



Digital Switchover (DSO) Programme

Radio DSO Block 11C South Hampshire

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1 South Hampshire DSO Narrative

The current allocation for South Hampshire is 11C and this has not been changed. The nearest co-block multiplexes are (clockwise) Exeter and Torbay to the west, Cardiff and Newport, Swindon (with Birmingham to the north of Swindon), Cambridge and Kent. These areas are shown below in Figure 1.1; the South Hampshire multiplex is shown in red.

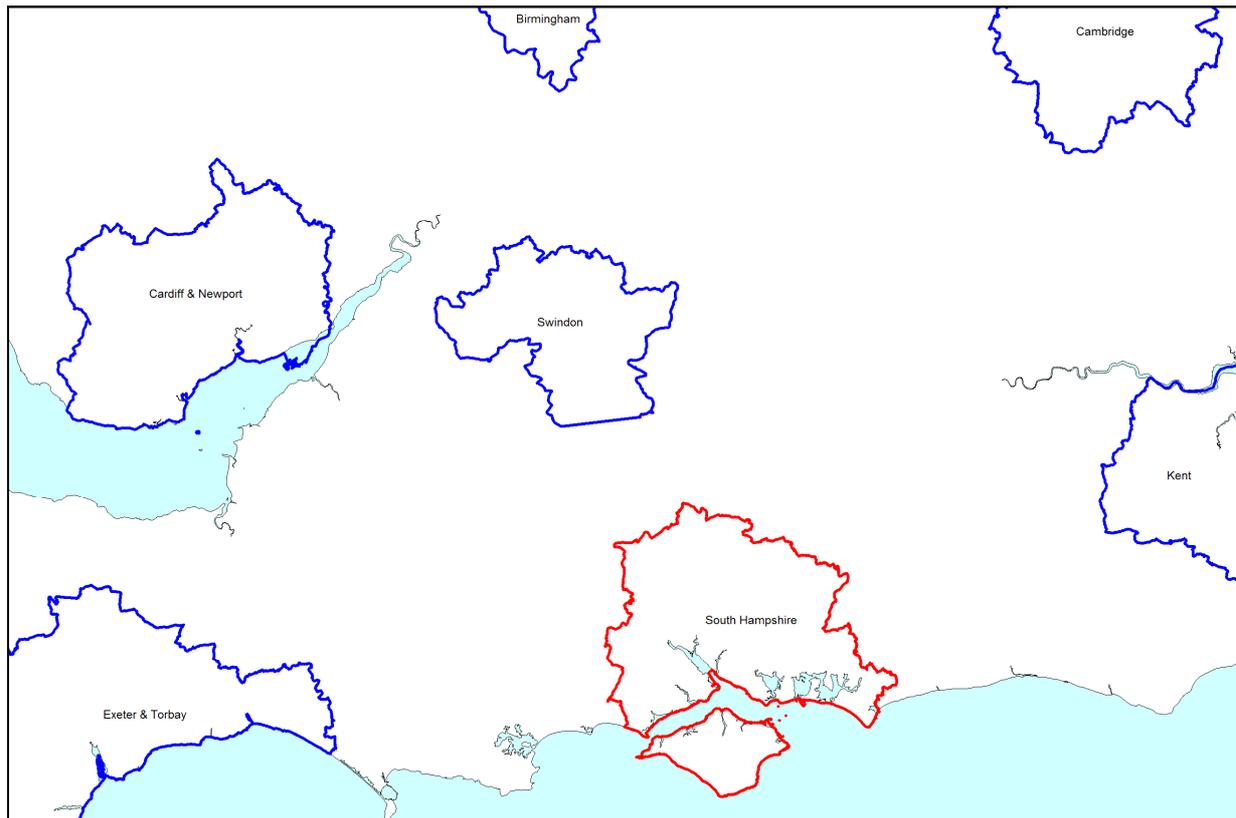


Figure 1.1: South Hampshire (shown in red) – Adjacent 11C Multiplexes

There are currently five transmitters on air for the South Hampshire multiplex; these are shown in Table 1.1.

Site Name	ERP	Site height m a.o.d.	Antenna height m a.g.l.	Antenna Type
Chillerton Down	1.6 kW	166	200	Yagis
Crabwood Farm	700 W	158	40	Dipoles
Fort Southwick	330 W	122	18	Dipoles
The Trundle	200 W	190	24	Yagis
Toot Hill	250 W	84	63	Dipoles

Table 1.1: South Hampshire – Current Transmission Characteristics

The editorial area for South Hampshire has been extended to the north-east to include Petersfield and the area surrounding it, see figure 1.2. There are also some minor changes to along the many parts of the South Hampshire editorial boundary.

