



Digital Switchover (DSO) Programme

Radio DSO Block 11B Cumbria

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Author	Jack FitzSimons		
Verifier	Brian Tait		
Owner	Glenn Doel		
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1 Cumbria DSO narrative

The Cumbria local licence has not yet been advertised but is proposed to transmit on Block 11B.

The proposed block 11B allocations are shown below figure 1.1 below and include Perth & Dundee, Teesside, Bradford & Huddersfield, Wolverhampton & Shropshire, Leicestershire, Norfolk, Bristol & Bath, Cornwall, Bournemouth and Sussex.

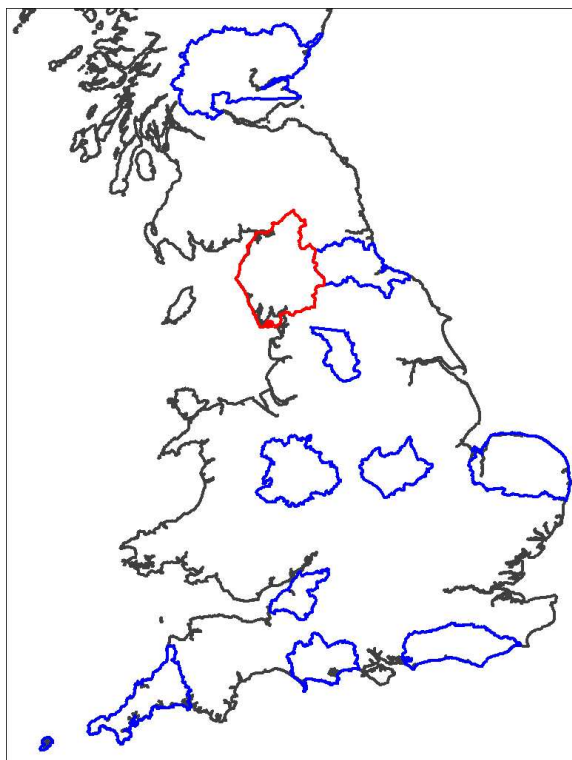


Figure 1.1: Proposed Block 11B allocations

In planning for each multiplex Ofcom have required coverage assessments:

- For each area four maps should be produced as follows:
 1. **Current Situation** - Map showing current actual coverage (or launch plans where a multiplex has not yet launched), including any transmitters which are required as part of the current licence, but which are not yet operational.
 2. **Modified Network 1** - Map showing the above, plus any improvements to existing infrastructure.
 3. **Modified Network 2** - Map of the above, plus additional smaller infill transmitters focused on areas where FM coverage is robust.
 4. **Modified Network 3** - Map of the above, plus additional transmitters to provide near universal coverage.

For case 1: Launch situation

As the multiplex has not yet been advertised we make no proposal for a likely launch network.

For case 2: Modified Network 1

Not applicable as the network has not yet launched.

For case 3: Modified Network 2

In this it was required to cover those areas currently served robustly by local FM services (BBC Local and Independent CFM). To achieve this thirteen sites are required. The coverage of the Modified Network 2 is shown in figure 2.1.

For case 4: Modified Network 3

For this case it was required to 'fill' the multiplex to achieve near universal coverage (within practical planning limits). An additional six sites are required to achieve this. The coverage of the Modified Network 3 is shown in figure 2.2.

1.1 Outgoing interference and sensitivity to other co-block multiplexes

There is some impact on the Teesside, West Yorkshire, Wolverhampton and Perth & Dundee multiplexes from the DSO proposal contained within this document. Plymouth and Somerset multiplexes are unaffected.

Cumbria is affected by co-block interference from Teesside, West Yorkshire, Wolverhampton, Leicestershire and Perth & Dundee. The effects are mostly small although West Yorkshire and Wolverhampton affect the south of the area around Barrow and Grange-over-sands sufficiently for additional stations to be required here.

While the Cumbria and Teesside editorial areas are adjacent, they are separated by the Pennines which means they can work successfully on the same DAB block. There would be problems, however, if it was necessary to provide coverage right up to the edge of the editorial areas.

1.2 Road Coverage

We have proposed Tebay to cover a small length of the M6 not covered by other sites. Due to the terrain, we would advise a road test prior to installing this site as there may be sufficient coverage from reflections.

There are several A roads in the centre of the area which are difficult to cover. However there is little population along the roads.

