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**Digital Switchover (DSO) Programme**

**Radio DSO Block 11B Bristol & Bath**

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## Document Details

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## 1 Bristol & Bath DSO narrative

The current allocation on 11B for Bristol & Bath has been implemented with four transmitters.

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

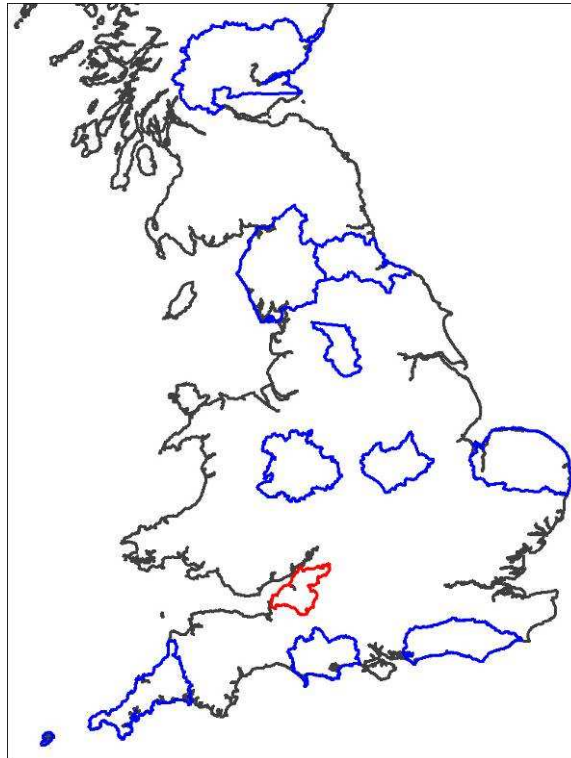


Figure 1.1: Proposed Block 11B allocations

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: Current situation

The current allocated transmission characteristics are:

Site name	ERP	Site height m a.o.d.	Antenna height a.g.l	Antenna type
Dundry East	4kW	213	40	Yagis
Hutton	2kW	74	22	Yagis
Bath	1kW	167	40	Panels
Milbury Heath	1.2kW	106	22	Yagis

The coverage for the launch situation is shown in figures 2.1-2.3. The editorial area has been modified slightly and now excludes Cheddar, which will be served by the Somerset multiplex, Tetbury, which will be served by Gloucester, and some other small areas.

For case 2: Modified Network 1

No changes to the existing network are proposed.

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 West Country). To achieve this four additional sites are required. The coverage of the Modified Network 2 is shown in figures 2.4-2.6. It will be noted that adding the first additional site reduces road coverage. This is due to Case 1 being considered with only existing interferers whereas subsequent calculations take into account future interferers.

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). One additional site is required to achieve this. This site is mainly intended to cover the northern part of the M5. The coverage of the Modified Network 3 is shown in figures 2.7-2.9.

Figure 1.2 shows the areas of overlap between the Bristol & Bath multiplex and Gloucestershire to the north and Somerset to the south. The Gloucestershire overlap area, around Wotton-under-Edge, is better served by Bristol & Bath than by Gloucestershire. The unserved area to the south of Midsomer Norton, around Oakhill, is served by the Somerset multiplex.

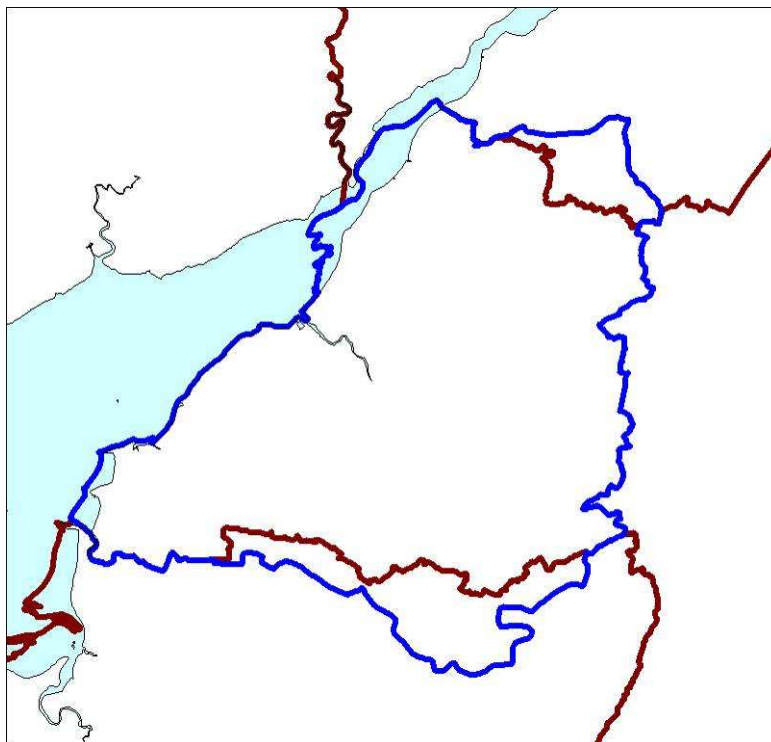


Figure 1.2: Overlap with adjacent multiplexes

## 1.1 Outgoing interference and sensitivity to other co-block multiplexes

There is a significant impact on the Bournemouth and Wolverhampton multiplexes from the DSO proposal contained within this document. Additionally, there is a slight impact on the Cornwall, Sussex, Norfolk and Leicester multiplexes.

Even the current network suffers from fairly high levels of co-block interference from the Wolverhampton and Bournemouth multiplexes. Additionally, there is interference from Sussex and very slight interference from Cornwall.

