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

# **Radio DSO Block 11B Sussex**

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## Document Details

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2.0	9/5/11	Mod to sites in case 3

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## 1 Sussex DSO narrative

The current allocation on 11B for Sussex has been implemented with six transmitters. The editorial area has been expanded northwards to cover all of East Sussex and West Sussex. This has become possible following the change of frequency block for the DRG London multiplex.

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

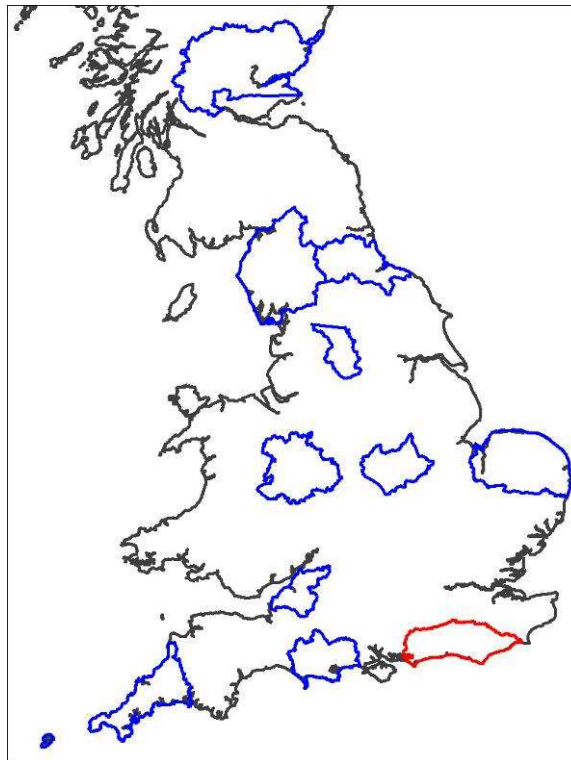


Figure 1.1: Proposed Block 11B allocations

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
Whitehawk Hill	0.79kW	121m	39m	Panels
Burton Down	0.5kW	229m	38m	Cardioids
Findon	0.18kW	124m	35m	Dipoles
Hastings	0.75kW	75m	46m	Yagis
Eastbourne	0.17kW	11m	32m	Yagis
Beddingham	0.25kW	176m	40m	Dipoles

The coverage for the current situation is shown in figure 2.1.

For case 2: Modified Network 1

It is proposed to replace the Beddingham site with Newhaven which will align coverage with the BBC network. Additionally, it is proposed to increase transmitter powers slightly at the other five sites. The coverage of the Modified Network 1 is shown in figure 2.2.

It can be seen that Newhaven does not cover the area around the junction of the A26 and A27 as well as Beddingham. Coverage will eventually be provided from Heathfield and it may be worth delaying the site move until Heathfield is brought into service.

There is a significant increase in both population and road coverage in moving from case 1 to case 2. Much of this is due to the removal of DRG London as an interferer.

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 Sussex). To achieve this seven additional sites are required. The coverage of the Modified Network 2 is shown in figure 2.3.

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. The A21 is poorly served around Robertsbridge, John's Cross, Sedlescombe and near Claremont School. It is likely that several fillers would be required to cover this stretch of busy road. Time does not permit planning of these to be done at present. The coverage of the Modified Network 3 is shown in figure 2.4.

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

There is a significant impact on the Bournemouth multiplex from the DSO proposal contained within this document.

Sussex is affected by co-block interference from Bournemouth, and slightly affected by Bristol & Bath, Wolverhampton, Leicestershire and Norfolk.

Bournemouth particularly affects outdoor coverage in Emsworth, at the westernmost edge of the editorial area, and on the A27 west of Chichester. However there is an overlap with the South Hampshire multiplex in this area and the area is well served both indoor and outdoor by that multiplex. South Hampshire uses a site at The Trundle to serve this area. Due to interference, The Trundle does not provide the Sussex multiplex with the same robust coverage hence we have proposed a different site to cover as much of the area as is practicable.