2 Coverage of the Multiplex

2.1 Coverage Maps

Coverage maps for the DAB are presented with three colours:

Blue = Mobile coverage (99% locations at 99% time)

Dark Green = Indoor coverage (80-95% locations at 99% time)

Light Green = Robust indoor coverage (>95% locations at 99% time)

Figure 2.1 Modified Network 2

Figure 2.2 Modified Network 3

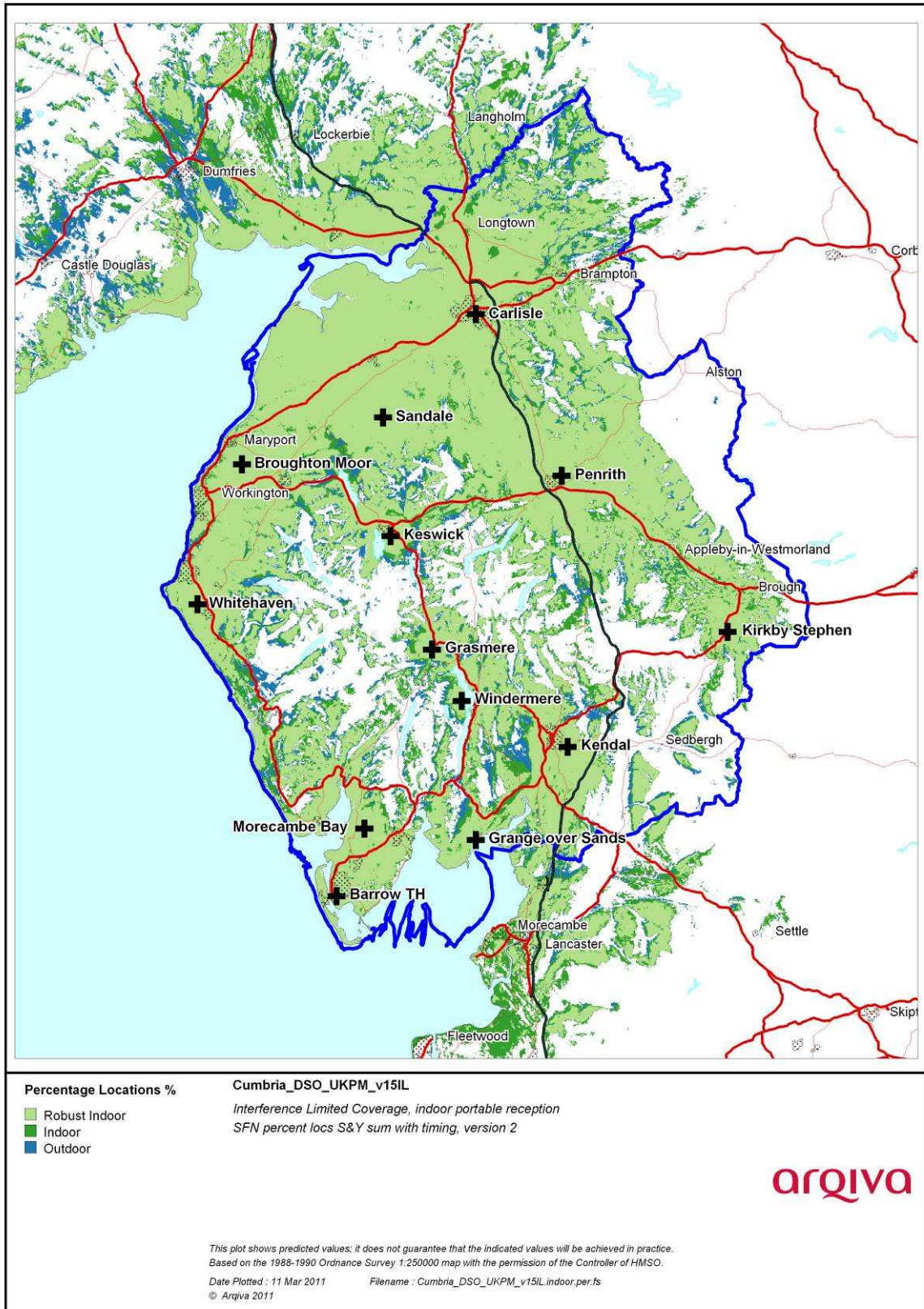


Figure 2.1 Modified Network 2

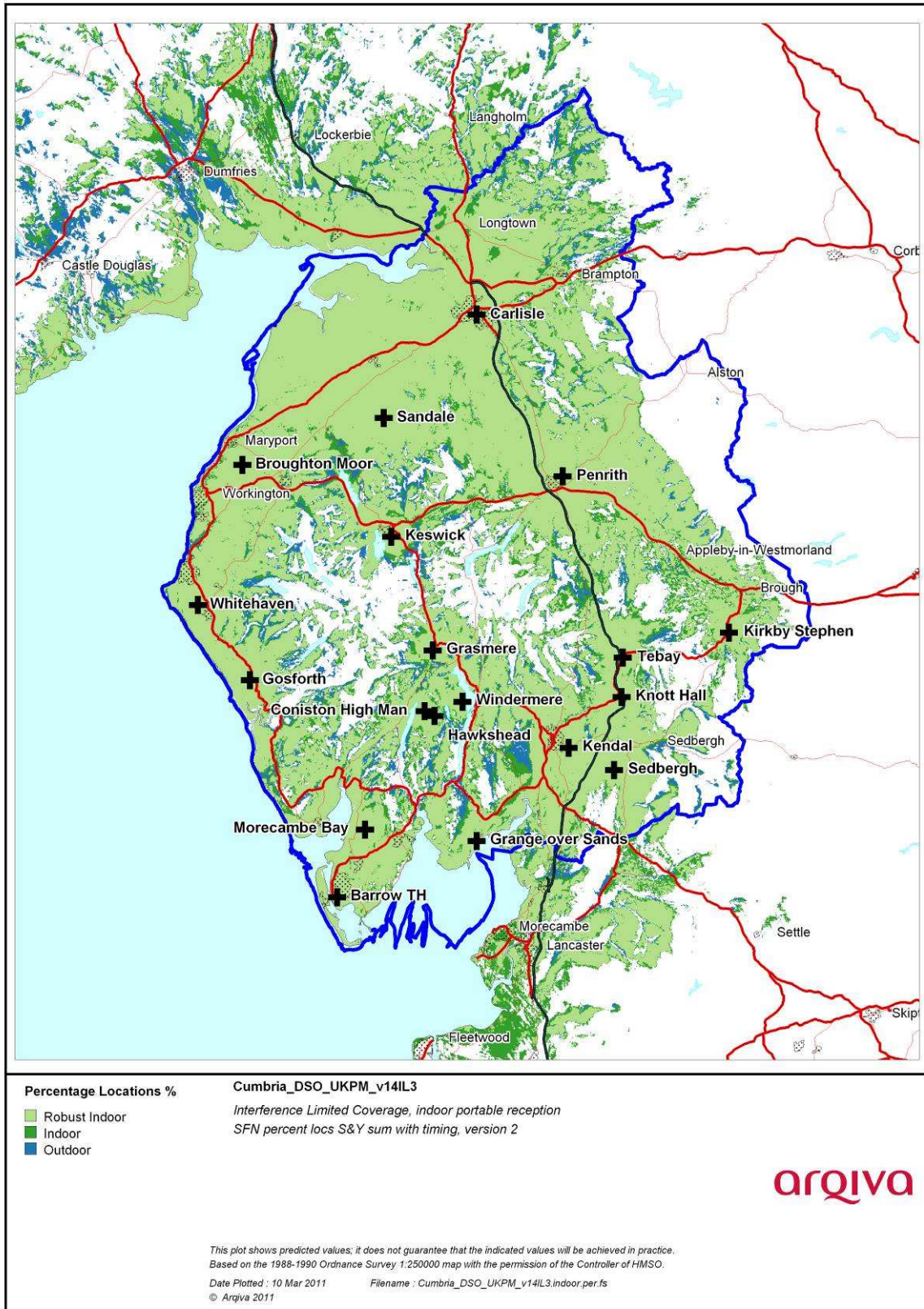


Figure 2.2 Modified Network 3

Population Coverage tables within Editorial Area

Table 2-1. Population coverage proportional indoor 1% time interference

: Total 245,476

Site scenario and incremental additional sites	Site type	Individual gross interference limited coverage within editorial area	Total number of households within editorial area	Incremental increase in number of households	Incremental percentage increase of population	Percentage of editorial area
Sandale	Existing Infrastructure	71,917 (29.3%)	71,917	-	-	29.3%
Whitehaven	Existing Infrastructure	24,304 (9.9%)	99,469	99,469	40.5%	40.5%
Morecambe Bay	Existing Infrastructure	45,410 (18.5%)	145,286	45,817	18.7%	59.2%
Kendal	Existing Infrastructure	22,272 (9.1%)	167,959	22,673	9.2%	68.4%
Broughton Moor	Existing site new antenna	25,878 (10.5%)	184,044	16,085	6.6%	75.0%
Penrith	Existing Infrastructure	17,117 (7.0%)	200,315	16,271	6.6%	81.6%
Windermere	Existing Infrastructure	7,754 (3.2%)	208,270	7,955	3.2%	84.8%