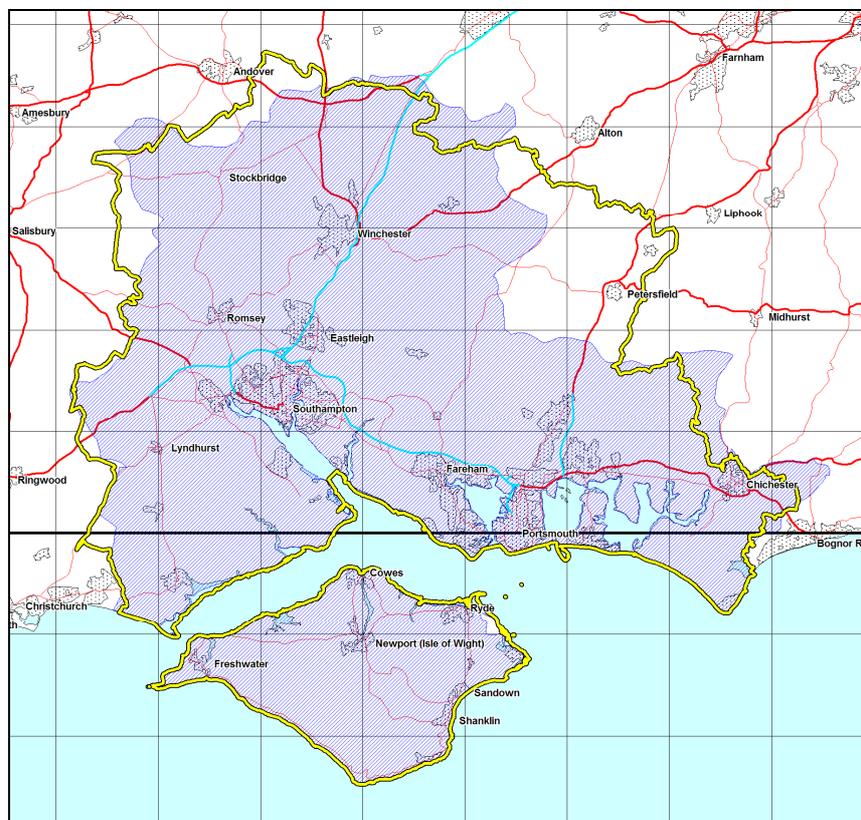


Figure 1.2: South Hampshire – Changes to the editorial area.
Existing area is shown in Blue and the new editorial area is shown in Yellow

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.

The South Hampshire multiplex is surrounded by five other multiplexes, as shown in Figure 1.3. The other adjacent multiplexes are Bournemouth, West Wiltshire, Reading & Basingstoke, Surrey and Sussex. The only area where there is an overlap is with Sussex.

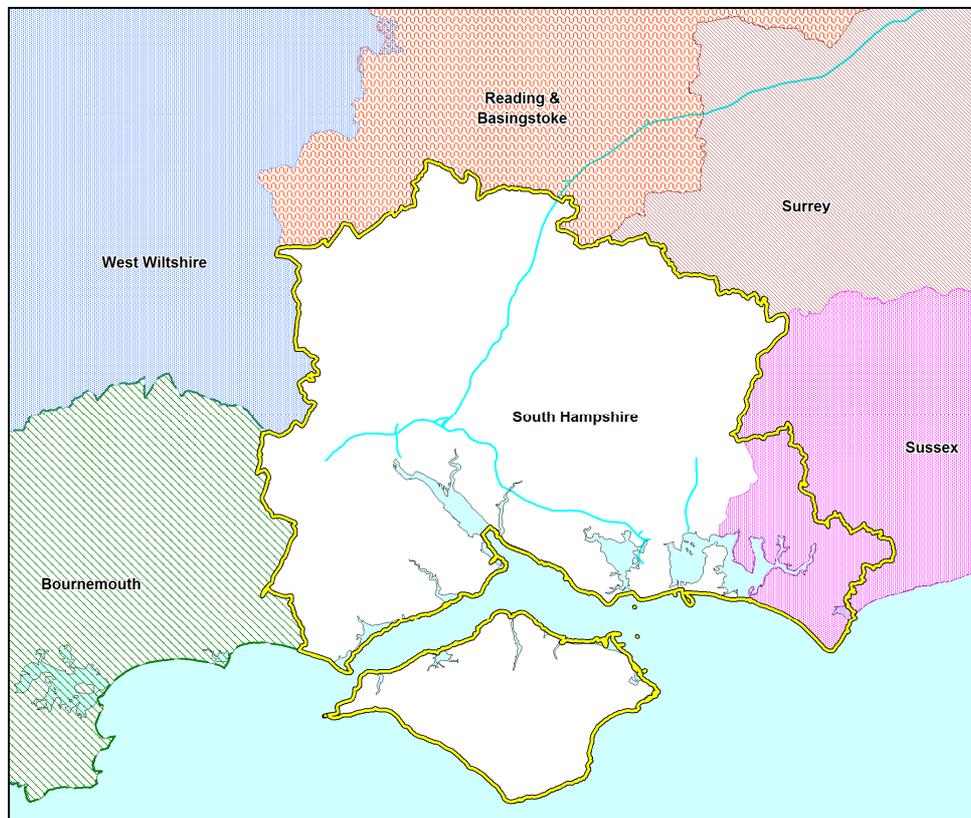


Figure 1.3: South Hampshire Multiplex – Adjacent Multiplexes

1.1 Outgoing interference and sensitivity to other co-block multiplexes

1.1.1 Existing Coverage (Case 1)

The noise limited coverage for South Hampshire is shown in Figure 2.1.

The existing populated coverage areas are moderately well protected from co-block interference by nature of the terrain in the area. However there is some limitation to the coverage in the less populated area to the north of the area from the Swindon and Kent multiplexes. Swindon is the more dominant interferer.

The interference limited coverage for the existing South Hampshire multiplex is shown in Figure 2.2.

For information figure 2.3 shows the mobile outdoor coverage for interference at 1% time, for case 1.

1.1.2 Proposed DSO Coverage – Improvements to Existing Infrastructure (Case 2, Modified Network 1)

Consideration has been given to modifying the existing South Hampshire infrastructure.

It is proposed that the Chillerton Down transmitter should share the national DAB antenna at the site and increase its ERP from 1.6 kW to 5kW (to be more comparable with the national services that use this site) for Case 2. This reinforces the coverage between Southampton and Fareham.

The Fort Southwick site for near Portsmouth does not provide good coverage for the area north and east of the Portsdown Hill (the towns of Havant and Waterlooville). It is proposed that the Fort Southwick Transmitter should be replaced by a transmitter at Portsdown Hill. This significantly improves these towns and reinforces the coverage northwards along the A3 towards London.

No other changes to the existing infrastructure are envisaged for the South Hampshire transmitter sites.

Figure 2.4 shows the interference limited coverage for the South Hampshire multiplex, Case 2, Modified Network 1, and Figure 2.5 shows the Mobile Outdoor coverage for Case 2 network.