The general 'Benchmark' for indoor and outdoor co-block interference protection is for 99% time; however, as mentioned above outdoor coverage is affected more than is desirable from 1% time interference. Hence, coverage has also been assessed at 95% time for outdoor coverage only, gaining 3.7% in terms of road km.

It will be noted in table 2-3 that adding the first new site to the existing network appears to decrease the road coverage. This is because the existing network has been considered with existing interferers whereas, from five sites onwards, future interferers are also taken into account in the calculations. If the existing network had been considered with all future interferers the figure would be an increase of 33km in road coverage.

## 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	Case 1: Current Situation
Figure 2-2	Case 1: Current Situation mobile 99% time
Figure 2-3	Case 1: Current Situation mobile 95% time
Figure 2-4	Case 3: Modified Network 2
Figure 2-5	Case 3: Modified Network 2 mobile 99% time
Figure 2-6	Case 3: Modified Network 2 mobile 95% time
Figure 2-7	Case 4: Modified Network 3
Figure 2-8	Case 4: Modified Network 3 mobile 99% time
Figure 2-9	Case 4: Modified Network 3 mobile 95% time



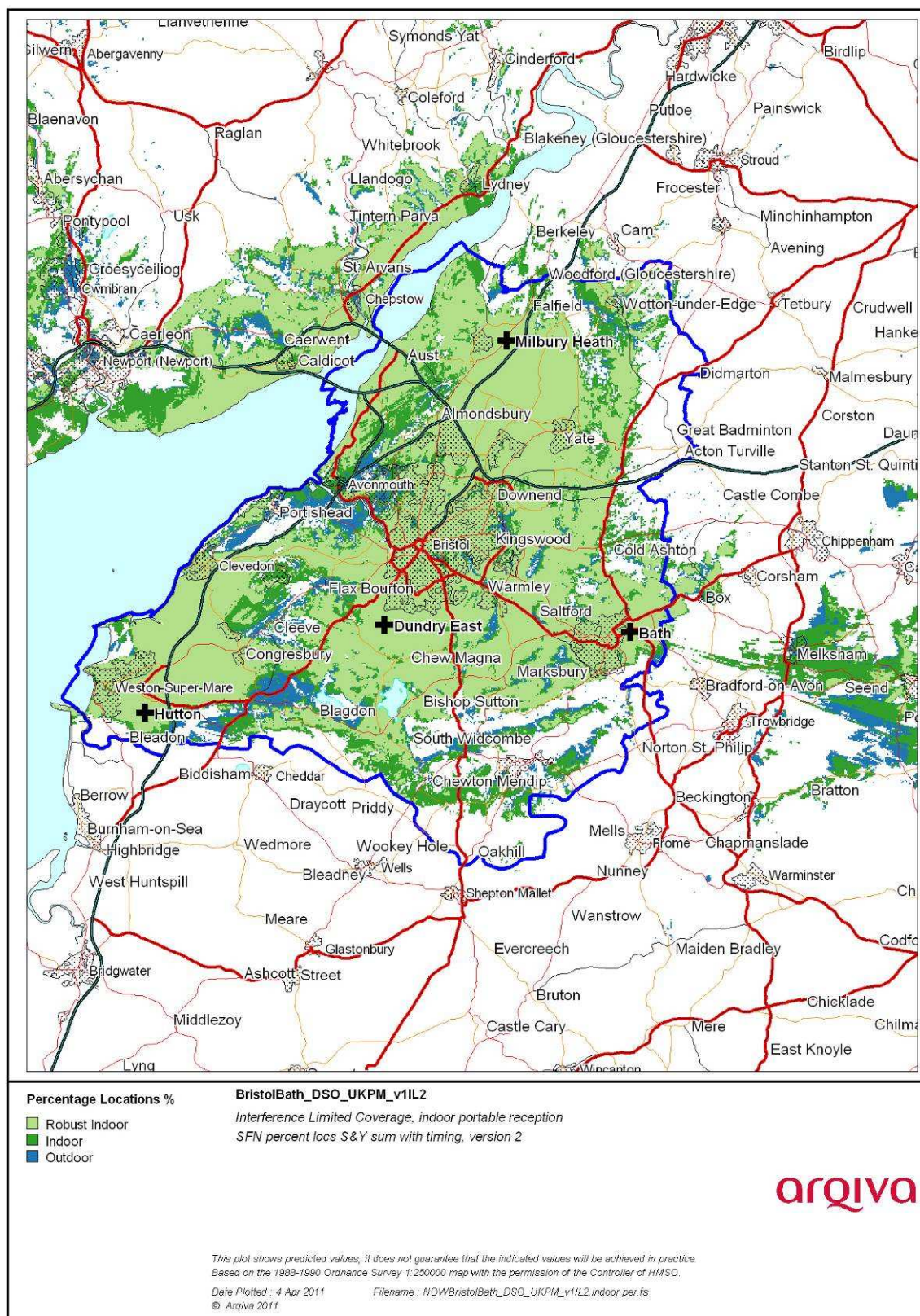


