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**Digital Switchover (DSO) Programme**

**Radio DSO Digital One**

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**Document Reference:** Radio DSO Digital One–1.4

**Release Date:** 13th June 2011

Public

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## Document Details

General Detail				
Abstract	Digital One submission to Ofcom on Radio DSO			
Author	Glenn Doel			
Verifier	Brian Tait			
Owner	Glenn Doel			
Optional Information				
Author Defined Reference No	Not used	Project No	951226	
Cross Reference				

Document History		
Ver	Date	Amendment
1.0	10/06/11	Initial release
1.1	12/06/11	Updated pop figures and added Classic FM
1.2	13/06/11	Slight description changes
1.3	13/06/11	National coverage population correction
1.4	13/06/11	Digital One input

## Table of Contents

<b>1</b>	<b>Digital One proposal</b> .....	<b>4</b>
1.1	Proposed additional sites and improvements to existing sites.....	5
<b>2</b>	<b>Coverage Tables for current licence and future proposals</b> .....	<b>6</b>
2.1	Digital One Coverage .....	6
<b>3</b>	<b>Coverage of the Multiplexes</b> .....	<b>9</b>
3.1	Coverage Maps .....	9

## 1 Digital One proposal

This document sets out Digital One's current position regarding Radio DSO, it represents a possible scenario and series of improvements and additional sites. The key goal was to identify what developments to the existing Digital One network (as documented in the submissions for Digital One's licence renewal) are needed to deliver reception which is comparable to Classic FM's analogue transmitter network.

Wherever possible Digital One have sought to deliver contiguous digital radio coverage for both mobile and in building reception. We have relied on computer generated maps for both DAB and FM coverage.

The work has not been commercially driven – either by Arqiva as a transmission provider nor by the commercial criteria of Digital One's customers. It should be noted that several of Digital One's customers believe the current main network of 133 transmitters includes sites which, according to the radio station's business criteria, are already non-economic. However, Digital One believe that the improvements proposed should be economically sustainable as the route and timetable to switch over continue to be clarified.

We have not sought, pedantically, to ensure that each and every house or road which the model suggests has FM reception will also receive DAB reception. We believe this would have been wasteful and simply uneconomic for Digital One's customers.

By way of example, in some cases the nature of FM propagation means that in order to deliver robust coverage in a densely populated area a particular site is used at a particular power and as an unintended consequence the FM signal also reaches very sparsely populated hillsides which Classic FM was never seeking to cover. At the same time, the limited FM spectrum available to Classic FM means that some towns have poor coverage, or no coverage. In this process Digital One have not sought to bring DAB coverage to every sparsely populated hillside but have sought, where possible, to reach towns and major roads where Classic FM does have coverage and in addition to some areas where Classic FM's coverage is poor or inadequate.

The proposed improvements and additional sites are documented in section 1.1. The sites listed include several sites in Northern Ireland. As yet, Digital One have not discussed the detail of the sites in Northern Ireland with service providers (i.e. the owners of stations and services on Digital One). However, once the process of defining the list as a whole is at a more advanced stage, Digital One will look at ways of working with its customers to switch on those sites as an initial stage of the process of expanding the network.

## 1.1 Proposed additional sites and improvements to existing sites

Caldbeck: At the moment this site has a very directional antenna at a relatively low antenna height, this leads to poor coverage to the west and leaves transmission sites of Workington and Whitehaven 'isolated'. The proposal would be to replace Caldbeck with transmissions similar to the BBC national service at Sandale which is omni-directional. At this time Digital One proposes an ERP in the region of 5kW. This change will have to be co-ordinated with the Republic of Ireland, the primary reason for the restricted antenna at Caldbeck was to protect Irish analogue TV.

Darvel: At the moment Digital One uses a separate antenna to the BBC national. This antenna is lower on the structure and with a very deep null to west, which is in fact the primary target area of Ayr. The proposal is to share the BBC national antenna at the same ERP as Digital One's current ERP. This change will have to be co-ordinated with the Republic of Ireland, the primary reason for the restricted antenna at Darvel was to protect Irish analogue TV.

