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## **Digital Switchover (DSO) Programme**

# **Radio DSO Block 10B Hereford & Worcester**

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Company Confidential

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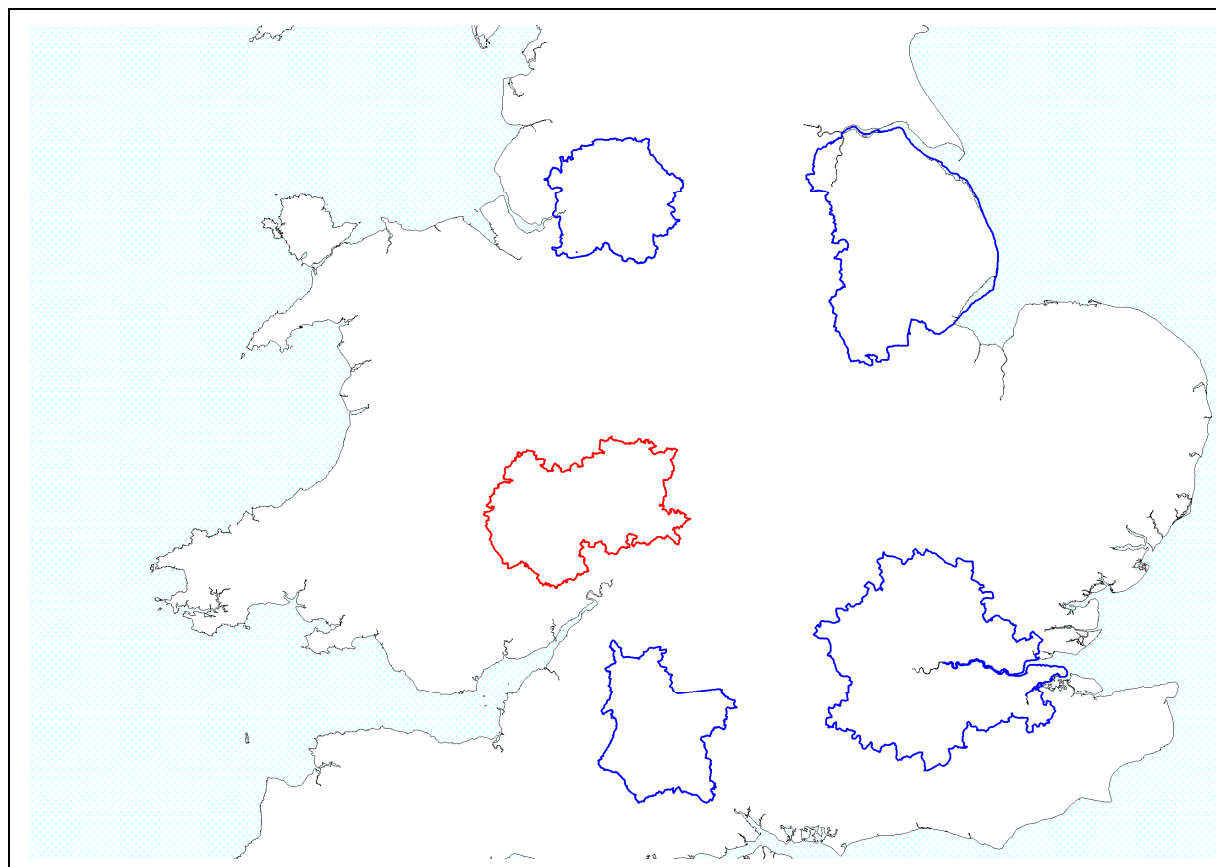
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1.0	24/11/10	Draft version for review.
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## 1 Hereford & Worcester DSO narrative

The current allocation on 10B for Hereford and Worcester has not been implemented; the proposed Block 10B allocations including Manchester, Lincolnshire, London, West Wiltshire & Salisbury and Hereford & Worcester are show Fig 1.1 below.