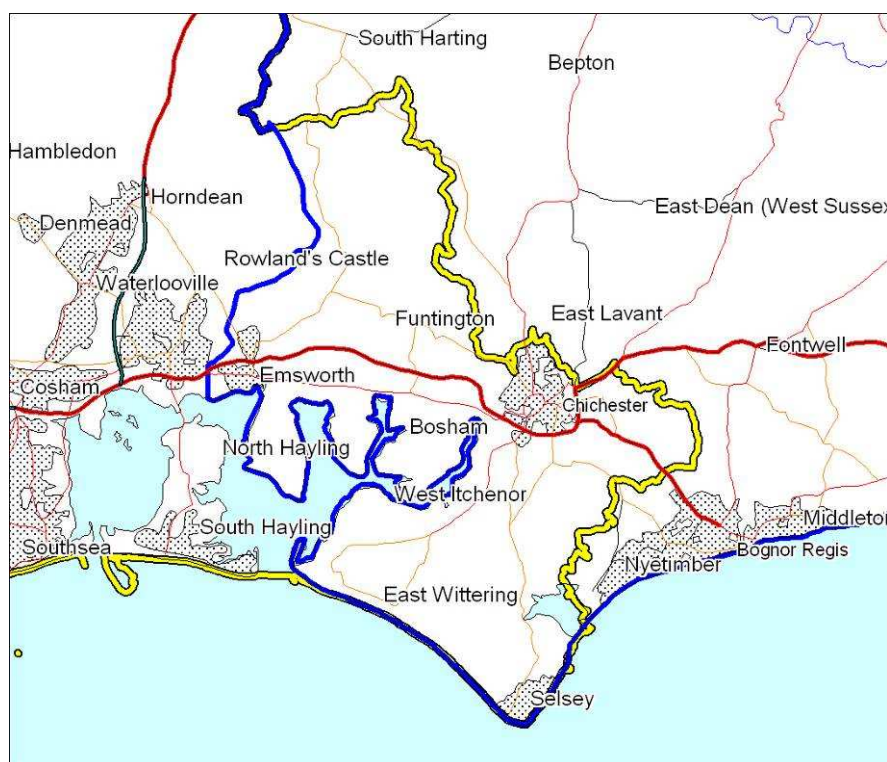


Figure 1.2: Overlap with South Hampshire Multiplex

## **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 2: Modified Network 1 |
| Figure 2-3 | Case 3: Modified Network 2 |
| Figure 2-4 | Case 4: Modified Network 3 |