1.1.3 Proposed DSO Coverage (Case 3, Modified Network 2)

In order to improve the coverage for the South Hampshire multiplex, the following transmitters have been considered to endeavour to provide DAB coverage where there is robust FM coverage. The transmitters included are: - Petersfield Durford Road, Ventnor, Fox Hound Kennels, Little Hayling and Chilbolton Down.

The towns of Petersfield and Ventnor should receive reasonable coverage from the Petersfield Durford Road and Ventnor transmitters respectively.

The Fox Hound Kennels site is proposed to improve coverage to Lyndhurst, the New Forest and the A31 trunk road through the New Forest.

The Little Hayling site, near the crossroads of the A32 and A272 in the Meon Valley (the A32 runs along the Meon Valley from Fareham towards Alton) will substantially improve the coverage in this area that is poorly served due to the local topography. It will also improve the mobile coverage towards Petersfield and Alton, from the main part of the coverage in the south.

The Chilbolton Down site will reinforce the coverage to the north and west of the Crabwood farm site near Winchester; this is another area where the local topography limits coverage from the South Hampshire multiplex.

Figure 2.6 shows the South Hampshire Case 3 Modified Network 2 coverage at 1% time. Figure 2.7 shows the mobile outdoor coverage.

1.1.4 Expanded DSO Coverage (Case 4, Modified Network 3)

In order to expand the South Hampshire coverage further, transmitters at Hannington, Western Court Farm and Longmoor have been added.

A new direction antenna at Hannington would be required to achieve this coverage. Limits on the levels transmitted towards the Swindon multiplex to minimise the co-block interference to this multiplex.

The Western Court Farm transmitter improves the coverage for the town on Alresford and along the A31 in the area.

The Longmoor transmitter improves coverage along the A3 from Petersfield towards Liphook.

Figure 2.8 shows the South Hampshire Case 4 Modified Network 3 coverage at 1% time and Figure 2.9 shows the mobile outdoor coverage.

2 Coverage of Multiplex

2.1 Coverage Maps

Coverage maps for 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)

These maps included with this report are shown below.

Figure 2.1 Case 1 -Current NOISE limited coverage for South Hampshire (*5 transmitters*)

Figure 2.2 Case1 - Current interference limited coverage for South Hampshire 1% time - (*5 transmitters*)

Figure 2.3 Case 1 - Mobile outdoor Coverage for South Hampshire interference limited 1% time - (*5 transmitters*)

Figure 2.4 Case 2 - Interference limited coverage for South Hampshire, Modified network 1, 1% time – *5 transmitters – Fort Southwick replaced by Portsdown Hill*)

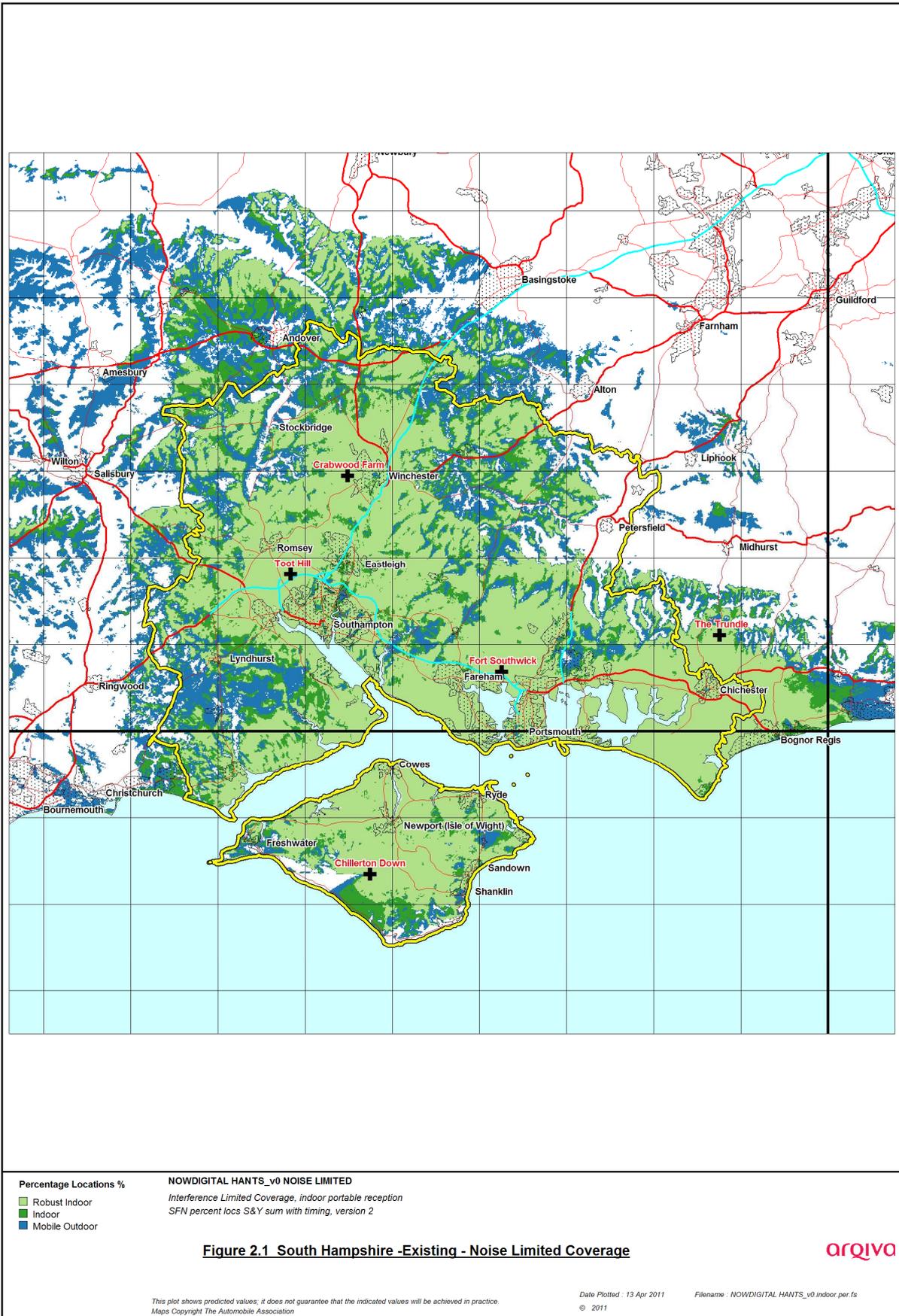
Figure 2.5 Case 2, Mobile outdoor - Interference limited coverage for South Hampshire Modified network 1, 1% time – *5 transmitters – Fort Southwick replaced by Portsdown Hill*)