**Figure 1.1: Proposed Block 10B allocations**

The current allocated transmission characteristics are:

Site name	ERP	Site height m a.o.d	Antenna height m a.g.l	Antenna type
Ridge Hill	5kW	204	127	Array of 4 Panels
Bromsgrove	5kW	148	39	Array of 4 Panels
Malvern	2kW	161	35	Dipoles
The Holding	1kW	42	44	Dipoles

The Holding has been replaced, in this proposal, by a site at Wood Norton which gives superior coverage

Site Name	ERP	Site Ht m a.o.d	Antenna Height m a.g.l	Antenna Type
Wood Norton	1kW	116	35	Dipoles

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 hasn't 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 original allocations – Ridge Hill (National infrastructure), Bromsgrove (National infrastructure) and Malvern (National infrastructure but not yet implemented) and the Wood Norton alternative (new site) to The Holding (previously allocated but not implemented) been used as a basis for the new plan. Coverage is shown Fig 2-1

#### For case 2: Modified network 1

Not applicable

#### For case 3: Modified Network 2

In this it was required to cover areas where existing local FM provision (BBC Local and Independent Wyvern FM) is robust. To achieve this seven 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 13 sites will be required. This is shown in figures 2.3 & 2.4.

Some additional notes:

In considering potential incoming interference, where several scenarios for the Manchester multiplex exist, the worst case as far as outgoing interference is that where the National Winter Hill antenna is used, and this has been used in this analysis for Hereford & Worcester.

Bromsgrove and Headless Cross are within the overlap area with the Birmingham multiplex which may have more affinity to the towns served by these transmitters, although Bromsgrove adds coverage to the Droitwich and Worcester area.

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

London, Manchester, and Lincolnshire are largely unaffected by the DSO proposal contained within this document. In the West Wiltshire and Salisbury Multiplex, there is an impact upon the higher ground to the north and west of the editorial area from Ridge Hill at 1% time. This interference has slightly less impact at 5% time, but is more marked for the mobile outdoor coverage which gains some six percentage points in terms of road km.

