
Digital Switchover (DSO) Programme

Radio DSO Block 10D Plymouth

Document Reference: Radio DSO Block 10D Plymouth–1.0

Release Date: 02 Feb 2011

Arqiva Confidential

© Copyright – Arqiva Limited, 2011

The information that is contained in this document is the property of Arqiva Limited. The contents of the document must not be reproduced or disclosed wholly or in part or used for purposes other than that for which it is supplied without the prior written permission of Arqiva Limited.

General Detail				
Abstract	Radio DSO plan and details of the Plymouth local multiplex on Block 10D			
Author	Jack FitzSimons			
Verifier	Brian Tait			
Owner	Glenn Doel			
Optional Information				
Author Defined Reference No	Not used	Project No	951223	
Cross Reference				

[illegible]

Table of Contents

1	Plymouth DSO narrative	4
1.1	Outgoing interference and sensitivity to other co-block multiplexes	5
2	Coverage of the Multiplex	6
2.1	Coverage Maps	6
2.2	Population Coverage tables within Editorial Area.....	10

1 Plymouth DSO narrative

There was only one previously allocated transmitter for the Plymouth area; Plympton on block 12A. It operated in conjunction with the Cornwall Mux.

The DAB block was changed to 10D at the GE06 Regional Radio Conference.

The proposed Block 10D allocations are shown below and comprise Somerset, Herts Beds & Bucks, Humberside, Wrexham & North Wales, Dumfriesshire and Inverness.

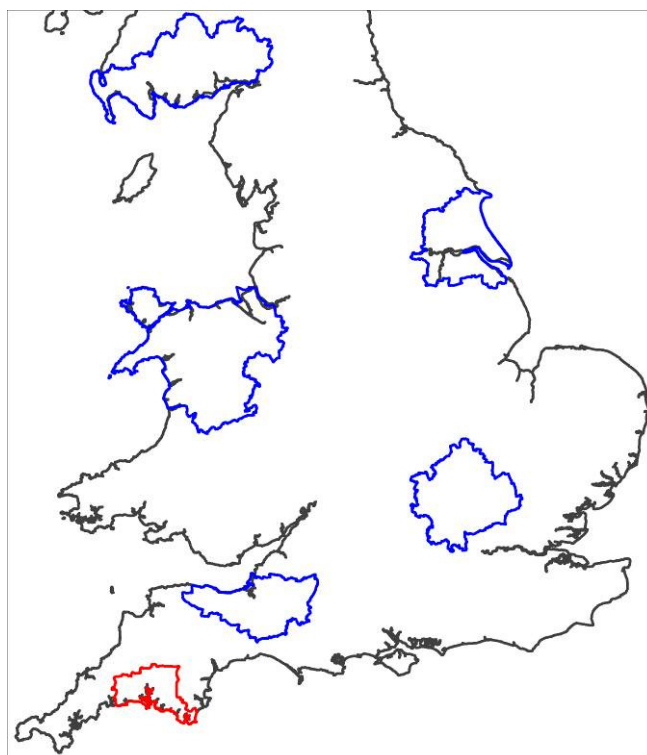


Figure 1.1: Proposed Block 10D allocations

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 mux 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 from modifications 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: Current situation~~

The current transmission characteristics are:

Site name	ERP	Site height m a o d	Antenna height m a g l	Antenna type
Plympton	3kW	114	35	Dipoles on Pole

At present, the Plympton transmitter operates on DAB block 12A. Under the GE06 plan it will change to block 10D. The coverage for the current situation is shown in figure 2.1.

~~For case 2: Modified Network 1~~

Not applicable. It is impractical to modify the existing installation at Plympton without exceeding signal levels at the test points of the Bretagne-Est (F__00702) allotment agreed in the Administrative Declaration with France.

~~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 Heart Devon). To achieve this, five sites were required. The coverage of the Modified Network 2 is shown in figure 2.2.

~~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). To achieve this coverage the same five sites will be required as modified network 2. This is also shown in figure 2.2.

Plymouth is a special case in that coverage within the Plymouth, Exeter & Torbay and North Devon editorial areas may come from the transmitters of any of these multiplexes. Additionally, coverage in the western area of the editorial area may come from transmitters of the Cornwall multiplex. . Planning of these multiplexes is not yet complete but is expected to enhance the coverage of the Plymouth multiplex. The existing/proposed transmitters of these networks are shown on figure 2.3 (although their coverage is not). Composite coverage of these four multiplexes will be shown in an additional report after work on all the individual multiplexes has been completed.

1.1 Outgoing interference and sensitivity to other co-block multiplexes

Other 10D multiplexes are largely unaffected by the DSO proposal contained within this document. Plymouth is unaffected by co-block interference.

There are two restrictions on the Plymouth multiplex in the Administrative Declaration with France. These specify the signal levels into Haute-Normandie (F__00714) and Bretagne-Est (F__00702). The proposed network meets the condition of the F__00714 agreement but (with Somerset) slightly exceeds the level at two test points of the F__00702 allotment.