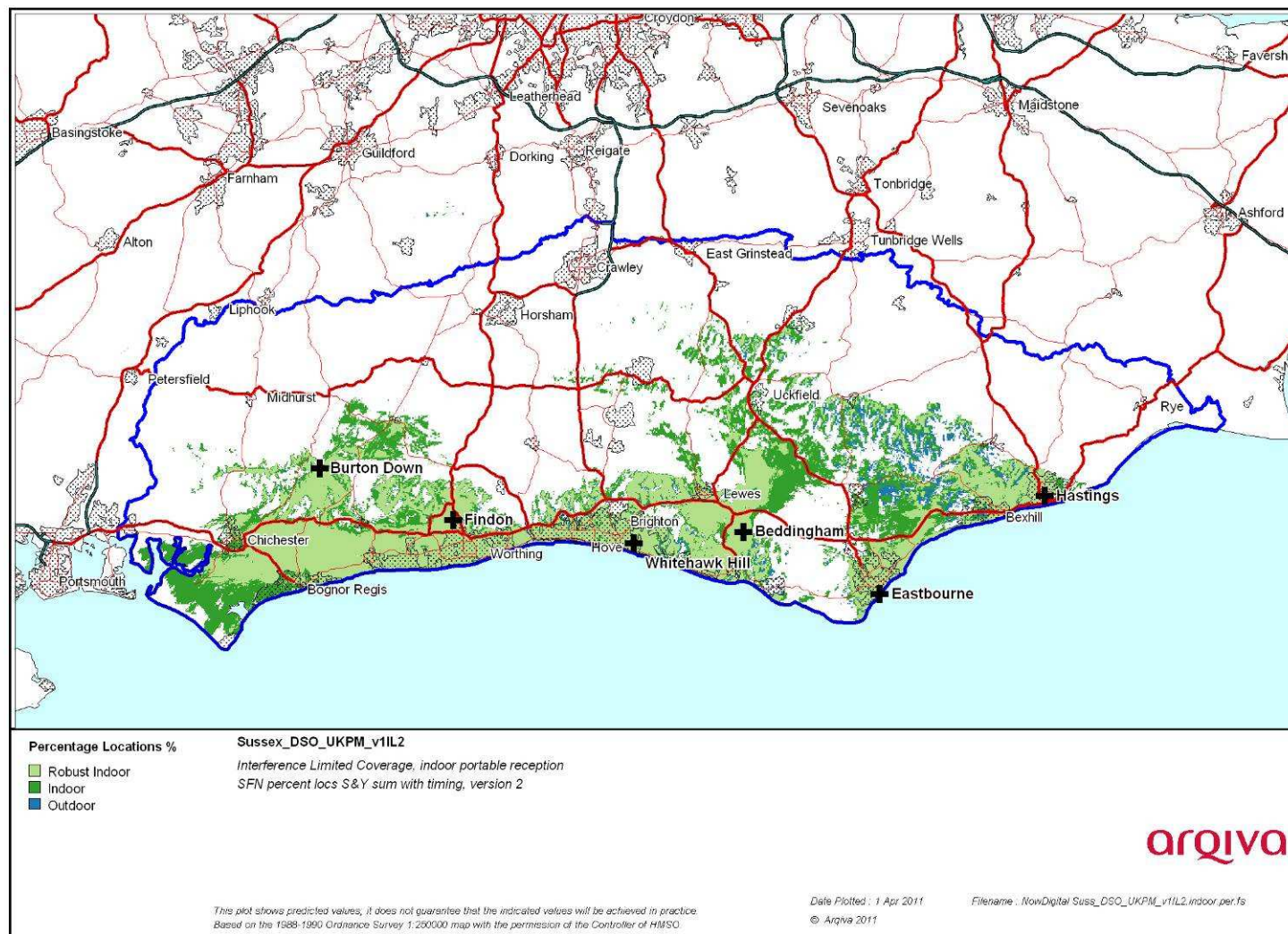


Figure 2-1. Current Situation



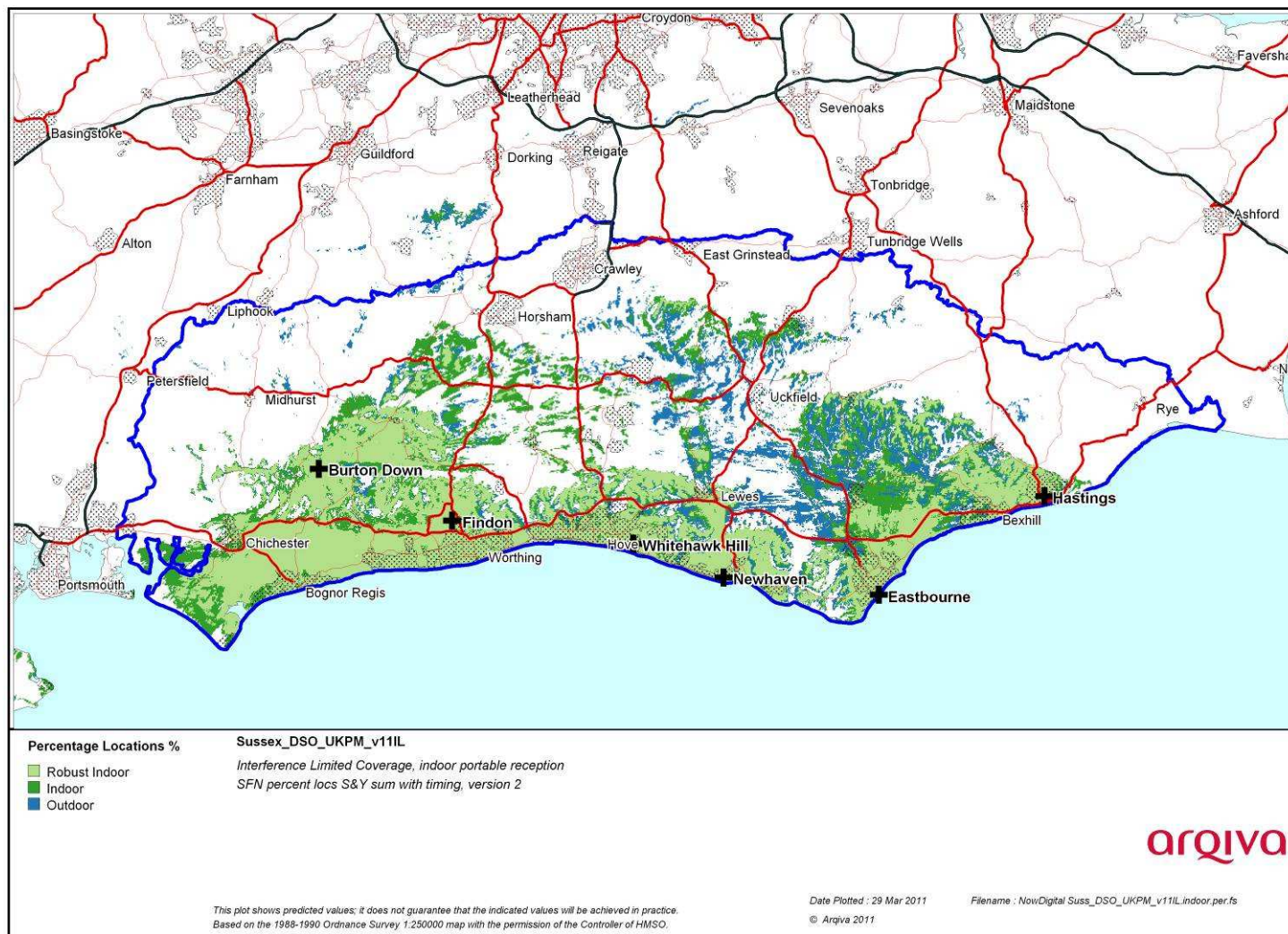


Figure 2-2 Modified Network 1

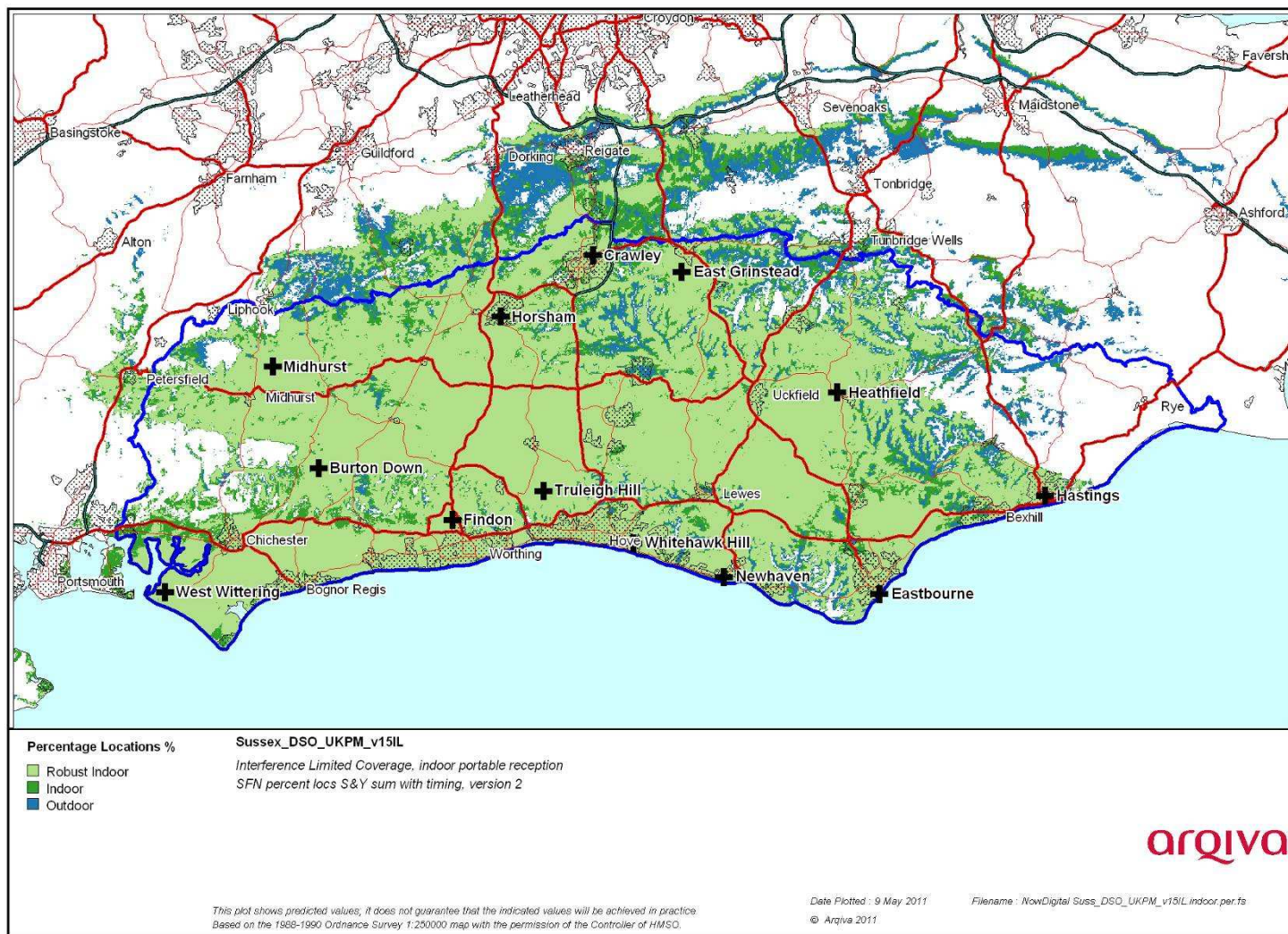


Figure 2-3 Modified Network 2



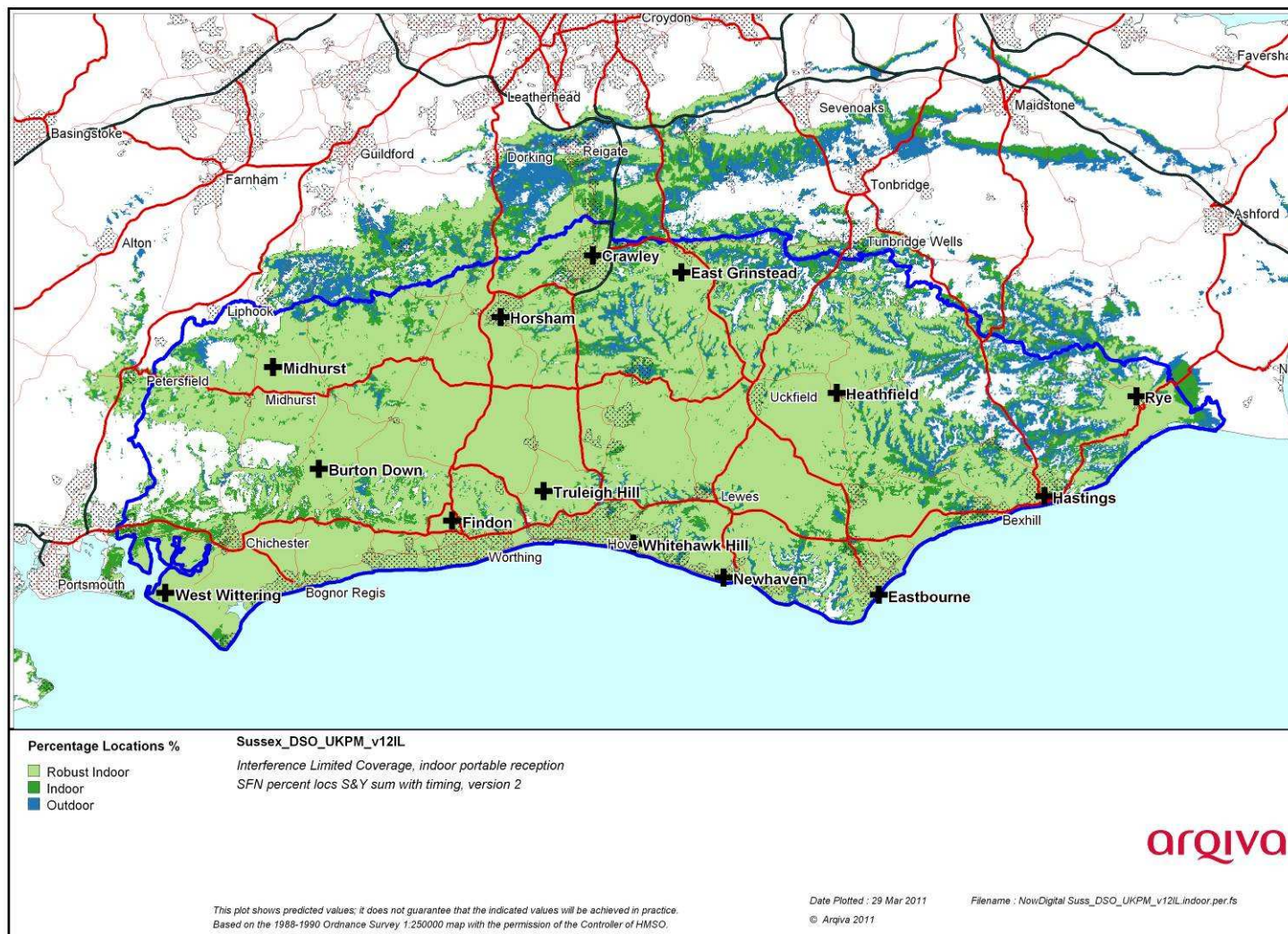


Figure 2-4 Modified Network 3

## 2.2 Population Coverage tables within Editorial Area

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

: Total 724.606

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 (6 tx)	Shared Existing Infrastructure	-	407,571	-	-	53.3%
Whitehawk Hill	Current	144,501 (19.9%)				
Burton Down	Upgraded Infrastructure	91,232 (12.6%)				