## 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

*Figure 2-3* Modified Network 3

Figure 2-4 Modified Network 3 Outdoor Only

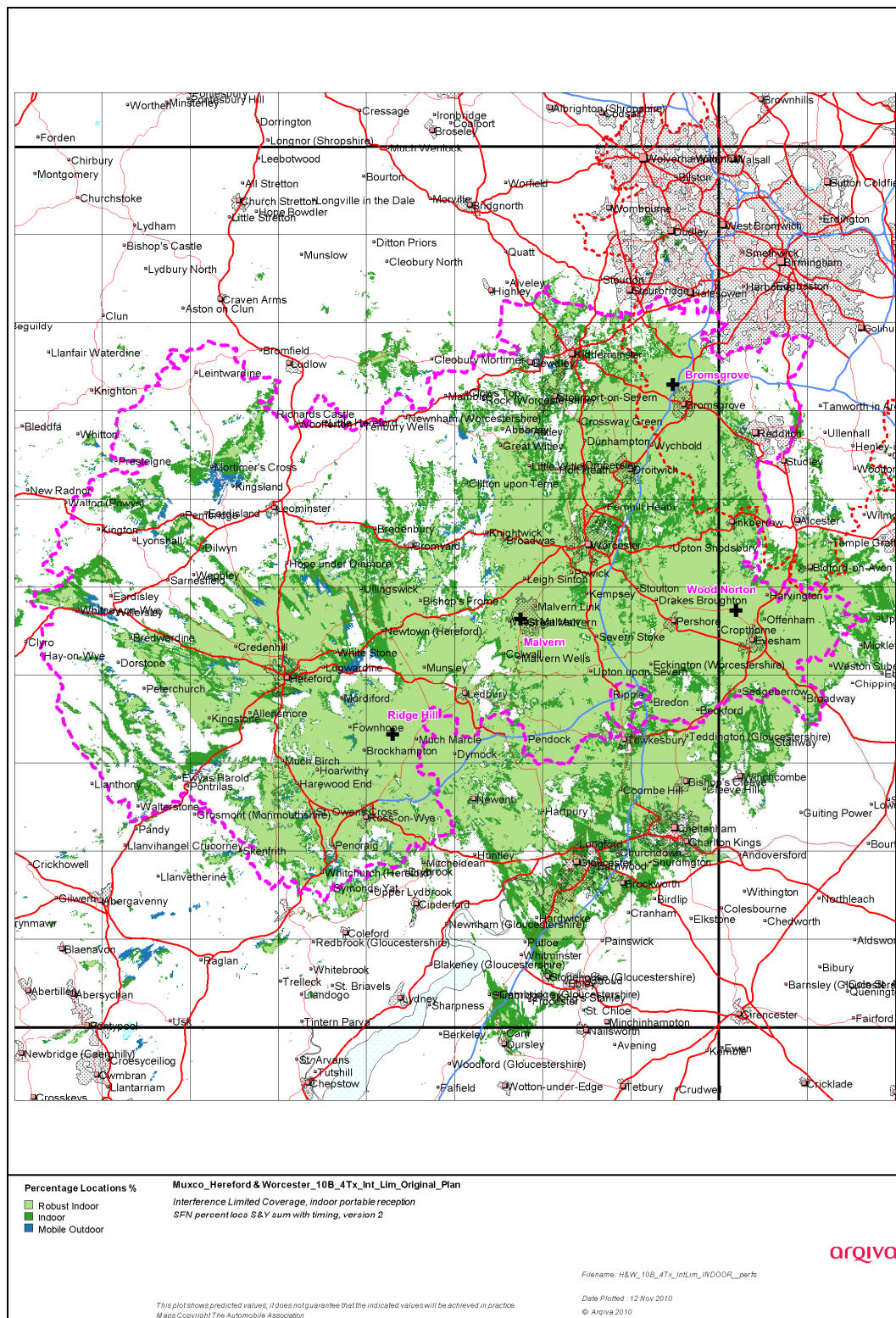