Figure 2-1. Current Situation



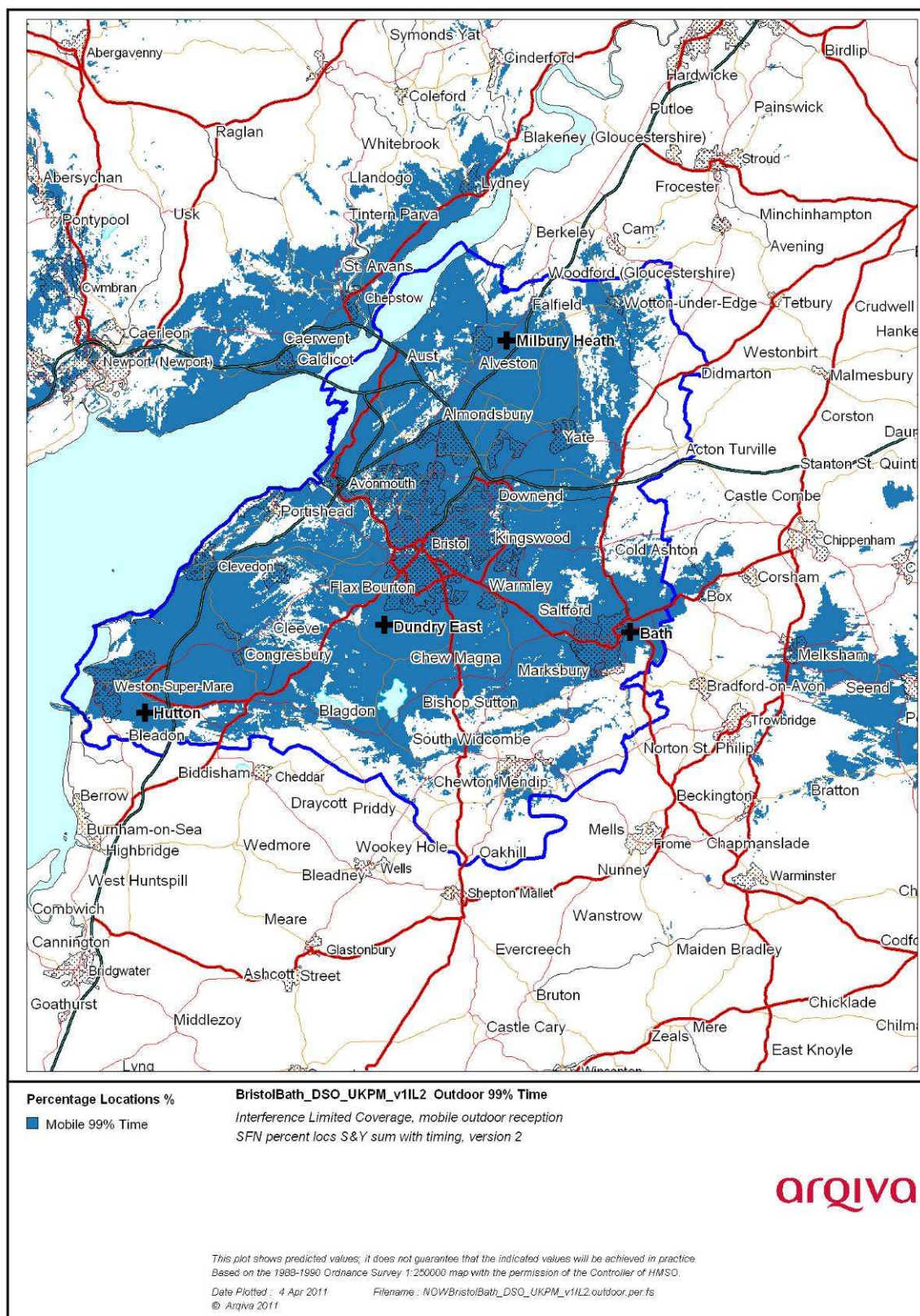


Figure 2-3 Current Situation mobile 99% time



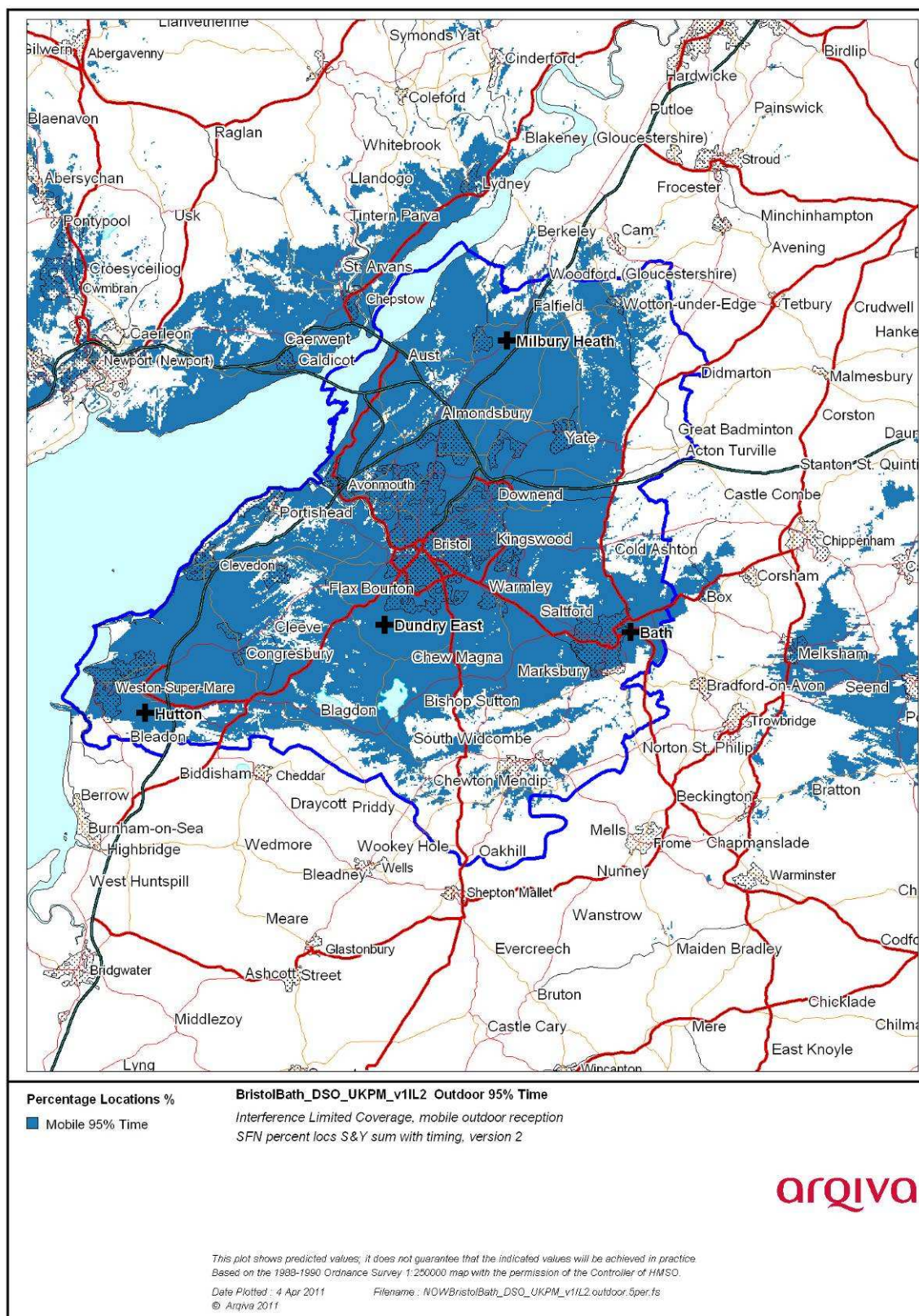


Figure 2-3 Current Situation mobile 95% time



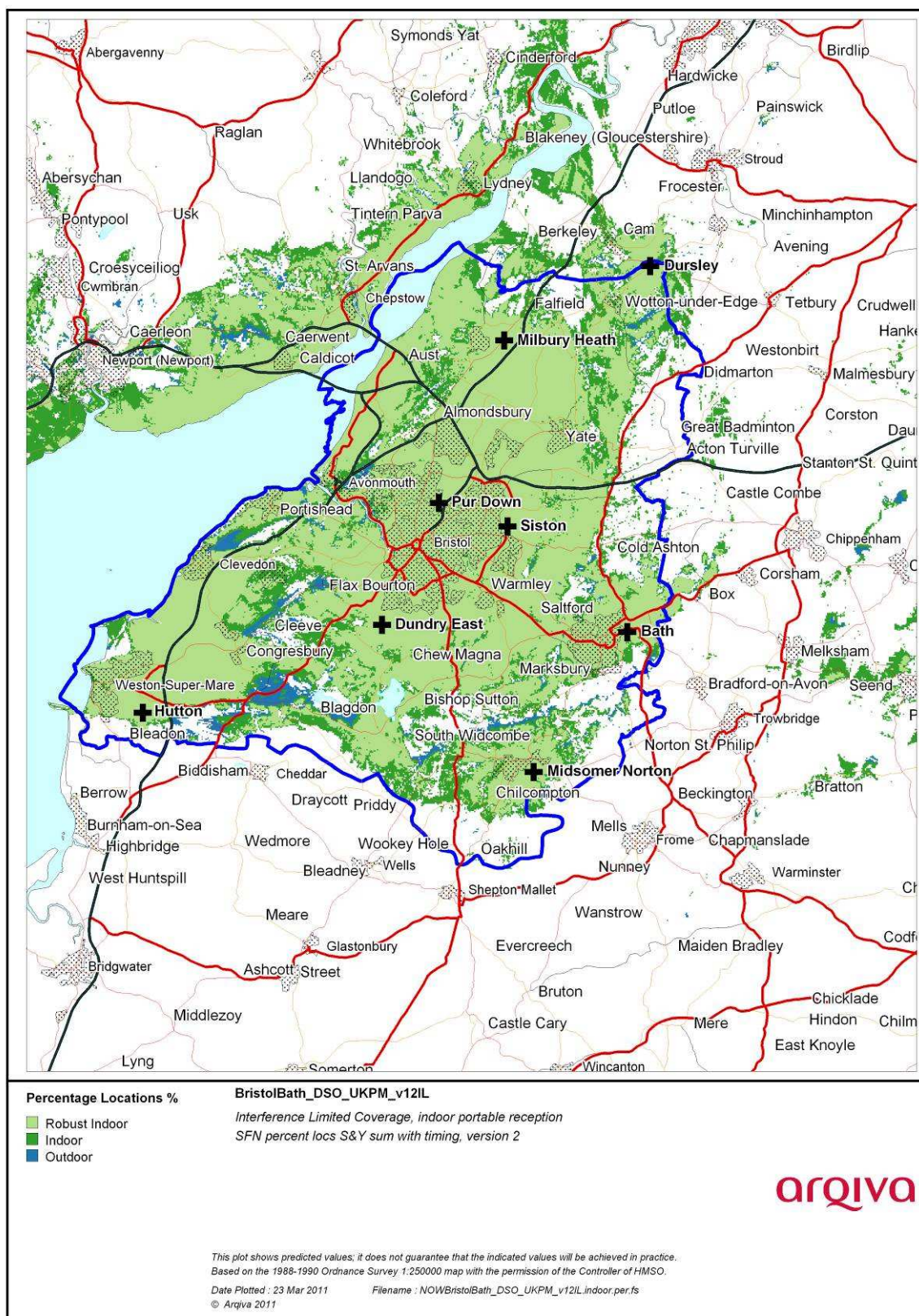


Figure 2-4 Modified Network 2



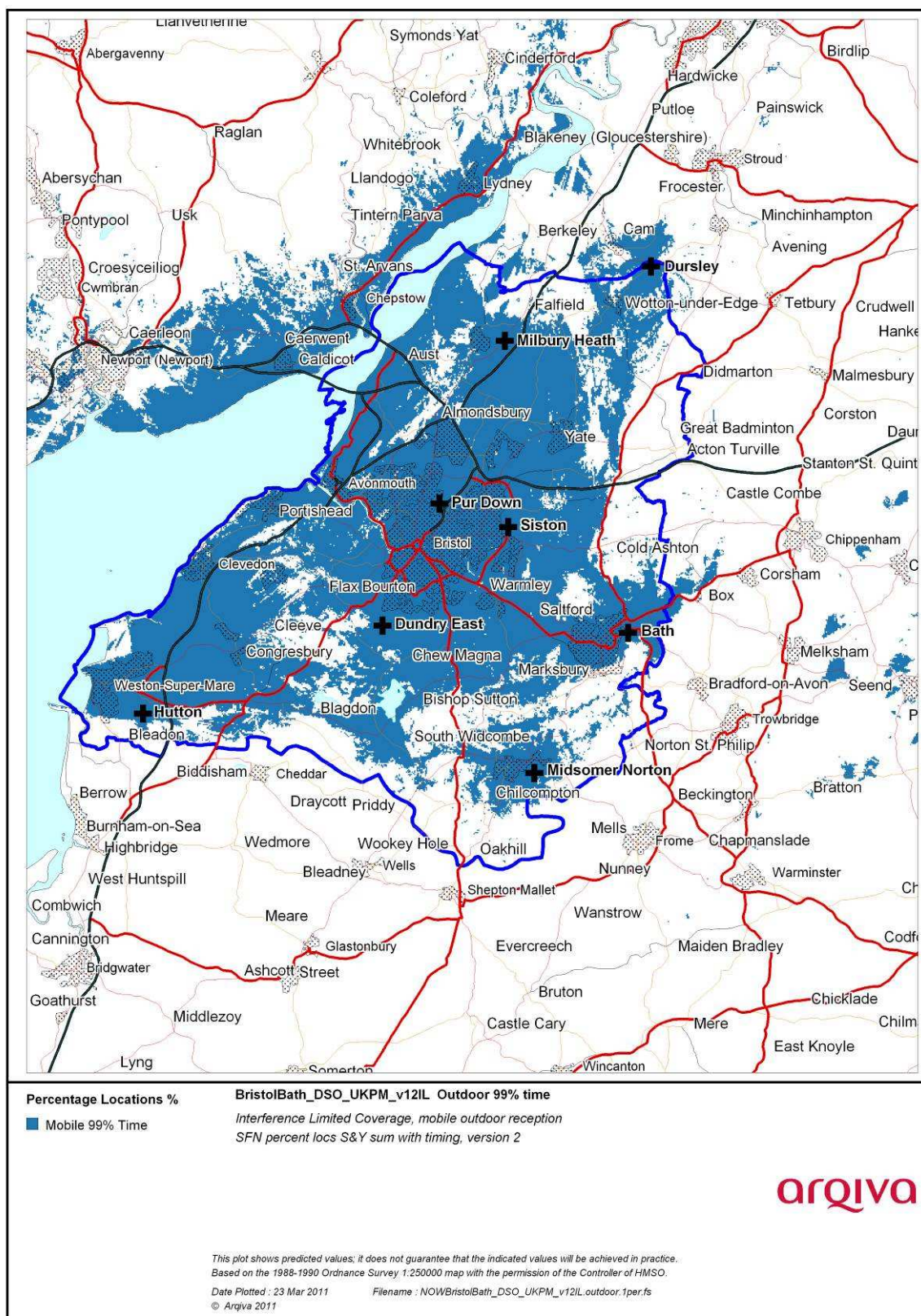


Figure 2-5 Modified Network 2 mobile 99% time



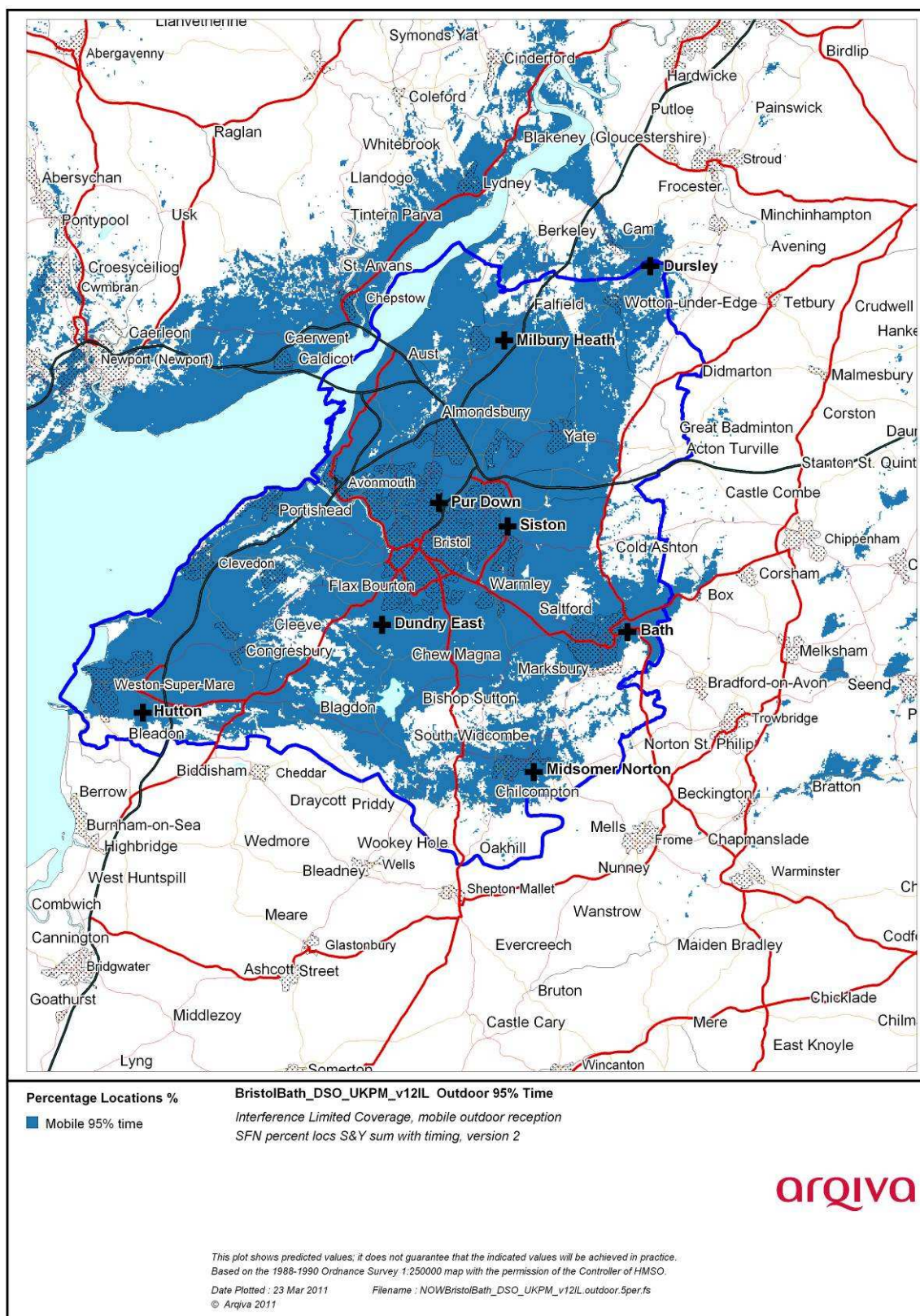


Figure 2-6 Modified Network 2 mobile 95% time



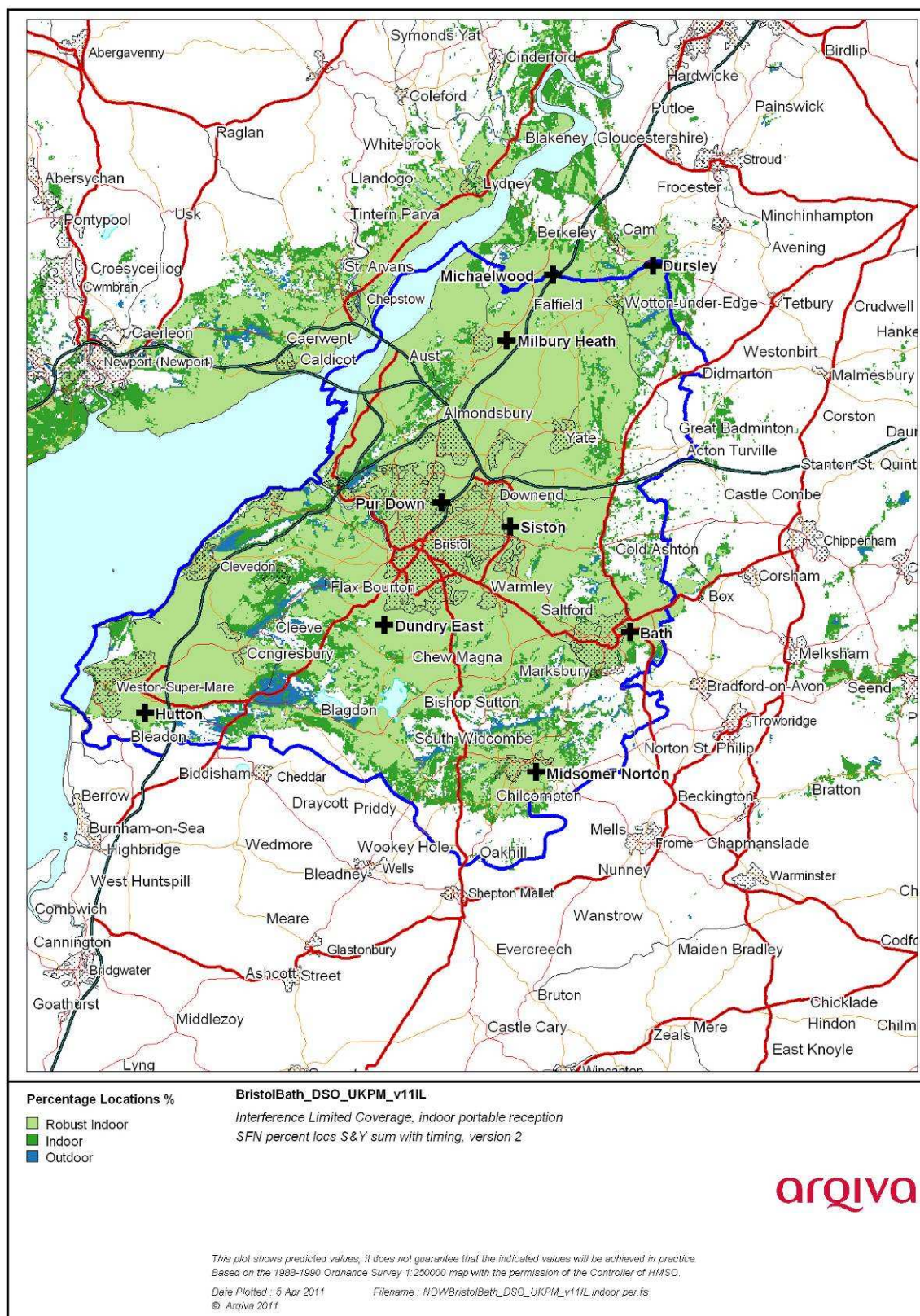


Figure 2-7 Modified Network 3



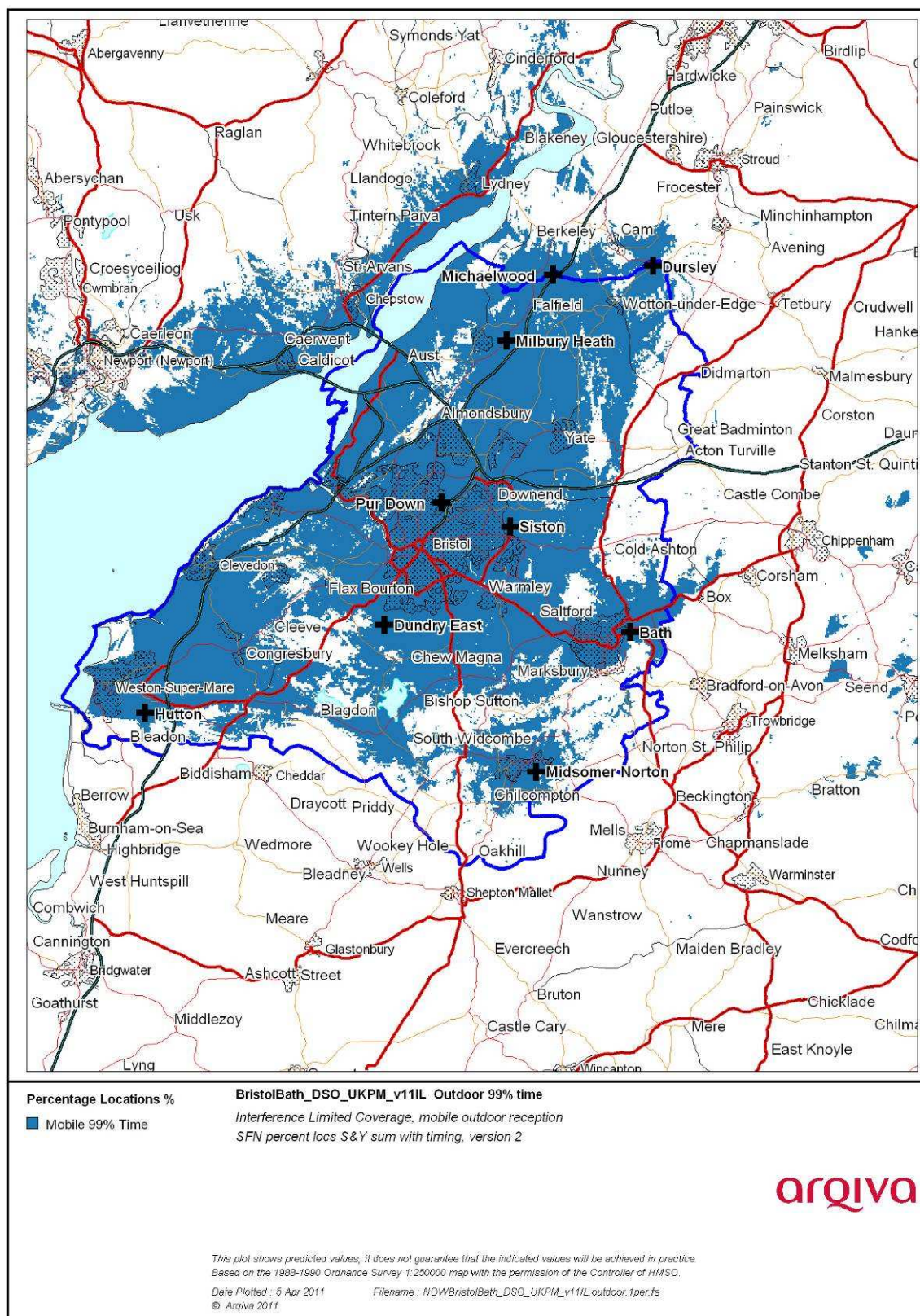


Figure 2-8 Modified Network 3 mobile 99% time