Findon	Upgraded Infrastructure	80,262 (11.1%)				
Hastings	Upgraded Infrastructure	72,698 (10.0%)				
Eastbourne	Upgraded Infrastructure	54,993 (7.6%)				
Hastings	Shared Existing Infrastructure	39,623 (5.5%)	450,197	42,626	5.9%	62.1%
Truleigh Hill	Shared Existing Infrastructure	125,324 (17.3%)	527,279	77,082	10.6%	72.8%
Crawley	New Site	38,634 (5.3%)	569,037	41,758	5.8%	78.5%
Heathfield	Shared Existing Infrastructure	48,168 (6.7%)	603,119	34,082	4.7%	83.2%
West Wittering	New site	11,365 (1.6%)	618,592	15,473	2.1%	85.4%
Horsham	New Site	25,651 (3.5%)	642,372	23,780	3.3%	88.7%
East Grinstead	Existing Site New antenna	17,221 (2.4%)	658,394	16,022	2.2%	90.9%
Midhurst	Existing Site New antenna	20,394 (2.8%)	668,600	10,206	1.4%	92.3%
Rye	New Site	9,054 (1.3%)	680,216	11,616	1.6%	93.9%

Case 1	-	Yellow =	Current coverage
Case 2	-	Yellow + Purple	Modified Network 1
Case 3	-	Yellow + Purple + Orange=	Modified Network 2
Case 4	-	Yellow + Purple + Orange + Green=	Modified network 3

Table 2-2. Road coverage 99% location 99%T: Total roads 1,080 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 (6 tx)	Shared Existing Infrastructure	340	-	-	31.4%
Case 2	Upgraded Infrastructure	479	139	12.9%	44.3%
Truleigh Hill	New Site	720	242	22.4%	66.7%
Crawley	New Site	779	58	5.4%	72.1%
Heathfield	Shared Existing Infrastructure	849	70	6.5%	78.6%
West Wittering	New site	861	12	1.1%	79.7%
Horsham	New Site	885	24	2.2%	81.9%
East Grinstead	Existing Site New antenna	904	19	1.8%	83.7%
Midhurst	Existing Site New antenna	950	46	4.3%	88.0%
Rye	New Site	1,000	50	4.6%	92.6%

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 &amp; 99% Time Interference Protection</i>
1	407,571 (53.6%)	340 (31.4%)
2	450,197 (62.1%)	479 (44.3%)
3	668,600 (92.3%)	950 (88.0%)
4	680,216 (93.9%)	1000 (92.6%)

Case 1	-	Yellow =	Current coverage
Case 2	-	Yellow + Purple	Modified Network 1
Case 3	-	Yellow + Purple + Orange=	Modified Network 2
Case 4	-	Yellow + Purple + Orange + Green=	Modified network 3