Figure 2-1. Current Situation



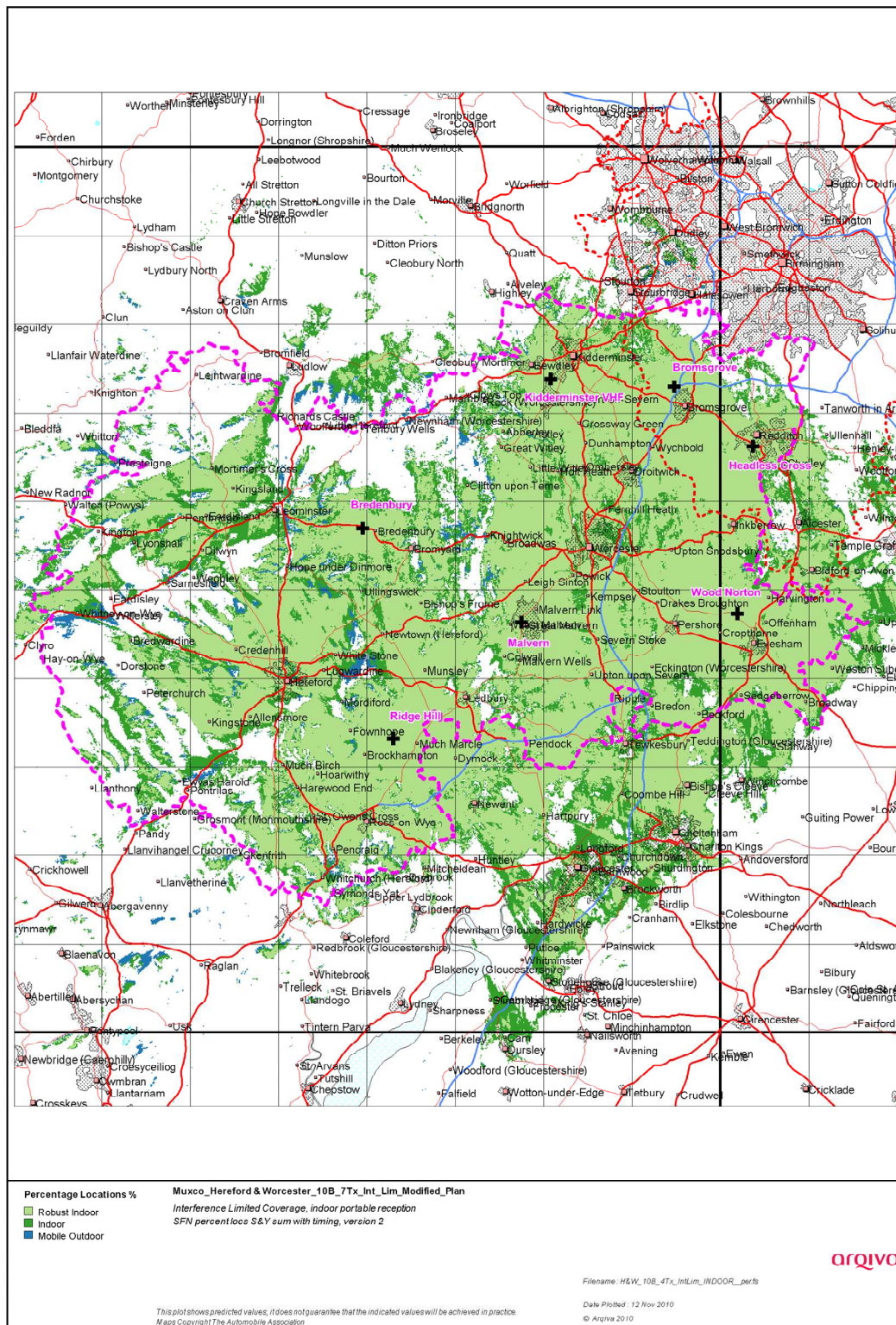


Figure 2-2 Modified Network 2



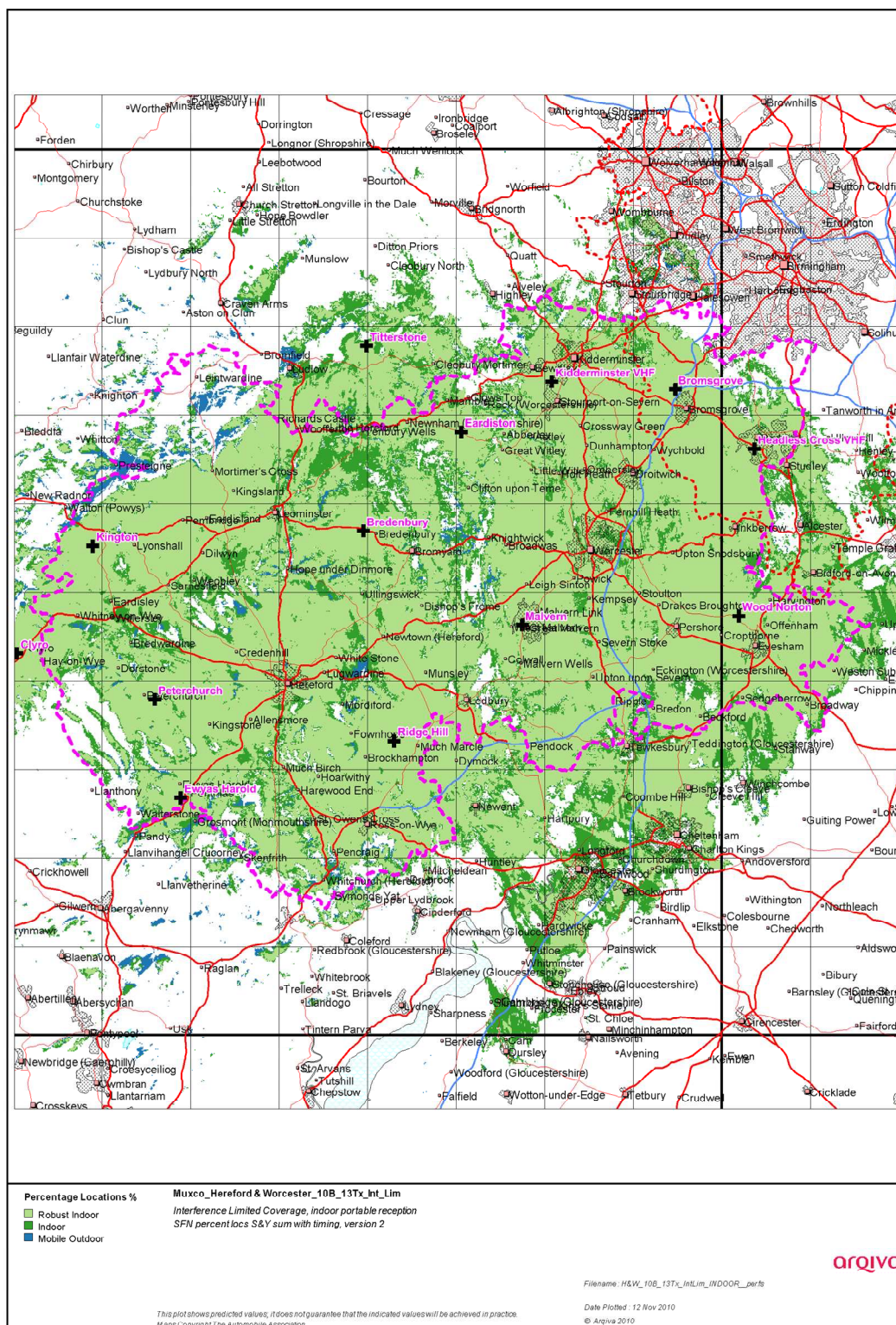


