

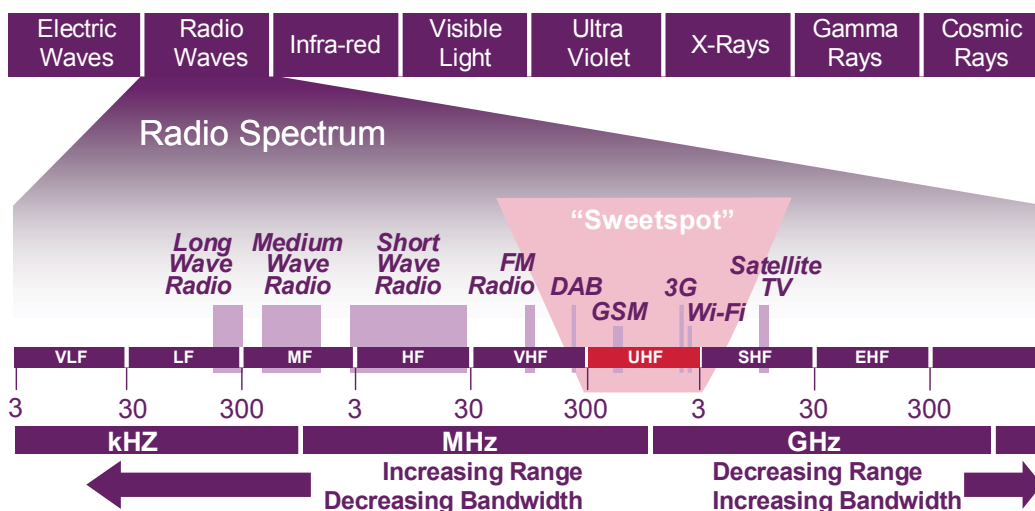
## Future spectrum awards

### Spectrum available and possible uses

1. Ofcom is planning on releasing several pieces of spectrum in the next few years. The planned releases are:
  - (a) L-Band spectrum (around 1.5 GHz);
  - (b) spectrum around 2.6 GHz; and
  - (c) the Digital Dividend Review (DDR)—which currently groups three subsets:
    - (i) cleared spectrum resulting from DSO;
    - (ii) channels 36 and 69; and
    - (iii) interleaved spectrum.
  
2. All these pieces of spectrum are considered to be quite valuable as they fall within the ‘sweet spot’ where the spectrum is able to carry a large amount of information, but also propagates over a long range.

FIGURE 1

### Radio spectrum



Note: The horizontal scale is a non-linear logarithmic scale.  
 Source: Ofcom.

3. Ofcom has stated publicly that it intends to auction all the spectrum on a ‘technology neutral’ basis.

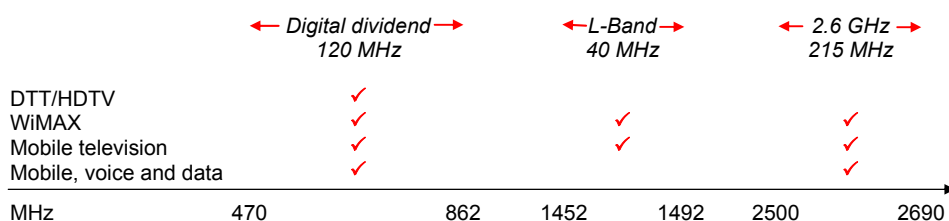
### **Timing of the auctions**

4. Ofcom has indicated the following timings for these spectrum releases:

- L-Band: early 2008;
- 2.6 GHz and related bands: mid-2008; and
- digital dividend: early 2009.

5. Ofcom has also indicated the following potential uses for this spectrum:

TABLE 1 Potential uses of the available spectrum



Source: Ofcom.

## **Ofcom’s award of L-Band spectrum**

### **Overview**

6. 40 MHz of spectrum will be made available in the 1452–1492 MHz band (L-Band). Ofcom has previously consulted on the release of this spectrum and the consultation period closed on 12 September 2007.
7. The European Commission is considering making a decision to harmonize the use of much of this spectrum (1452–1479.5 MHz) for mobile multimedia services (such as mobile television). Ofcom has previously argued that the proposal includes a note that there is no intention to exclude non-mobile multimedia services and technologies from using the 1452–1479.5 MHz band. While the proposition was discussed at the

October 2007 meeting of the Radio Spectrum Committee, no consensus was reached and so a decision was delayed until the December 2007 meeting.

### ***Possible uses***

8. Possible uses of the spectrum include:
  - mobile multimedia including mobile television; and
  - wireless broadband, for example WiMAX.

