UK Broadcasters’ perspective on the Digital Dividend

Nigel Laflin
(nigel.laflin@bbc.co.uk)

BBC Distribution
Summary of the UK situation

- UK was the first country within Europe to identify a digital dividend; in 2003 the Government decided to release 112 MHz of analogue spectrum for new uses.

- At the completion of analogue switchover (2112) there will be six DTT multiplexes (“Freeview”) in the retained broadcasting spectrum providing around 40 TV channels:
  - three PSB multiplexes covering 98.5% of households
  - three commercial multiplexes covering around 90% of households

- In 2008 Government and broadcasters recognised the benefits of HD on DTT, plans were made to facilitate HD by employing improved coding and transmission standards.

- In 2009 Ofcom made proposals to clear channels 61 and 62 to align the 790 – 862 MHz band with other countries in Europe whilst maintaining the existing DTT coverage obligations.
High Definition TV

- Significant benefits from HD on the terrestrial television platform
- Universality, diversity and plurality
- Current production and next broadcast standard
- Growing consumer demand in the UK and internationally
- No other frequency bands available for terrestrial TV
- HDTV made possible by introduction of MPEG-4 and DVB-T2 technologies
- Need a managed transition from SD to HD

Importance of HD availability on Freeview

- 85% Very important
- 12% Quite important
- 2% Not very important
- 1% Not at all important

Research from BBC HD trials 2006
Value of digital dividend spectrum to broadcasting

UK analogue switchover

Before switchover

Analogue TV

- BBC One
- BBC Two
- ITV1
- Channel 4
- five
- Mux 1 (BBC)
- Mux 2 (D3&4)
- Mux A (SDN)
- Mux B (BBC)
- Mux C (National Grid)
- Mux D (National Grid)

Low power DTT

After switchover

- PSB1 Mux (BBC)
- PSB2 Mux (D3/D4)
- PSB3 HD*
- COM4 Mux
- COM5 Mux
- COM6 Mux
- Additional Mux?
- Additional Mux?
- Emerging European digital dividend 790 to 862 MHz

High power PSB DTT

Commercial DTT

New services in cleared spectrum

2008 to 2012

* HD services expected to launch late 2009
European dimension of the uses of digital dividend

**Non UHF spectrum is not an effective substitute for TV broadcasting**

<table>
<thead>
<tr>
<th>Use</th>
<th>Alternative bands available</th>
<th>European spectrum alignment</th>
<th>Impact of moves to other bands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationwide digital terrestrial TV</td>
<td>No</td>
<td>Yes</td>
<td>Very high for consumers</td>
</tr>
<tr>
<td>Local DTT multiplexes</td>
<td>No</td>
<td>Yes</td>
<td>Very high for consumers</td>
</tr>
<tr>
<td>PMSE</td>
<td>Not currently</td>
<td>No</td>
<td>Medium cost</td>
</tr>
<tr>
<td>Mobile TV</td>
<td>Yes</td>
<td>Yes</td>
<td>High network costs</td>
</tr>
<tr>
<td>Future Mobile (3G, 4G, LTE, etc)</td>
<td>Yes</td>
<td>In preparation</td>
<td>Higher network costs but greater spectrum availability</td>
</tr>
<tr>
<td>BWA (e.g. Wimax)</td>
<td>Yes</td>
<td>No</td>
<td>Lower coverage</td>
</tr>
<tr>
<td>License exempt</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Emergency services</td>
<td>Yes</td>
<td>No</td>
<td>Risk of reliability of services in Bands IV/V</td>
</tr>
</tbody>
</table>
Density of use is achieved by detailed national planning and international co-ordination.

The GE06 Plan provides a flexible framework in which to modify the plan on bi or multilateral basis.

In view of the above factors no additional action is foreseen in respect of the broadcast planning at a European level.

Typical use of a channel (41 in this example) for digital television in UK and neighbouring countries.
Specific cases for action at a European Level

Compatibility issues between different services

- BBC are concerned at the potential risk of interference from fixed/mobile applications.
- The need for adequate protection is paramount given the rapid failure characteristics of digital broadcast reception.
- The BBC strongly supports EBU points on need for compatibility studies and application of appropriate protection criteria.

Compatibility issues between mobile telecommunications and digital broadcasting

Some band plan examples:
Clearing the 800 MHz band of broadcasting

- Clearing the 790 to 862 MHz band will be a large, complex project involving significant international co-ordination and some associated risks.
- Imperative that the risks are identified and consideration given how best to manage and mitigate them.
- In the UK this means channels 61 & 62 to be relocated.
  - Existing users should bear no costs in vacating this spectrum.
  - Coverage of the relocated broadcasting services must be maintained.

UK proposal to clear the 800 MHz band

Move some of 48-53 to 39-40
Move 61 & 62 to 48-53 or to 39-40
Move PMSE to channel 38

Cleared

21
30
40
50
60
68

DTT
Cleared

BBC
Risks and benefits of clearing the 800 MHz band

Risks
- More extensive use of the lower broadcasting bands by neighbouring countries could increase levels of interference in the UK
- Requires co-ordination between neighbouring countries
- Disruption to the analogue switchover programme

Costs*
- Clearing DTT channels from channels 61 and 62  £85-185m
- Moving PMSE from channel 69 to 38  £5-18m

Net Benefits to UK*
- Clearing the 800 MHz band assuming a strong demand for mobile services and DTT  ~£2-3bn

* Figures taken from Ofcom Consultation on Digital Dividend: clearing the 800 MHz band (February 2009)
There is some uncertainty about timescales to clear the 790-862 MHz band.

It depends on national policies, technical discussions, international negotiations and suitable arrangements to clear the band.

The estimated time scale is around five years from now.

Nature and timing of any action at the European level:

UK timescales to complete digital switchover and clear the 800 MHz band:

- Frequency planning, including international co-ordination
- Infrastructure changes commissioned and implemented
- DSO communications
- DSO fully achieved

Timeline:

2009 → Around 5 years → 2014
The BBC is working with other public service broadcasters and industry to implement the new DVB-T2 digital terrestrial transmission system in the UK.

DVB-T2 enables a substantial increase in digital terrestrial television broadcast capacity – when adopted with MPEG-4 there is a significant gain in multiplex capacity which will enable the delivery of new broadcast services, including HDTV.

There is a need for effective mechanisms to protect and maintain the quality of DTT reception and for guard bands to separate technical licence conditions of different types of service (including any white space devices).

Long term solutions are needed to protect spectrum for PMSE i.e. on a licensed and protected basis.

We are supporting UK Government in ensuring a successful release of digital dividend spectrum to maximise its value for society.
Supporting material

- BBC’s Response to Ofcom’s Consultation on the Digital Dividend (March 2007)
- BBC Trust response to the Ofcom Consultation on the future of Digital Terrestrial Television (February 2008)
- BBC Trust response, on behalf of the BBC, to Ofcom’s Second Public Service Broadcasting Review, Phase Two (December 2008)
- The BBC’s response to Ofcom’s consultation on the Temporary assignment of UHF analogue interleaved frequencies (November 2008)
- Ofcom’s consultation on clearing the 800 MHz band (February 2009)

All of the above are available on the UK Ofcom website

http://www.ofcom.org.uk/consult/