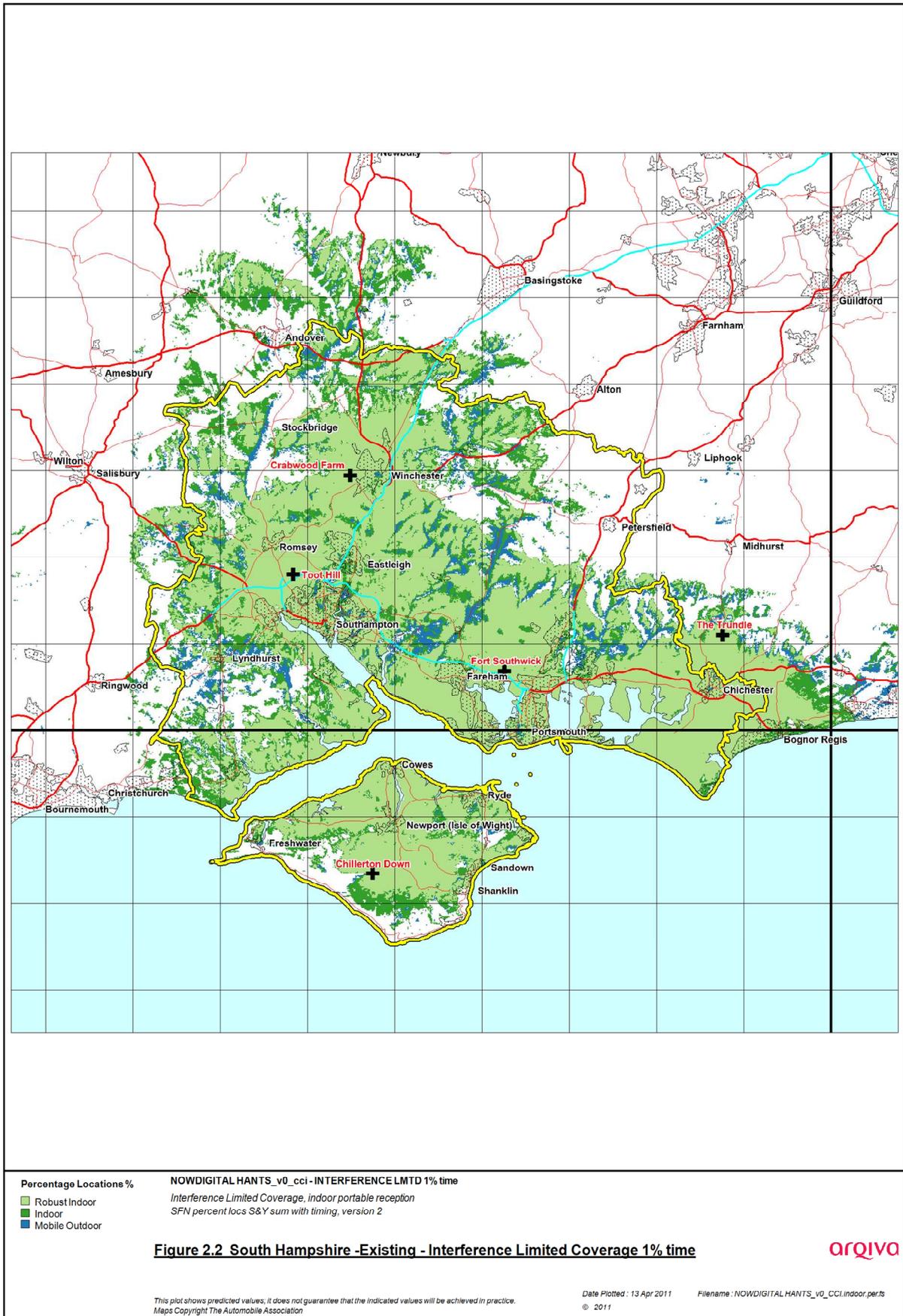
Figure 2.6 Case 3, Interference Limited coverage for South Hampshire 1% time, Modified Network 2 (*10 transmitters*)