BT Tower: This assumes that the current 300W omni-directional is replaced with dipoles at 800W (in common with the proposal for the other London multiplexes and BBC national)

### List of additional sites proposed:

Scotland: Glasgow Hilton, Taybridge, Mormond Hill, Redmoss and Abingdon.

Northern Ireland: Divis, Londonderry (Derry), Armagh, Maddybenny More, Camlough, Carnmoney Hill.

Wales: Great Orme, Cefn Eglwysilan, Heolgerrig, Rhonnda A

England: Knott Farm (M6), Swingate, Dunkirk, Truleigh Hill, Burton Down, St Austell, Truro, Mow Cop, Clifton, High Hunsley, Eston Nab, Sunderland (Hendon), North Hessary Tor, Membury (M4), Holcombe Down.

Five Movio sites in London removed and re-allocated to the above list (as per the Digital One Licence Renewal proposal).

## 2 Coverage Tables for current licence and future proposals

Indoor coverage is presented as a proportional count in line with the agreed counting algorithms. Maps are presented as; indoor 80-95 % locations and robust indoor 95% locations or greater this assumes 99% of time.

Mobile coverage is defined as 99% locations at 99% time. However separate maps have been produced showing 95; 97 and 99% locations at 99% time.

### 2.1 Digital One Coverage

Table 2.1: National coverage (UK)

Scenario	Current coverage		DSO proposal	
	Roads (Motorways and primary A roads in km)	33,548	63.47%	36,607
Indoor proportional method (households)	23,314,563	84.61%	25,950,842	91.52%

Table 2.2: England only coverage

Scenario	Current coverage		DSO proposal	
	Roads (Motorways and primary A roads in km)	27,582	78.1%	28,565
Indoor proportional method (households)	20,631,828	89.8%	22,199,097	94.4%

**Table 2.3 Wales only**

Scenario	Current coverage		DSO proposal	
Roads (Motorways and primary A roads in km)	1,574	36.8%	1,701	39.8%
Indoor proportional method (households)	805,337	58.5%	1,007,051	71.5%

**Table 2.4 Scotland only**

Scenario	Current coverage		DSO proposal	
Roads (Motorways and primary A roads in km)	4,372	41.2%	4,761	44.9%
Indoor proportional method (households)	1,873,474	74.6%	2,094,744	81.2%

**Table 2.5 N Ireland only (no coverage currently)**

Scenario	Current coverage		DSO proposal	
Roads (Motorways and primary A roads in km)	-	-	1,474	62.3%
Indoor proportional method (households)	-	-	630,585	79.1%

**Table 2.6: National coverage mobile outdoor for 95, 97 and 99% locations (roads in km)**

<b>Scenario</b>	<b>Current coverage</b>		<b>DSO proposal</b>	
<b>95% locations</b>	37,642	71.2%	40,387	76.4%
<b>97% locations</b>	36,480	69.0%	39,312	74.4%
<b>99% locations</b>	33,548	63.5%	36,551	69.2%

## 3 Coverage of the Multiplexes

### 3.1 Coverage Maps

Coverage maps for indoor are presented with two colours :

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

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

Coverage maps for mobile/outdoor are presented with three colours:

Light Red = mobile (95-97% locations at 99% time)

Light Blue = mobile (97-99% locations at 99% time)

Light Green = mobile (99% or greater locations at 99% time)