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 Current Situation

Figure 2-2 Modified Network 2 and 3

Figure 2-3 Modified Network 2 and 3 showing transmitters of neighbouring multiplexes

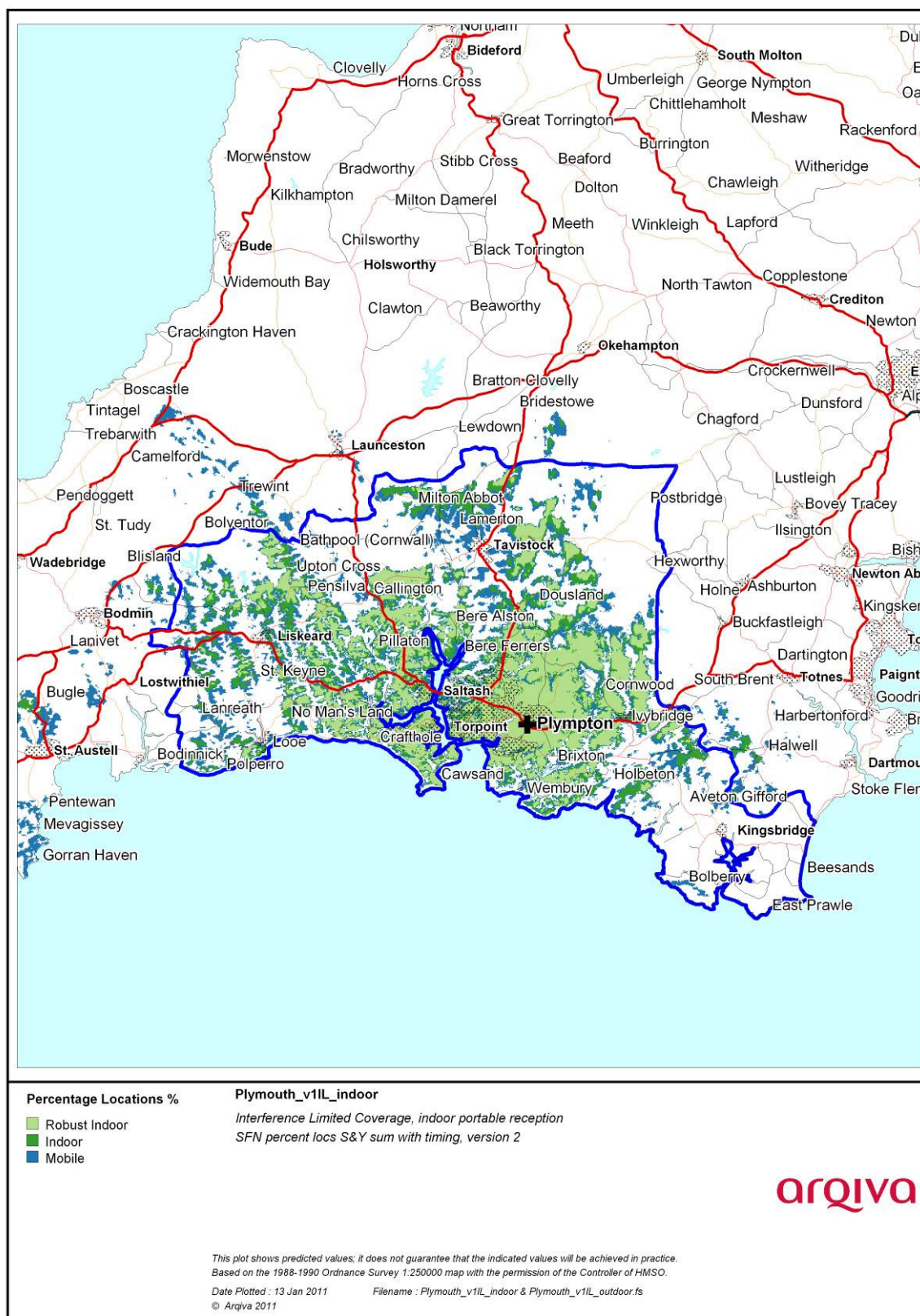


Figure 2-1. Current Situation



Figure 2-2 Modified Network 2 and 3



Figure 2-3 Modified Network 2 and 3
 showing locations of transmitters of Cornwall, north Devon and Exeter & Torbay multiplexes

2.2 Population Coverage tables within Editorial Area

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

Total 187,924 households

Site scenario and incremental additional sites	Site type	Individual gross interference limited coverage within editorial area	Cumulative number of households within editorial area	Incremental increase in number of households	Incremental percentage increase of population	Cumulative percentage of editorial area
Plympton	Shared Existing Infrastructure	114,330 (60.8%)	114,330	-	-	60.8
North Hesserly Tor	Shared Existing Infrastructure	73,867 (39.3%)	147,999	33,669	18.0	78.8
Kingsbridge	Shared Existing Infrastructure	7,976 (4.2%)	157,297	9,298	4.9	83.7
Ivybridge	Shared Existing Infrastructure	17,854 (9.5%)	162,580	5,283	2.7	86.5
Slapton	Existing site new antenna	2,684 (1.4%)	164,145	1,565	0.8	87.3

Case 1	-	Yellow =	Current coverage
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Yellow + orange =	Modified Network 2
Case 4	-	Not Applicable	Modified Network 3

Table 2-2. Road coverage 99% location 99%T: Total roads 277 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
Plympton	Shared Existing Infrastructure	142	142	51.2%	51.2%
North Hessay Tor	Shared Existing Infrastructure	200	58	21.2%	72.4%
Kingsbridge	Shared Existing Infrastructure	222	22	7.6%	80.0
Ivybridge	Shared Existing Infrastructure	240	18	6.7%	86.7
Slapton	Existing site new antenna	247	7	2.3%	89.1

Case 1	-	Yellow =	Current coverage
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Yellow + orange=	Modified Network 2
Case 4	-	Not Applicable	Modified Network 3

Table 2-3. Summary of Coverage within Editorial Area for each case
99% time Interference

Case	Indoor Households & (percentage coverage)	Mobile Coverage km & percentage coverage) 99% locations
1	114,300 (60.8%)	147 (51.2%)
2	n/a	n/a
3	164,145 (87.3%)	247 (89.1%)
4	n/a	n/a