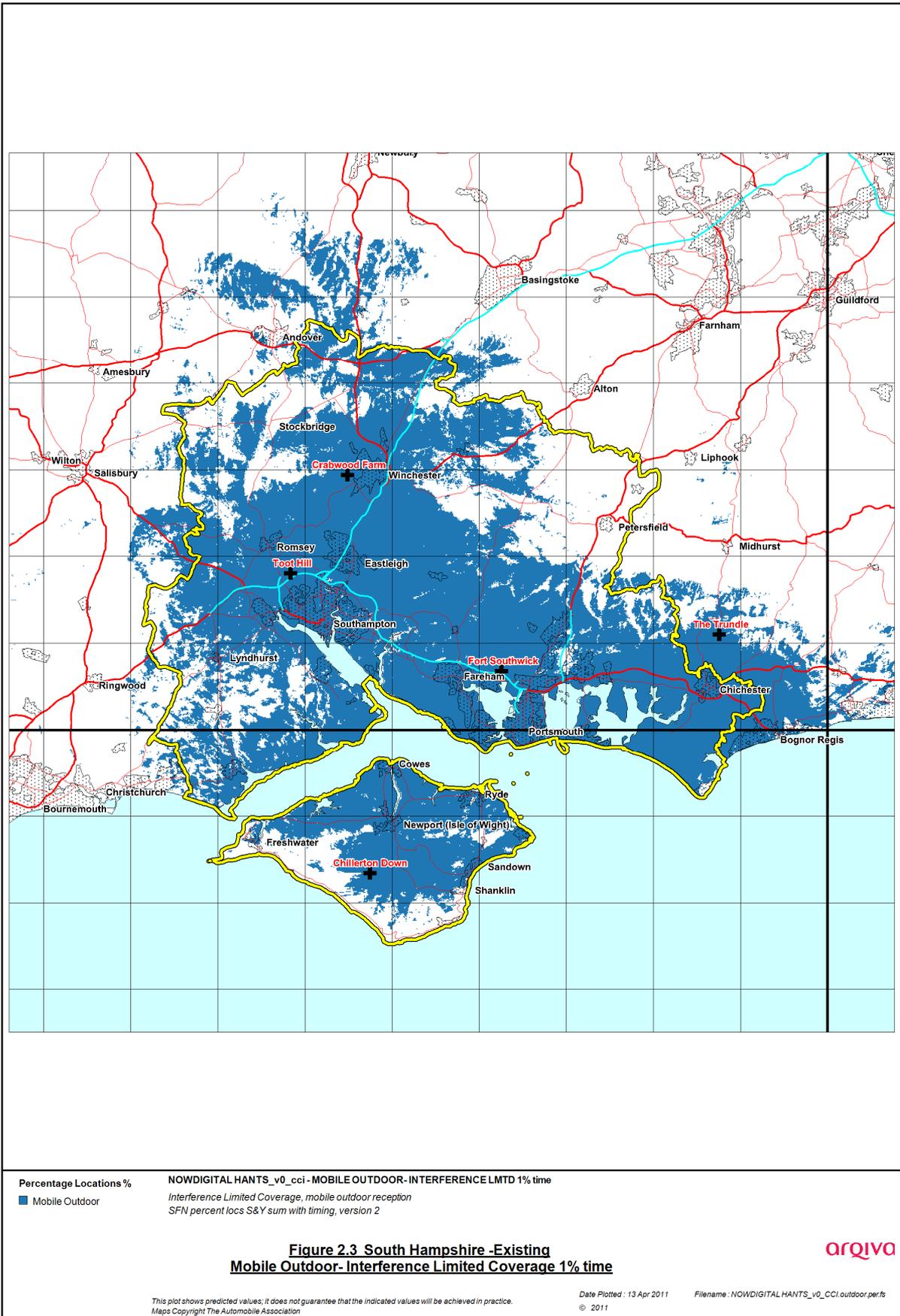
Figure 2.7 Case 3, Mobile Outdoor Interference Limited coverage for South Hampshire 1% time Modified Network 2 (*10 transmitters*)

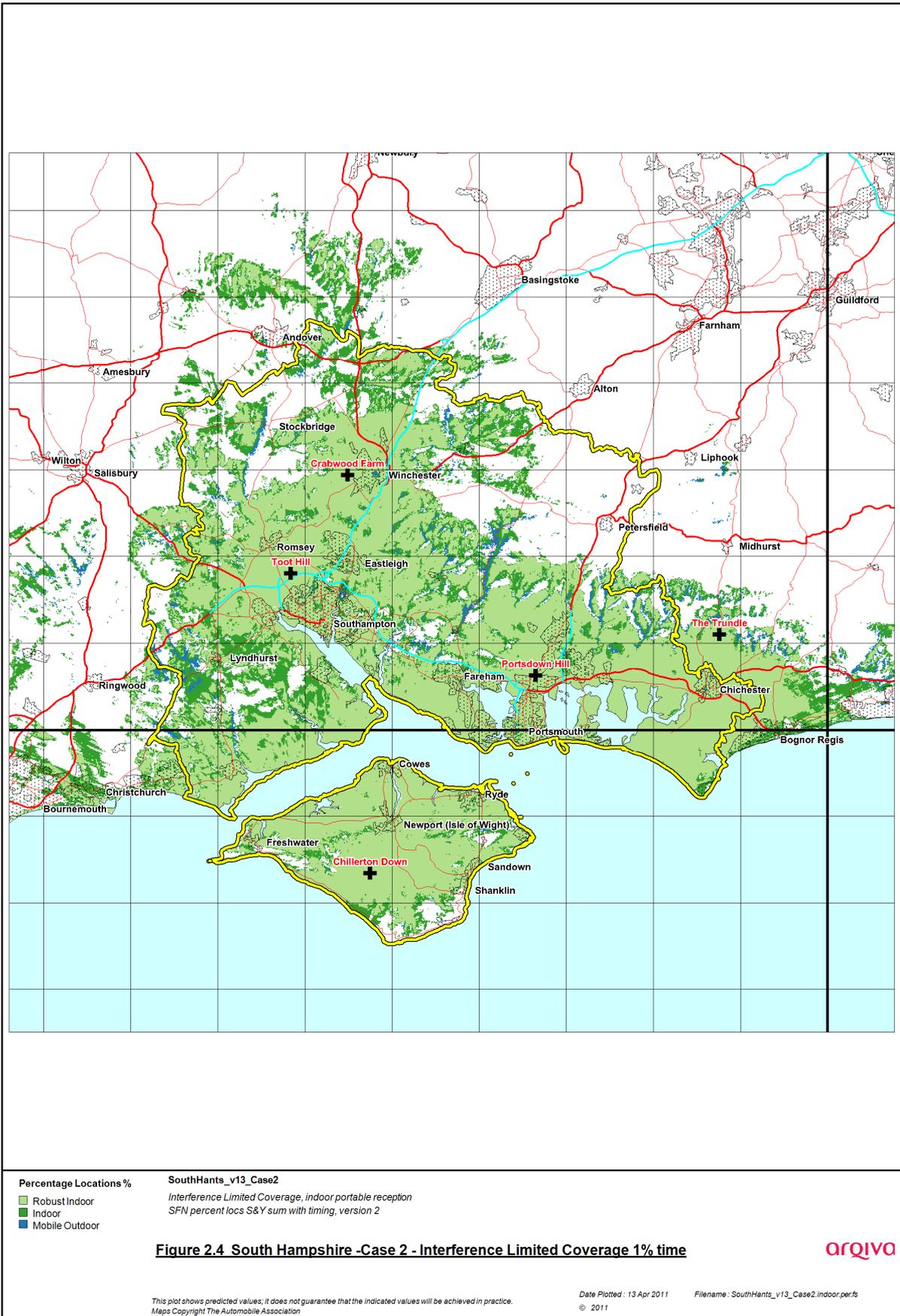
Figure 2.8 Case 4, Interference Limited coverage for South Hampshire 1% time, Modified Network 3 (*13 transmitters*)