Figure 3.1: Indoor coverage for England

Figure 3.2: Mobile coverage for England

Figure 3.3: Indoor coverage for Scotland

Figure 3.4: Mobile coverage for Scotland

Figure 3.5: Indoor coverage for Wales

Figure 3.6: Mobile coverage for Wales

Figure 3.7: Indoor coverage for Northern Ireland

Figure 3.8: Mobile coverage for Northern Ireland



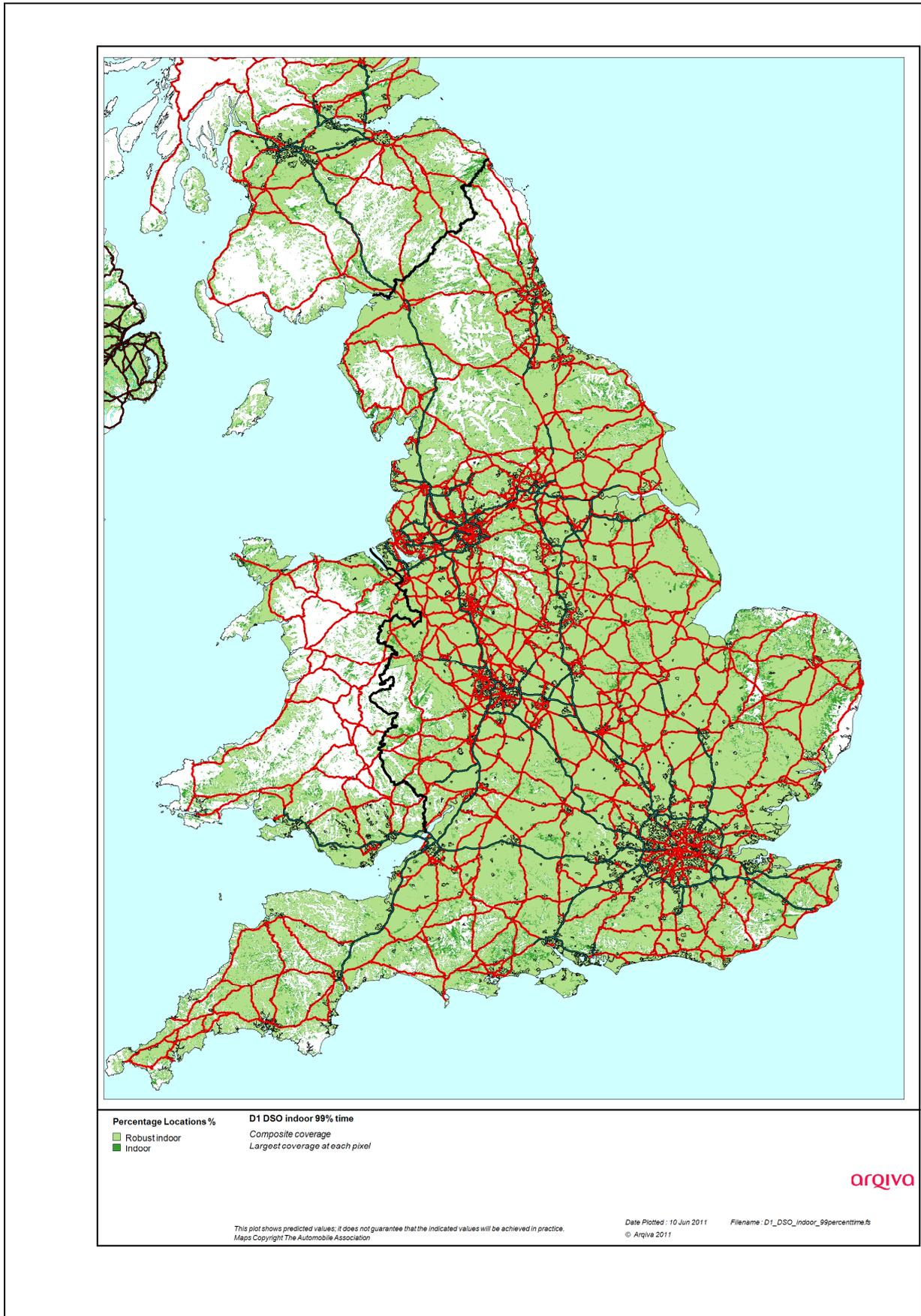


Figure 3.1: Indoor coverage for England

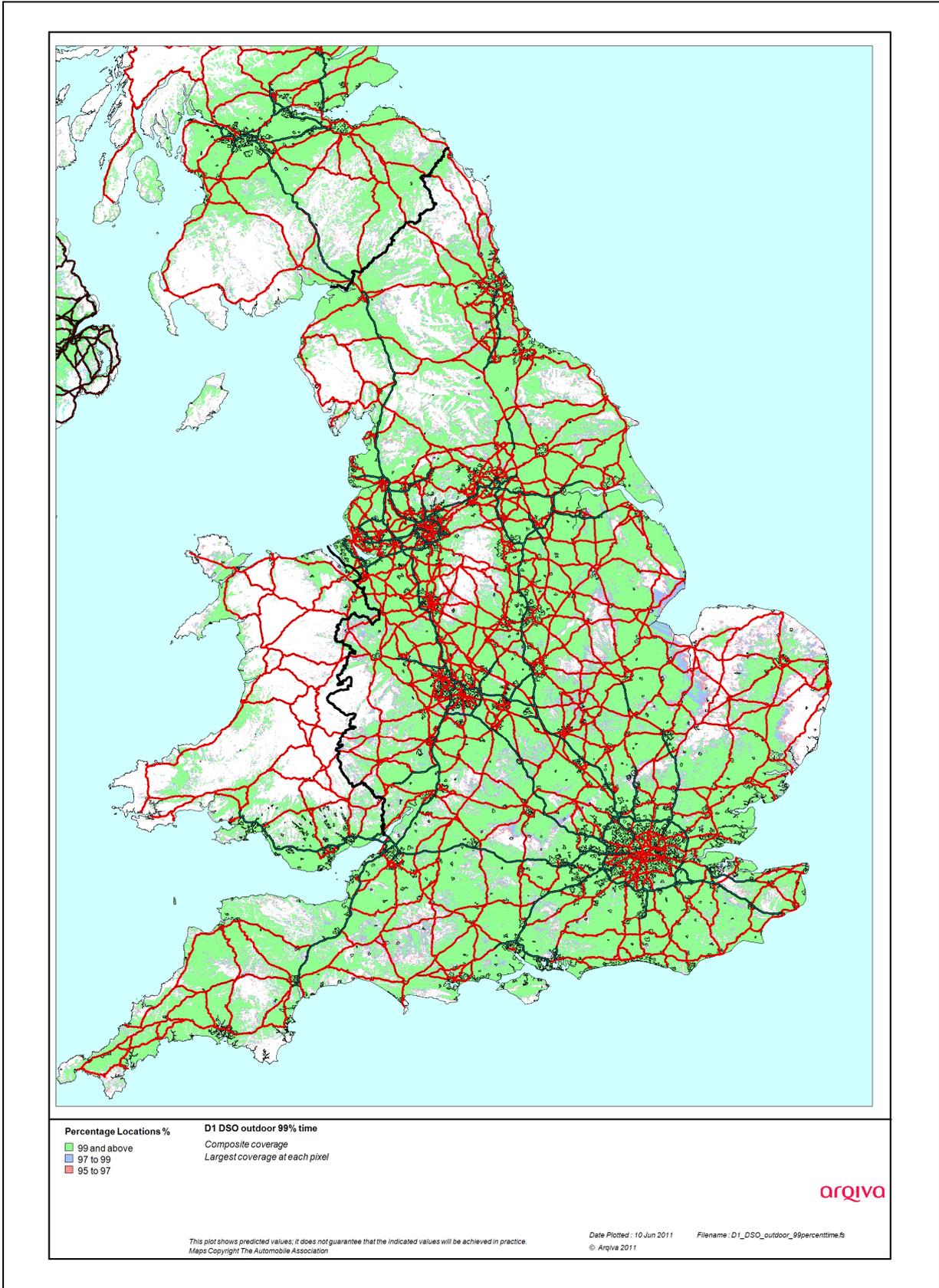