Barrow	Existing site new antenna	29,802 (12.1%)	212,080	3,810	1.6%	86.4%
Keswick	Existing site new antenna	4,453 (1.8%)	216,569	4,489	1.8%	88.2%
Carlisle	New Site	34,174 (13.9%)	219,913	3,344	1.4%	89.6%
Grange Over Sands	New Site	3,799 (1.6%)	222,525	2,612	1.1%	90.7%
Sedbergh	Existing site new antenna	1,887 (0.8%)	224,646	2,121	0.9%	91.5%
Kirkby Stephen	Existing site new antenna	1,872 (0.8%)	226,409	1,763	0.7%	92.2%
Gosforth	Existing site new antenna	2,513 (1.0%)	227,576	1,167	0.5%	92.7%
Coniston	Existing site new antenna	2,045 (0.8%)	228,714	1,138	0.5%	93.2%
Knott Hall	New Site	1,997 (0.8%)	229,638	924	0.4%	93.6%
Grasmere	Existing site new antenna	789 (0.3%)	230,401	763	0.3%	93.9%
Tebay	New Site	7,754 (3.2%)	231,114	713	0.3%	94.2%
Hawkshead	Existing site new antenna	2,113 (0.9%)	231,688	574	0.2%	94.4%

Case 1	-	Not Applicable	Launch Network
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Orange=	Modified Network 2
Case 4	-	Orange + Green=	Modified network 3

Table 2-2. Road coverage 99% location 99%T: Total roads 1,099 km

Site scenario and incremental additional sites	Site Type	Total road length In km	Increase in road length in km	Incremental percentage of road length	Percentage of roads within editorial area
Sandale	Existing Infrastructure	277	-	-	25.2%
Whitehaven	Existing Infrastructure	341	64	5.8%	31.0%
Morecambe Bay	Existing Infrastructure	470	128	11.7%	42.7%
Kendal	Existing Infrastructure	559	89	8.1%	50.8%