## **Ofcom's award of spectrum around 2.6 GHz**

### ***Overview***

9. In 2008 Ofcom intend to release around 215 MHz of spectrum. Most of the spectrum is in the 2500–2690 MHz (2.6 GHz) band with some around 2020 and 2300 MHz.
10. Ofcom issued a consultation paper on the proposed spectrum release in December 2006 and, following responses, issued a further paper on 1 August 2007. Responses to this consultation were due by 28 September 2007 and it is intended that the auction will occur in early 2008.

### ***Possible uses***

11. Ofcom's research has identified a number of potential uses of the spectrum. They include:
  - wireless broadband services, such as WiMAX;
  - mobile multimedia services, such as mobile television; and
  - advanced mobile services using technologies such as 3G and its evolutions.

## **Digital Dividend Review**

### **Overview**

12. DSO will result in the 'freeing up' of a large amount of desirable spectrum in the UHF(TV) band. This release of a 'public resource' of spectrum is referred to as the digital dividend. Ofcom is currently consulting on the appropriate use and method of allocation for this spectrum.
  
13. In addition to the spectrum released from DSO, Ofcom plans to include in the DDR two further blocks of spectrum. Including these two blocks, there is a total of 128 MHz of spectrum in the UK. In this way, the DDR groups together three pieces of spectrum, each with unique characteristics that may suit different uses:
  - cleared spectrum resulting from DSO;
  - channels 36 and 69; and
  - interleaved spectrum.
  
14. Throughout Europe, the UHF band is divided into channels of 8 MHz each, with the part for television broadcasting ranging from channel 21 at the bottom to channel 69 at the top—or 470 to 862 MHz.

FIGURE 2

**DSO release of UHF spectrum**

Today

21	22	23	24	25	26	27
28	29	30	31	32	33	34
35	36	37	38	39	40	41
42	43	44	45	46	47	48
49	50	51	52	53	54	55
56	57	58	59	60	61	62
63	64	65	66	67	68	69

	Spectrum for analogue TV and 6 DTT multiplexes
	Currently non-broadcast use

Post-DSO

21	22	23	24	25	26	27
28	29	30	31	32	33	34
35	36	37	38	39	40	41
42	43	44	45	46	47	48
49	50	51	52	53	54	55
56	57	58	59	60	61	62
63	64	65	66	67	68	69

	Spectrum for 6 DSO multiplexes
	Spectrum released by DSO
	Currently non-broadcast use

Source: Arqiva.

**Channels 36 and 69**

15. Channel 36 is currently used for radar at one airport, and channel 69 is used mainly for wireless microphones in programme making and special events (PMSE).
16. It is likely that Channel 69 will be retained for PMSE purposes. Channel 36 is likely to be auctioned at the same time as the remainder of the DDR. However, Arqiva has lobbied that this should be made available ahead of the other pieces of spectrum.

**Possible uses**

17. Channel 36 could support a Single Frequency Network across the whole of the UK. This is the only piece of DDR spectrum available across the UK. For this reason Channel 36 is seen as being particularly attractive to parties.

18. Possible uses include:
- mobile broadband;
  - advanced mobile services using technologies such as 3G and its evolutions;
  - PMSE;
  - mobile television; and
  - an additional DTT multiplex—running on a single frequency.
19. Because of the characteristics of the spectrum it appears that the most likely use of channel 36 would be for mobile television or an additional DTT multiplex.

### **Digital Dividend Review—interleaved spectrum**

20. Interleaved spectrum is the additional capacity that is available in limited geographical areas within the spectrum carrying the planned high power DTT. It is effectively unused spectrum (or ‘white space’) that exists in particular areas. Some parts of the interleaved spectrum are currently used in the television industry for PMSE—such as wireless microphones and outdoor broadcasts.

#### ***Possible uses***

21. Ofcom has indicated that it intends that this will be packaged for continued use in PMSE as well as for sub-national television broadcasting. Ofcom proposes to offer the interleaved spectrum as:
- 40 or more packages suitable for sub-national television; and
  - a UK-wide package of interleaved spectrum.

### **Digital Dividend Review—cleared spectrum**

22. The cleared spectrum will start to become available once DSO is completed in each area. However, whilst spectrum covering a significant portion of the UK, including

some large population centres, will become available from 2009, interference issues and completion of DSO will restrict nationwide availability until 2012.

23. Ofcom has consulted on the best way to approach the award of spectrum but has not yet confirmed the preferred approach.

***Possible uses***

24. Possible uses of the spectrum include:
- additional DTT multiplexes;
  - wireless broadband such as WiMAX;
  - mobile television; and
  - advanced mobile services using technologies such as 3G and its evolutions.