Figure 3.2: Mobile coverage for England

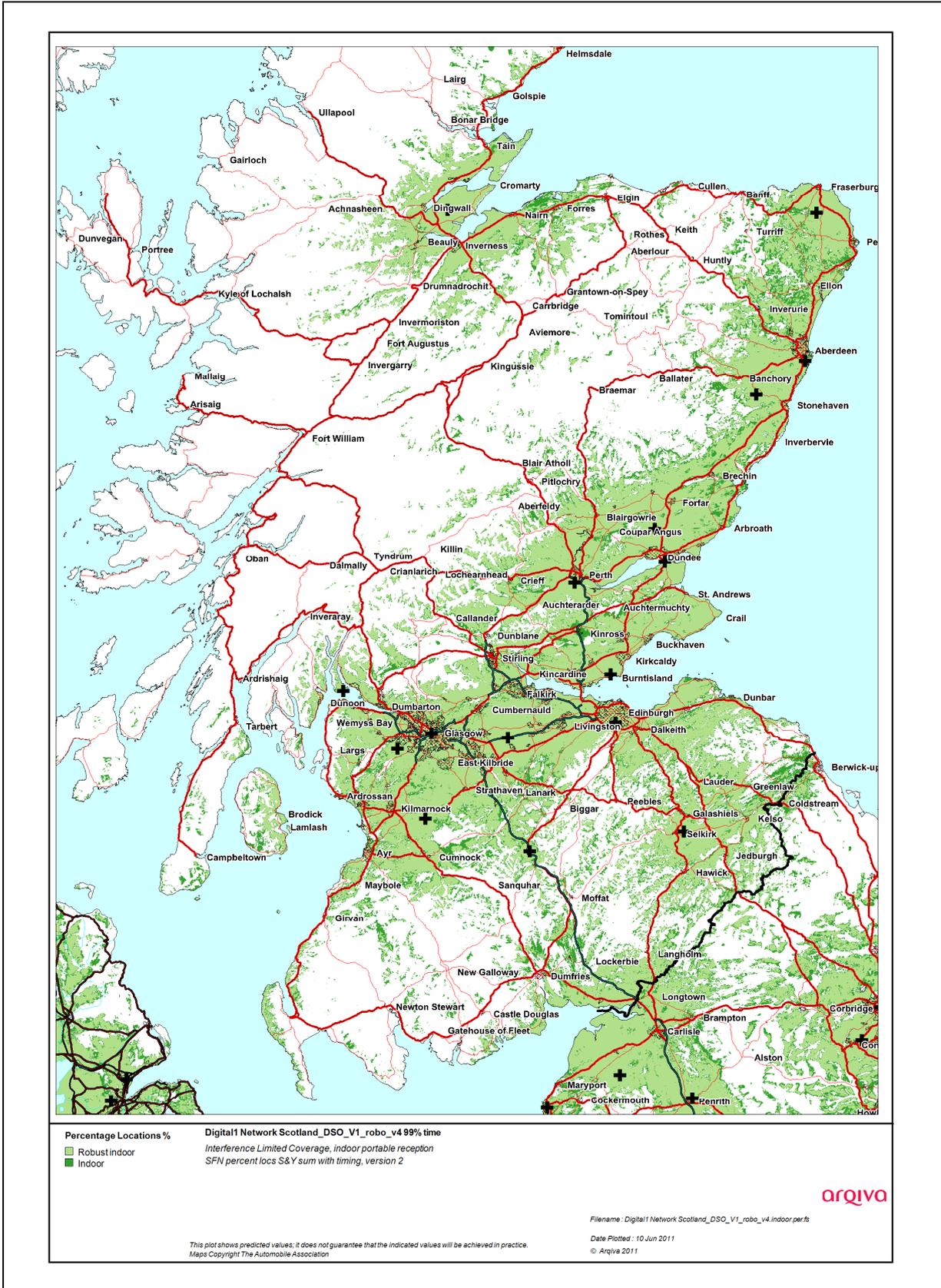


Figure 3.3: Indoor coverage for Scotland

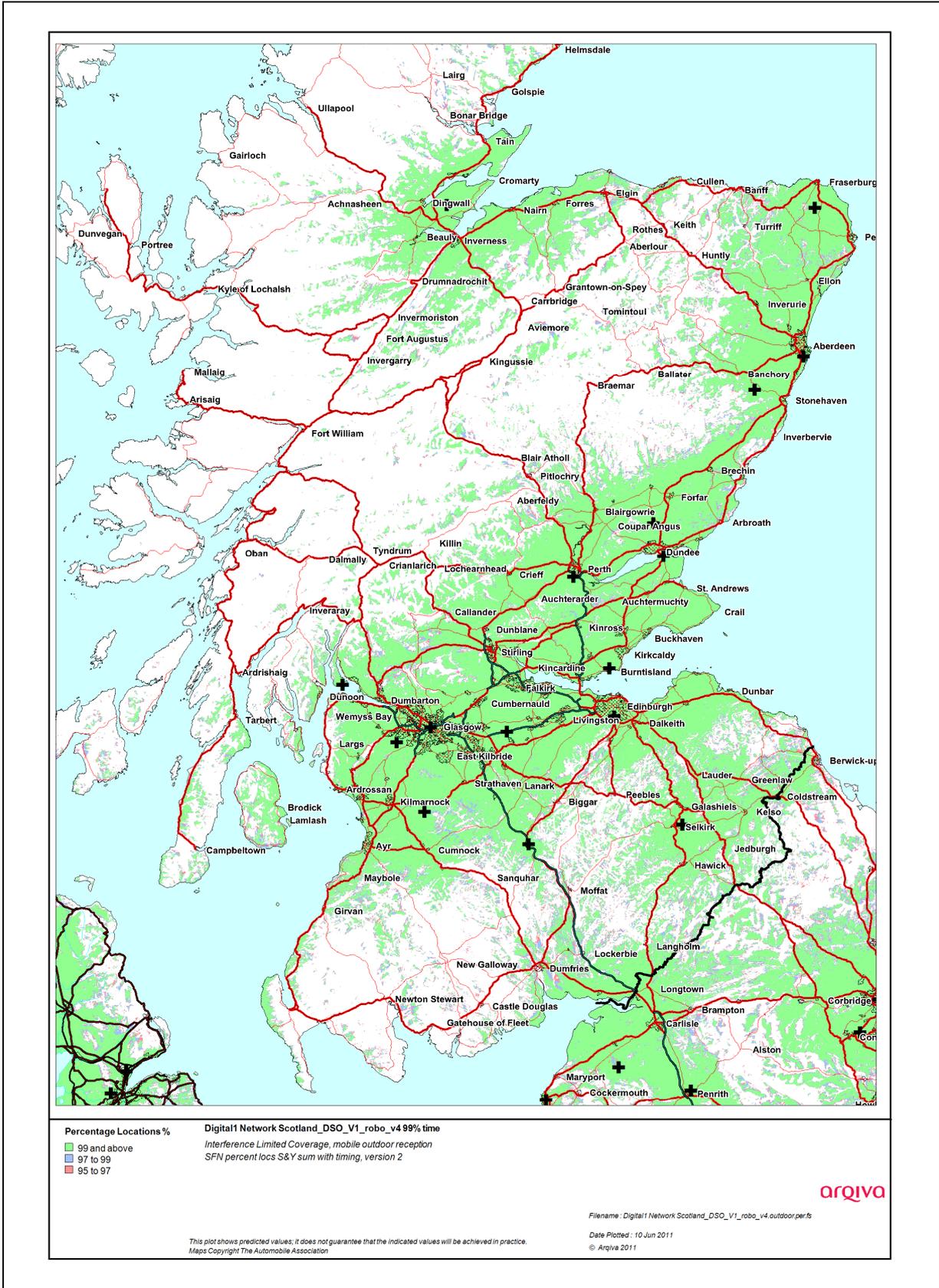