Figure 2-3. Modified Network 3

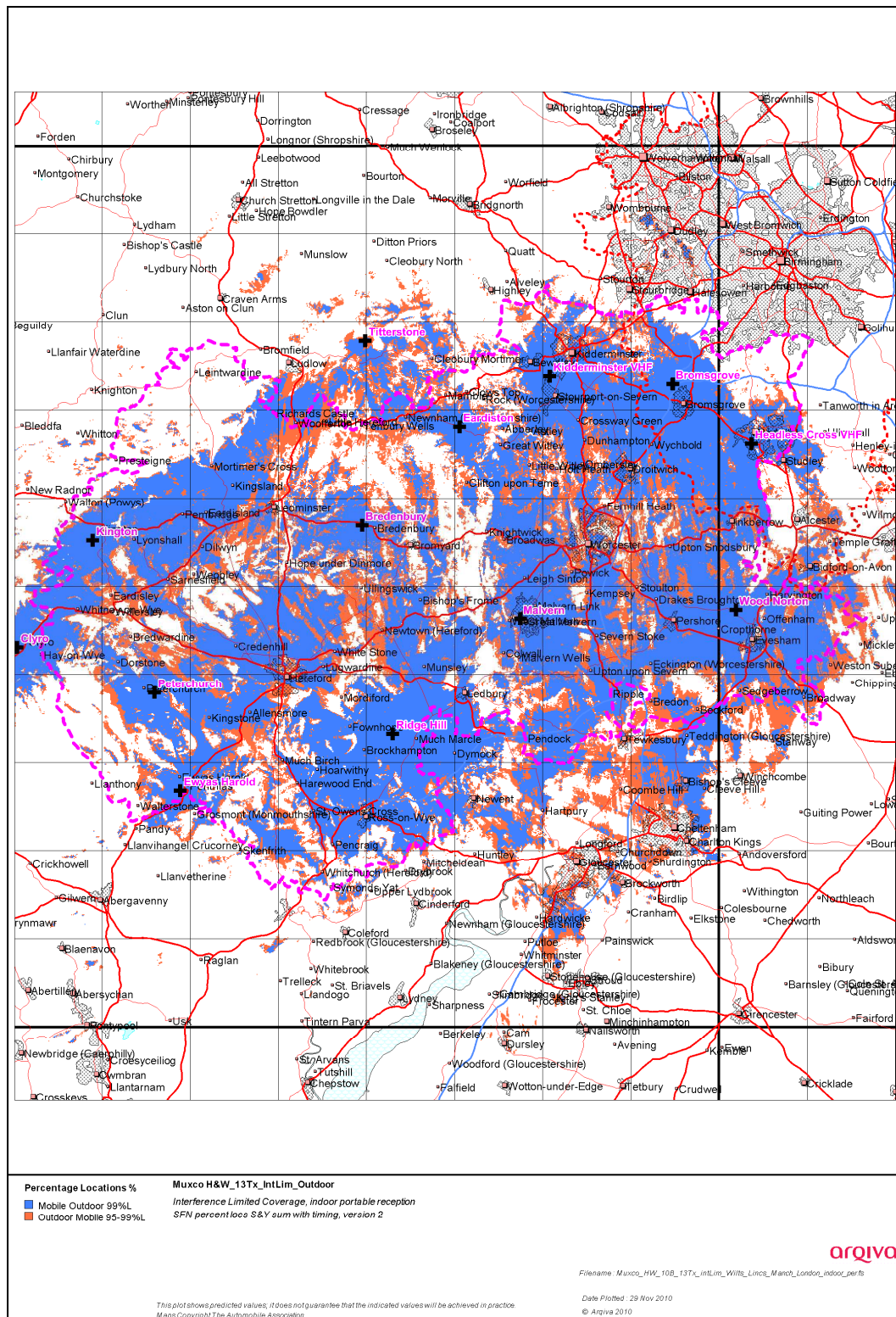


Figure 2-4. Modified Network 3 Outdoor Only 95 &amp; 99% locations.