Broughton Moor	Existing site new antenna	577	19	1.7%	52.5%
Penrith	Existing Infrastructure	696	118	10.8%	63.3%
Windermere	Existing Infrastructure	745	49	4.5%	67.7%
Barrow	Existing site new antenna	749	4	0.4%	68.1%
Keswick	Existing site new antenna	784	35	3.2%	71.3%
Carlisle	New Site	787	2	0.2%	71.5%
Grange Over Sands	New Site	787	1	0.0%	71.6%
Sedbergh	Existing site new antenna	827	40	3.6%	75.2%
Kirkby Stephen	Existing site new antenna	844	17	1.5%	76.7%
Gosforth	Existing site new antenna	848	4	0.3%	77.1%
Coniston	Existing site new antenna	866	18	1.7%	78.7%
Knott Hall	New Site	894	28	2.6%	81.3%
Grasmere	Existing site new antenna	904	9	0.9%	82.2%
Tebay	New Site	911	8	0.7%	82.8%
Hawkshead	Existing site new antenna	914	3	0.2%	83.1%

Case 1	-	Not Applicable	Launch Network
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Orange=	Modified Network 2
Case 4	-	Orange + Green=	Modified network 3

Table 2-3. Summary of Coverage within Editorial Area for each case

Case	Indoor Households & (percentage coverage) <i>proportional 99% Time Interference Protection</i>	Mobile Coverage km & percentage coverage) <i>99% Locations & 99% Time Interference Protection</i>
1	n/a	n/a
2	n/a	n/a
3	225,119 (91.7%)	814 (74.1%)
4	231,688 (94.4%)	914 (83.1%)

Case 1	-	Not Applicable	Launch Network
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Orange=	Modified Network 2
Case 4	-	Orange + Green=	Modified network 3