Figure 3.4: Mobile coverage for Scotland



Figure 3.5: Indoor coverage for Wales

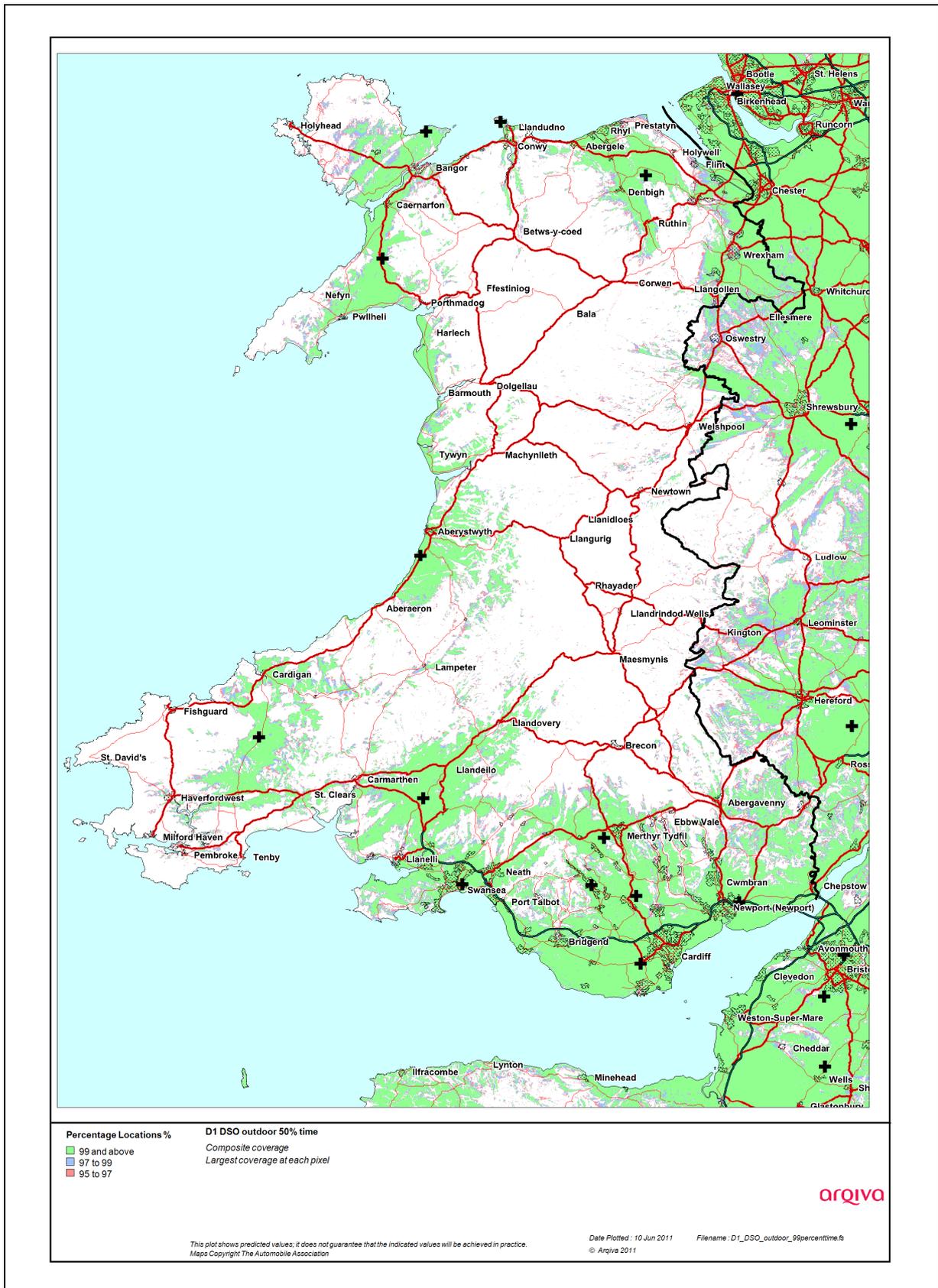


Figure 3.6: Mobile coverage for Wales