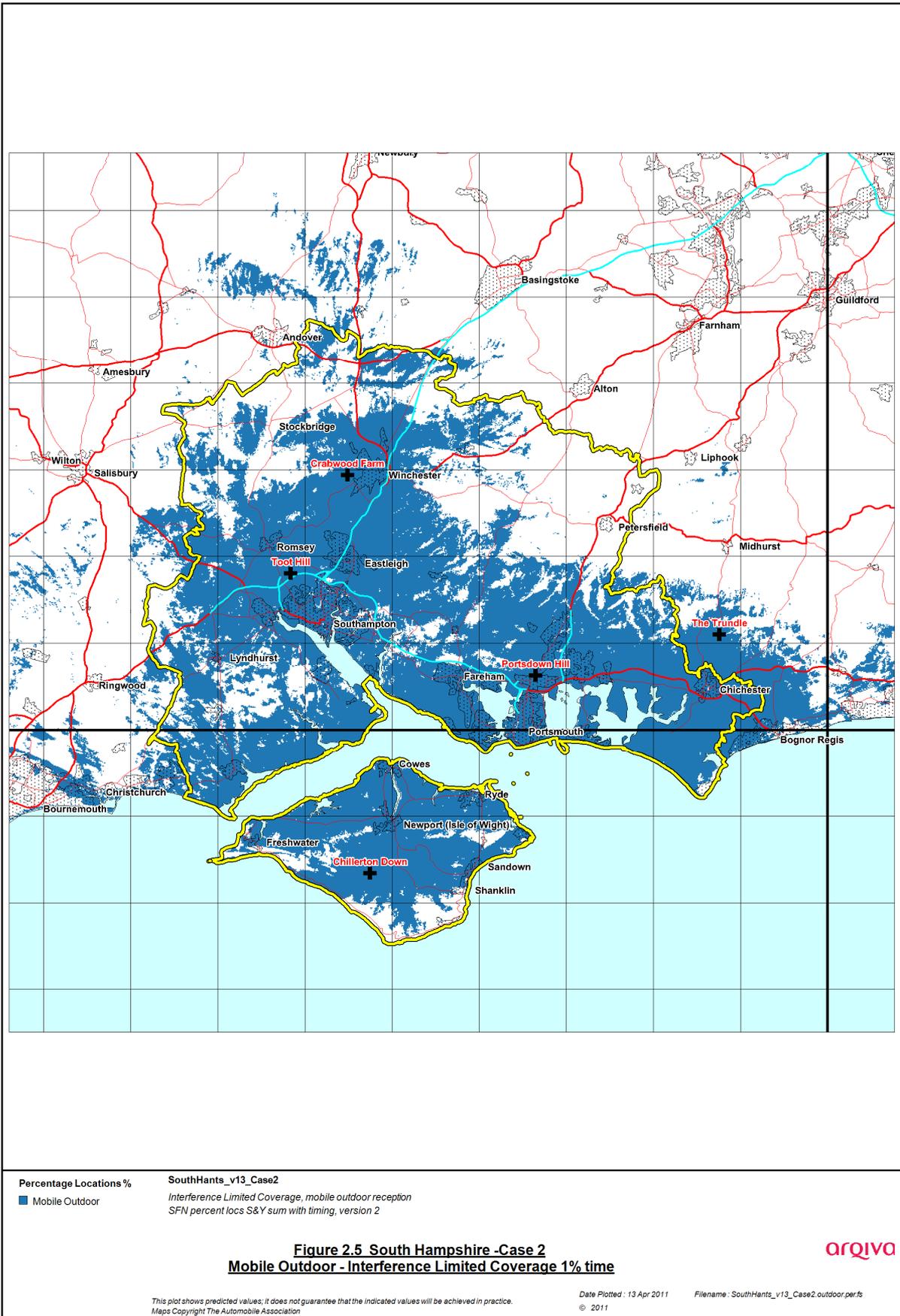
Figure 2.9 Case 4, Mobile Outdoor Interference Limited coverage for South Hampshire 1% time Modified Network 3 (*13 transmitters*)



