG-4), Ofcom should not underestimate the practical difficulties with its deployment.
15. In Sky's view, whilst manufacturers are likely to be planning the incorporation of DVB-T2, few are likely to guarantee that this will be achieved by 2009, which should be viewed as a best case scenario that is only likely to happen if no problems are encountered. It is Sky's understanding that the general consensus among manufacturers, supported by the DTG, is that early DVB-T2 compatible equipment may be available from late 2009, dependent on silicon availability, but that the production of volumes required for wide scale commercial deployment is unlikely to happen until later in 2010 or even 2011.<sup>11</sup>
16. In addition to questions of reliability and stability of the new technology, discussions within the DVB concerning the inclusion of features such as "Dynamic Multiplex Switching" and "Narrower Channel Options" (as standard or optional to the technology) remain ongoing. The early introduction of DVB-T2 is likely to see them available only on an optional basis: the standard will not therefore be uniform at initial deployment, and so can be expected to develop subsequently, with the later inclusion of features that can be expected to be of significant utility.
17. This is thus similar to the experience of the introduction of DVB-T in 1998, which provides an illustration of these difficulties - notably the amount of time required for testing and stabilisation of new DVB-T tuners was hugely underestimated, so much so that a number of manufacturers had to withdraw and replace a significant number of set top boxes (for example, one manufacturer had to recall over 500k set top boxes between October 1998 and June 1999; Sky understands that another actively withheld from launching a DTT set top box until spring 1999 for these reasons). Given that DVB-T2 is (significantly) more

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<sup>10</sup> See paragraph 5.22 of the consultation.

<sup>11</sup> The relevance of Granada DSO should be queried in any case, given that by the time DVB-T2 is likely to be ready for commercial deployment at the earliest, the majority of Granada homes can already have been expected to have switched to digital; the remaining consumer base (including those who would benefit from the switchover assistance scheme) is likely to contain a high proportion of "refusniks" who are unlikely to be interested in acquiring advanced reception equipment that provides access to a wide range of services over and above the main PSB channels.

complex a technology than DVB-T, it is likely that a significant period of off-air testing will be critical to the stability of set top boxes incorporating DVB-T2.

*Incentives*

18. A direct consequence of Ofcom mandating the linked introduction of MPEG-4 and DVB-T2 could therefore be that, in light of the timing issues outlined above, broadcasters and multiplex operators are in effect incentivised to continue broadcasting in MPEG-2, and completely forego the opportunity to commence broadcasting using the more efficient MPEG-4 technology.
19. Were Ofcom's proposal to be put into effect, a broadcaster/retailer would face the following choices:
  - Launch or continue to provide a service in MPEG-2 and wait to migrate to (both) MPEG-4/DVB-T2 in due course (once compatible reception equipment is available); or
  - Launch a service in MPEG-2 and do not migrate to MPEG-4/DVB-T2; or
  - Not launch in MPEG-2 at all, but wait to commence services directly in MPEG-4/DVB-T2.
20. A consequence of Ofcom's proposal to link MPEG-4/DVB-T2 could therefore be that broadcasters/retailers, and therefore multiplex operators, decide to continue providing services broadcast in MPEG-2 rather than migrate to use of either technology, notably MPEG-4 (where not linked to DVB-T2). The factors contributing to such an outcome include the following:
  - the extent to which a broadcaster/retailer considered its viewers/subscribers would be willing to invest in new reception equipment in order to receive (or continue to receive) its services, or it would itself be willing to fund a box swap-out;
  - faced with the cost of equipment replacement, and the benefits per broadcaster/retailer would gain from a move to the new linked technologies, many broadcasters/retailers may decide not to switch (for example, FTA broadcasters would not necessarily experience any increase in revenues (from advertising or sponsorship) from such a switch). This is likely to influence the decision of the multiplex operators on conversion of their multiplexes;
  - the fact that there is likely to remain at least two (PSB) multiplexes broadcasting in MPEG-2 and DVB-T will also influence other broadcasters/retailers, and thus multiplex operators (as they will need to balance the likelihood of persuading viewers/subscribers to upgraded reception equipment, when other attractive services continue to be broadcast in MPEG-2).
21. The impact of a mandated link of MPEG-4 and DVB-T2 could therefore be two-fold: (i) the removal of interim, demonstrable benefits from the introduction of MPEG-4 (with DVB-T), pending its linked deployment with DVB-T2 (in light of the inherent uncertainties of that introduction), and (ii) the possible disincentive against migration to MPEG-4 as a whole.

*MPEG-4 alone provides benefits*

22. Ofcom does acknowledge that the introduction of MPEG-4 (alongside DVB-T) on DTT would give rise to benefits (to both consumers and producers), but that the benefits of its introduction with DVB-T2 are greater. The assessment in the consultation is, however, incomplete; the benefits of MPEG-4 alone are summarily dismissed (in paragraph 5.76 of the consultation), and perhaps relegated in importance in light of the potential, greater benefits that the linked technology introduction could bring (even if more difficult to achieve).
23. As Ofcom recognises, MPEG-4 can be introduced within a multiplex, in contrast to DVB-T2 where each multiplex as a whole has to be converted to its use. Thus the introduction of different compression standards can be much less disruptive, and can therefore be done gradually on a service-by-service basis, without impacting the other services carried on the same mux. This may well influence broadcasters/retailers resulting in conversion to MPEG-4 (only) being more likely.
24. Delaying the introduction of MPEG-4 through its linkage to DVB-T2 could result in DTT foregoing, in the short-medium term, the benefits that use of this better compression standard would bring. MPEG-4 can be expected to provide efficiency gains of the order in 25-30% reduction in bandwidth usage per channel immediately, rising to a 50% gain over time. In comparison, the introduction of DVB-T2 can be expected to provide a cumulative increase bandwidth capacity of around 30% (dependent on the version used) – but only from 2010/11 at the earliest.<sup>12</sup>
25. As Ofcom is (at this stage) only proposing to allow the introduction of these two technologies on a single (cleared, PSB) multiplex, and at this stage limiting the commercial multiplexes from upgrading, it appears that the benefits realised from the introduction of these technologies could therefore be comparatively limited and not for a while. In comparison, the gains from MPEG-4 alone are more certain and more proximate (not least because Ofcom has already received at least one application from a multiplex operator to allow MPEG-4 broadcasts to commence on DTT).
26. To the extent that a justification can be discerned from the consultation for the linkage of these technologies, a significant aspect appears to be that it is required to facilitate the introduction of HD services on DTT; however, it is noted that Ofcom is not requiring any capacity gains realised from the use of these technologies be reserved for the exclusive use of HD services on DTT.