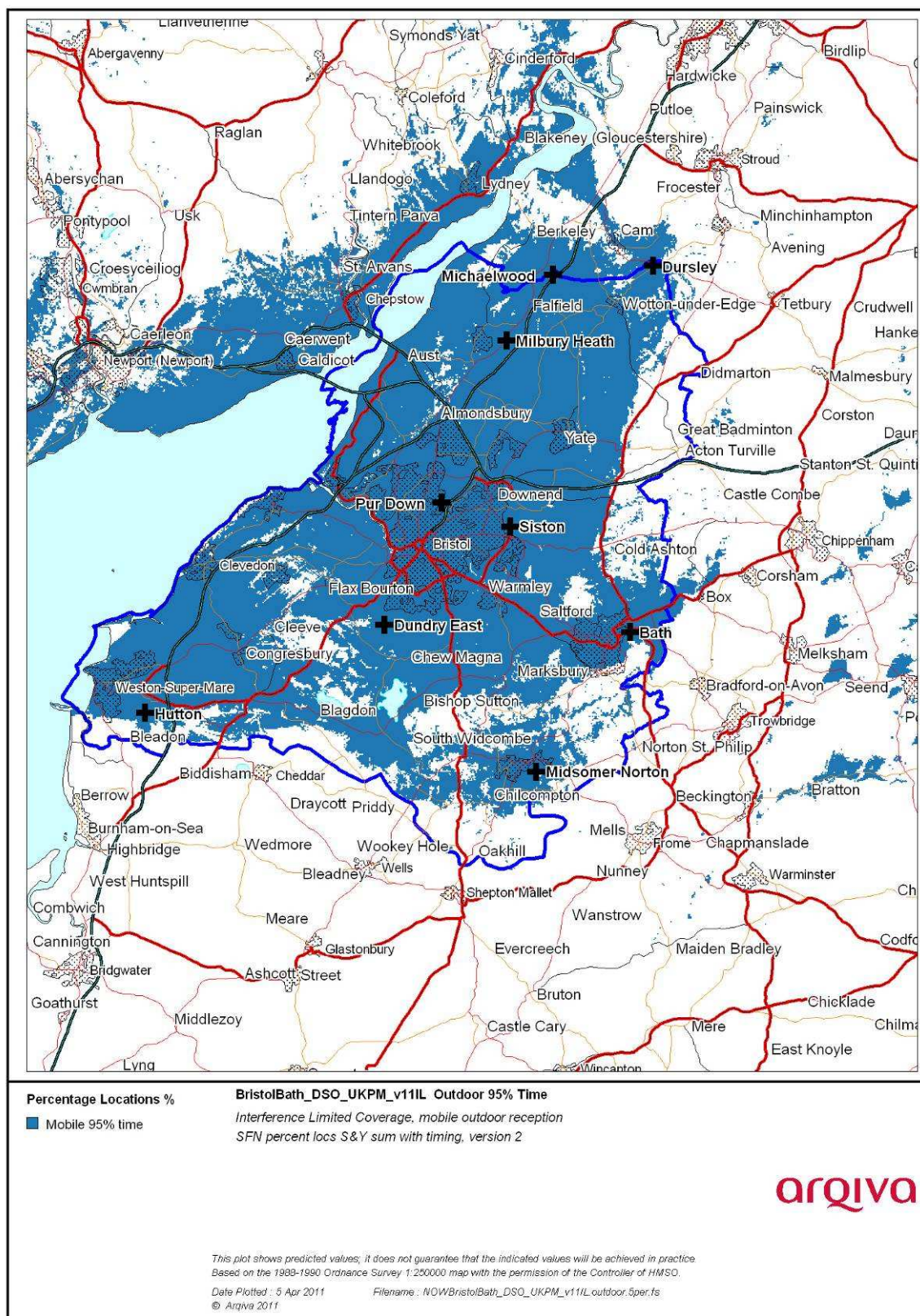


Figure 2-9 Modified Network 3 mobile 95% time

## 2.2 Population Coverage tables within Editorial Area

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

: Total 464,457

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
Current (4 tx)	Shared Existing Infrastructure	-	399,889	-	-	86.1%
Hutton	Current	56,653 (12.2%)				
Bath	Current	41,939 (9.0%)				
Dundry	Current	230,563 (49.6%)				
Milbury Heath	Current	27,962 (6.0%)				
Pur Down	Shared Existing Infrastructure	222,480 (47.9%)	409,406	9,517	2.1%	88.2%
Dursley	Existing Site New antenna	3,529 (0.8%)	413,691	4,285	0.9%	89.1%