Figure 3.7: Indoor coverage for Northern Ireland

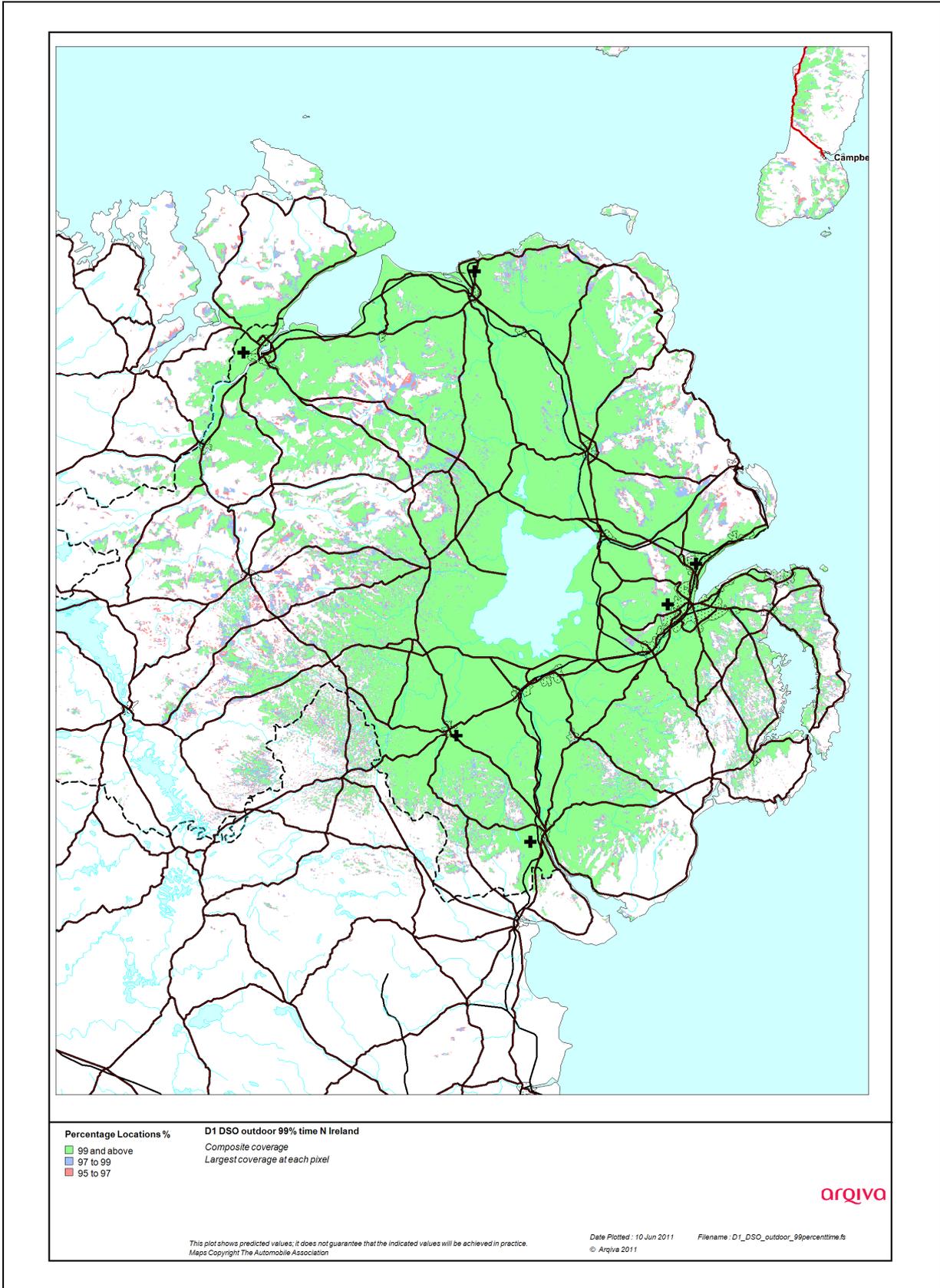


Figure 3.8: Mobile coverage for Northern Ireland