## 2.2 Population Coverage tables within Editorial Area

*Table 2-1 Population coverage proportional indoor: Total 333,110 households*

Site scenario and incremental additional sites	Site Type	Individual Gross Interference limited coverage within Editorial Area	Number of households within Editorial Area	Increase in number of households	Incremental percentage increase of population	Percentage of Editorial Area
Current (4 Tx)	-	-	230,048	-	-	69.06
Headless Cross	New Site	35,934 (10.79%)	259,673	29,625	8.89	77.95
Kidderminster	New Site	40,938 (12.29%)	283,923	24,250	7.28	85.23
Titterstone	Shared existing infrastructure	8,621 (2.59%)	296,694	12,771	3.84	89.07
Bredenbury	New Site	6,789 (2.04%)	303,576	6,882	2.06	91.13
Kington	New Site	2,166 (0.65%)	305,654	2,078	0.63	91.76
Peterchurch	New Site	1,208 (0.36%)	307,848	2,194	0.66	92.42
Clyro	New Site	984 (0.30%)	308,732	884	0.26	92.68
Ewyas Harold	New Site	731 (0.22%)	309,315	583	0.18	92.86
Eardiston	New Site	863 (0.26%)	309,819	504	0.15	93.01

Case 1                      Light yellow              = existing sites unchanged  
Case 2                      -                      n/a (modified Network 1)  
Case 3                      -                      Light yellow + Orange    = modified network 2  
Case 4                      -                      Light yellow + Orange + Green= modified network 3

*Table 2-2. Road coverage 99% location 99%T: Total roads 1,119.4km*

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 PPA
Current (4Tx)	-	642	-	-	57.35
Headless Cross	New Site	673.5	31.5	2.82	60.17
Kidderminster	New Site	745.2	71.7	6.40	66.57
Titterston	New Site	826.5	81.3	7.26	73.83
Bredenbury	New Site	882.8	56.3	5.03	78.86
Kington	New Site	899.5	16.7	1.50	80.36
Peterchurch	New Site	915.5	16.0	1.42	81.78
Clyro	New Site	927.7	12.2	1.09	82.87
Ewyas Harold	New Site	931.8	4.1	0.37	83.24
Eardiston	New Site	935.6	3.8	0.34	83.58

Case 1                      Light yellow              = existing sites unchanged

Case 2                      -                      n/a (modified Network 1)

Case 3                      -                      Light yellow + Orange    = modified network 2

Case 4                      -                      Light yellow + Orange + Green= modified network 3

*Table 2-3. Road coverage 95% Locations 99%T: Total roads 1,119.4 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 PPA
Current (4Tx)	-	773.4	-	-	69.09
Headless Cross	New Site	803.5	30.1	2.69	71.78
Kidderminster	New Site	860.1	56.6	5.06	76.84
Titterston	New Site	946.9	86.8	7.75	84.59
Bredenbury	New Site	982.4	35.5	3.17	87.76
Kington	New Site	998.9	16.5	1.48	89.24
Peterchurch	New Site	1013.6	14.7	1.31	90.55
Clyro	New Site	1019.3	5.7	0.51	91.06
Ewyas Harold	New Site	1021.6	2.3	0.20	91.26
Eardiston	New Site	1023.5	1.9	0.17	91.43

Case 1                      Light yellow              = existing sites unchanged  
Case 2                      -                              n/a (modified Network 1)  
Case 3                      -                              Light yellow + Orange = modified network 2  
Case 4                      -                              Light yellow + Orange + Green = 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	Mobile Coverage km & percentage coverage 95% locations
1	230,048 (69.06%)	642 (57.35%)	773 (69.09%)
2	n/a	n/a	n/a
3	295,127 (88.60%)	827 (73.82%)	931 (83.21%)
4	309,819 (93.01%)	936 (83.58%)	1023 (91.43%)