Midsomer Norton	New Site	12,142 (2.6%)	428,624	14,933	3.2%	92.3%
Siston	Existing Site New antenna	35,935 (7.7%)	434,560	5,936	1.3%	93.6%
Michaelwood	New Site	2,829 (0.6%)	436,344	1,784	0.4%	94.0%

Case 1	-	Yellow =	Current coverage
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Yellow + Orange=	Modified Network 2
Case 4	-	Yellow + Orange + Green=	Modified network 3

*Table 2-2. Road coverage 99% location 99%T: Total roads 598 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
Current (4 tx)	Shared Existing Infrastructure	455	-	-	76.0%
Pur Down	Shared Existing Infrastructure	421	-34	-5.6%	70.4%
Dursley	Existing Site New antenna	430	9	1.6%	71.9%
Midsomer Norton	New Site	452	21	3.6%	75.5%
Siston	Existing Site New antenna	462	10	1.7%	77.2%
Michaelwood	New Site	472	10	1.7%	78.9%

*Table 2-3. Road coverage 99% location 95%T: Total roads 598 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
Current (4 tx)	Shared Existing Infrastructure	469	-	-	78.4%
Pur Down	Shared Existing Infrastructure	445	-24	-4.1%	74.3%
Dursley	Existing Site New antenna	454	9	1.5%	75.8%
Midsomer Norton	New Site	478	24	4.1%	79.9%
Siston	Existing Site New antenna	487	9	1.5%	81.3%
Michaelwood	New Site	495	8	1.3%	82.7%

Case 1	-	Yellow =	Current coverage
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Yellow + Orange=	Modified Network 2
Case 4	-	Yellow + Orange + Green=	Modified network 3

Table 2-4. 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 &amp; 99% Time Interference Protection</i>	Mobile Coverage km & percentage coverage <i>99% Locations &amp; 95% Time Interference Protection</i>
1	399,889 (86.1%)	455 (76.0%)	469 (78.4%)
2	n/a	n/a	
3	434,560 (93.6%)	462 (77.2%)	487 (81.3%)
4	436,344 (94.0%)	472 (78.9%)	495 (82.7%)

Case 1	-	Yellow =	Current coverage
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Yellow + Orange=	Modified Network 2
Case 4	-	Yellow + Orange + Green=	Modified network 3