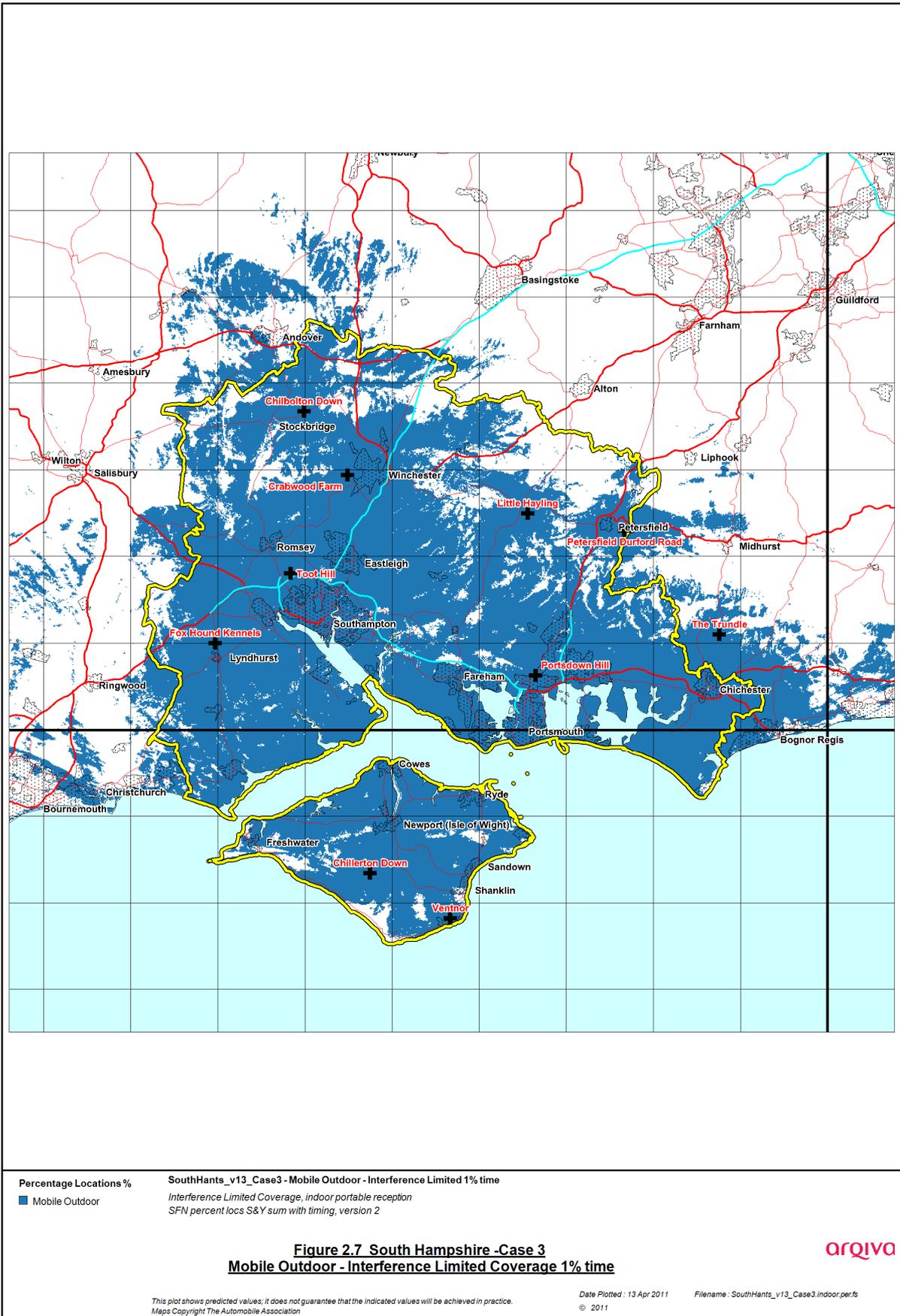








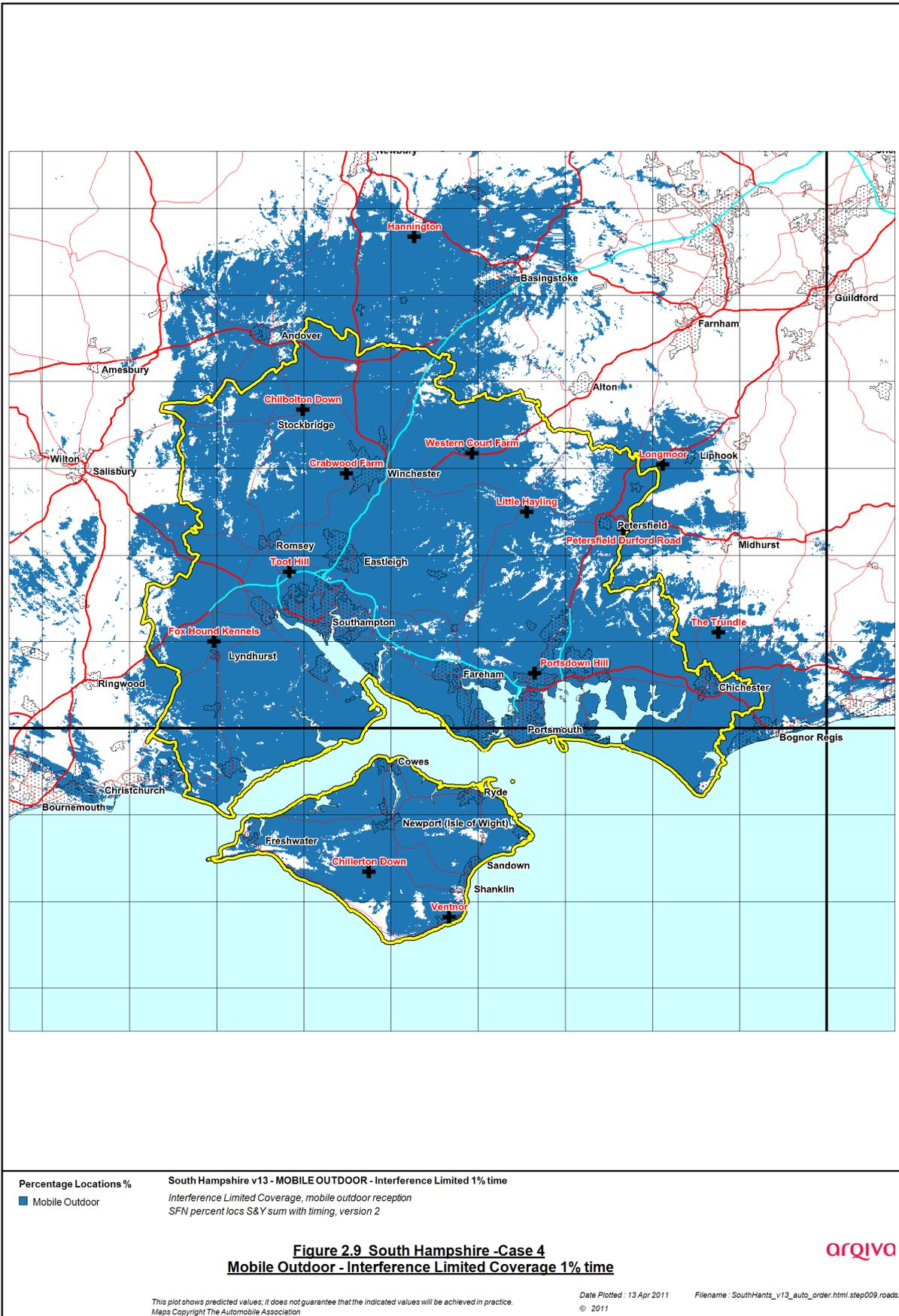






<p>Percentage Locations %</p> <ul style="list-style-type: none"> ■ Robust Indoor ■ Indoor ■ Mobile Outdoor 	<p>South Hampshire v13 - Interference Limited 1% time <i>Interference Limited Coverage, indoor portable reception SFN percent locs S&Y sum with timing, version 2</i></p>
<p>Figure 2.8 South Hampshire -Case 4 Mobile Outdoor - Interference Limited Coverage 1% time</p>	
<p><small>This plot shows predicted values; it does not guarantee that the indicated values will be achieved in practice. Maps Copyright The Automobile Association</small></p> <p style="text-align: right;"><small>Date Plotted: 13 Apr 2011 Filename: SouthHants_v13_auto_order.html.step009.Indoor.perfs © 2011</small></p>	





2.2 Population Coverage Tables

The following tables 2.1 and 2.2 and 2.3 show the population figures and the roads coverage for South Hampshire. These tables are colour coded thus:-

Existing Kent	Case 1 (<i>5 transmitters</i>)
	- Yellow = Existing sites unchanged
	-
Case 2	Modified Network 1
	- Pink
	-
Case 3	Modified Network 2
	- Improved Network (<i>15 transmitters</i>)
	- Pink + Green = modified network 2
Case 4	Modified Network 3
	- Expanded Network (<i>22 transmitters</i>)
	- Pink + Green + Orange = modified network 3

Table 2-1. Population coverage proportional indoor 99%T Total 636,563

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
Case 1 - Current (5Tx)	Existing DAB sites		556945			87.49
Case 2 (5 txs) Fort Southwick replaced by Portsdown Hill	4 existing DAB sites plus Portsdown Hill	153861 (24.17%)	579403	22458	3.53%	91.02
Petersfield Durford Road	New Site	7914 (1.24%)	587751	8349	1.31%	92.33