*Replacement of reception equipment*

27. In paragraph 4.58 of the consultation, Ofcom argues that the managed introduction of MPEG-4 DVB-T2 will reduce the number of receiving equipment upgrades for consumers. However, Ofcom also notes that consumers will choose to change reception equipment where they are incentivised to do so in order to receive new or different services.<sup>13</sup>

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<sup>12</sup> As DVB-T2 is being developed and optimised to work across more than one multiplex, it follows that if its use is limited to one multiplex, its full benefit may not be realised.

<sup>13</sup> See paragraphs 1.19 and 2.11 of the consultation.

28. The fact that consumers can be incentivised to purchase new equipment in order to receive different or particular services (such as the new Picnic service), rather than in order to obtain the underlying technology *per se*, is therefore a key issue for Ofcom's analysis. Ofcom's analysis should reflect this: consequently, Ofcom should recognise that (i) equipment upgrades do not necessarily represent a consumer harm and (ii) by allowing MPEG-4 (only), which would enable the launch of additional services, the demand for those services, may sufficiently incentivise consumers to change reception equipment.
29. Likewise, even though DVB-T2 would require consumers to acquire (further) new reception equipment, to the extent that DVB-T2 enabled the launch of additional, new services on DTT (for example, HD services), consumers wishing to access those new services would be able to, and may be sufficiently incentivised to, acquire such reception equipment.
30. To the extent that there is a range of DTT reception equipment, which employs different technologies in order to allow the reception of a range of different services, that should not be considered to represent a problem. In fact, the DTT platform can already be characterised as a diverse platform, with different types of reception equipment required to receive services from Top Up TV, BT Vision, PVR functionality, integrated into iDTVs, CAMs, and with future developments including PC reception. Consumer decisions about acquiring reception equipment will continue to be primarily driven by the choice of services that such a switch would provide.
31. The introduction of new and different technologies to DTT will simply represent a further step in the ongoing development of the platform, which will not be to the detriment to the consumer on the basis that:
  - (i) they purchase reception equipment for their desired services; and
  - (ii) appropriate and proportionate protections are put in place around reception of certain content (for example, protecting reception of PSB services through requiring them to continue to be broadcast in MPEG-2).
32. In addition, in relation to Ofcom's arguments about "displacement" (see paragraph 10(i) above), this need not only happen by means of regulatory intervention now. The "fragmented" nature of control of DTT does not necessarily hinder technological improvements to DTT: where technological developments will allow the proliferation of new services, for which there is consumer demand, that demand can sufficiently incentivise the different organisations involved in DTT to co-operate.
33. In fact "displacement" (i.e. clearing of a multiplex to allow its conversion to DVB-T2) could be facilitated by a move to MPEG-4: the larger the base of MPEG-4 compatible reception equipment, the greater the incentives on MPEG-2 broadcasters to switch to MPEG-4 (to save bandwidth costs) and on multiplex operators (to allocate freed up capacity to other users), without alienating all platform users (as many would have already migrated to MPEG-4 already). This process could therefore allow a multiplex operator to reconfigure its multiplex(es) to launch DVB-T2, in response to demand for services using that transmission standard.
34. Ofcom's proposal to link MPEG-4 to DVB-T2 therefore has the potential to prevent the launch of additional services on DTT in relation to which consumers may be willing to

purchase different reception equipment (particularly in the case of commercial services). This would not appear to be consistent with Ofcom's general duties, particularly since it is the commercial multiplexes which would, under Ofcom's proposal, continue to be restricted from changing transmission and compression standard (which is arguably a more proportionate restriction, rather than a retaining a restriction that applies to most multiplex operators).

35. Ofcom indicates (in paragraphs 1.52 and 5.27) that there is need to review, on a case-by-case basis, the technical standards allowed on other (commercial) multiplexes, to "*ensure that it does not unacceptably diminish the range, variety and quality of services available to DTT viewers*". This would appear to reflect the powers that are otherwise available to Ofcom under Condition 17(2) of the multiplex licences, raising questions of proportionality of its proposed restrictions on the introduction of MPEG-4.

*Conversion to DVB-T2*

36. If Ofcom, nonetheless (and inappropriately) remained minded to proceed with its proposed linked introduction of DVB-T2 with MPEG-4, it would be consistent with the existing approach for capacity allocation set out in the multiplex licences for any additional capacity that is generated as a result to be allocated to broadcasters on a fair, reasonable and non-discriminatory basis.
37. In addition, Ofcom will need to ensure that the effects of the conversion of any multiplex to DVB-T2 with MPEG-4 remain confined to that multiplex, so as not to interfere with, or encroach on, the capacity on other adjoining multiplexes, which should be guaranteed continued unfettered operation.

**Sky**

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