Ventnor	New Site	40780 (6.41%)	598962	11211	1.76%	94.09
Fox Hound Kennels	New Site	56890 (8.94%)	604929	5697	0.94%	95.03
Little Hayling	New Site	1116 (0.18%)	609130	4201	0.66%	95.69
Chilbolton Down	New Site	1251 (0.2%)	611252	2122	0.33%	96.02
Hannington	Existing DAB site - new antenna	8663 (1.36%)	617903	6651	1.05%	97.07
Little Hayling	New Site	1116 (0.18%)	618957	1054	0.16%	97.23
Western Court Farm	New Site	4181 (0.66%)	622146	3189	0.51%	97.74

Table 2-2 Road coverage 99% locations, 99%T Total 848.6 km

Site scenario and incremental additional sites	Site Type	Total road length in km	Increase in number of road length in km	Incremental percentage increase of road length	Percentage of roads within the editorial area
Current (5 Txs)		641.0			78.3
Case 2 (5 txs) Fort Southwick replaced by Portsdown Hill	4 existing DAB sites plus Portsdown Hill	612.8	-28.2	-3.44%	74.86
Petersfield Durford Road	New Site	631.9	19.1	2.33%	77.19
Ventnor	New Site	653.8	21.9	2.68%	78.87
Fox Hound Kennels	New Site	669.4	15.6	1.91%	81.77
Little Hayling	New Site	699.4	30.0	3.67%	85.44
Chilbolton Down	New Site	725.4	25.9	3.17%	88.61
Hannington	Existing DAB site - new antenna	766.8	41.4	5.06%	93.67
Western Court Farm	New Site	770.9	4.1	0.5%	94.17
Longmoor	New Site	774.8	3.9	0.49%	94.66

Table 2-5. Summary of Coverage within Editorial Area for Each Case

Case	Indoor Household (& percentage coverage)	Mobile Road Coverage (& percentage coverage) 99% locations
1	556945 (87.5%)	641.0 (78.3%)
2	579402 (91.0%)	612.8 (74.9%)
3	611251 (96.0%)	725.4 (88.6%)
4	622146 (97.7%)	774849 (94.7%)

- Case 1 - Light Yellow = existing sites unchanged
- Case 2 - Pink = Modified Network 1
- Case 3 - Pink + Green = modified network 2
- Case 4 - Pink + Green + Orange = modified network 3