
Digital Switchover (DSO) Programme

Radio DSO Block 12D Reading & Basingstoke

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1.1		Initial release
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1 Reading & Basingstoke (12D) DSO Narrative

Block 12D assigned to Reading & Basingstoke is an existing allocation with four existing transmitters 'On Air' :-

Transmitter	ERP (kW)
Basingstoke	1.0
Coppid Beach	0.25
Hannington	1.0
Hemdean	1.0

There are nine proposed Block 12D allocations throughout UK :-

N. Ireland

Edinburgh

Leeds

West & Mid Wales

Stoke

Coventry

Southend & Chelmsford

Peterborough

Reading & Basingstoke

All these multiplexes, above, with the exception of West & Mid Wales, are currently radiating on block 12D. In addition, West Wilts(12D) is also currently radiating, but the area covered by this multiplex is to be re-allocated to another block.

Fig 1.1 shows these proposed multiplexes in the area surrounding Reading & Basingstoke (12D). This also gives an idea of the terrain in the editorial area in relation to the other co-block allocations.

Multiplexes which have an affect upon or are affected by Reading & Basingstoke (12D), are Peterborough (12D) and Southend & Chelmsford (12D and Coventry (12D) N. Ireland (12D), West & Mid Wales (12D), Leeds (12D), Stoke (12D) and Edinburgh (12D), using the characteristics proposed, have little or no affect upon Reading & Basingstoke (12D). Similarly, Reading & Basingstoke (12D) has little or no affect upon these distant multiplexes.

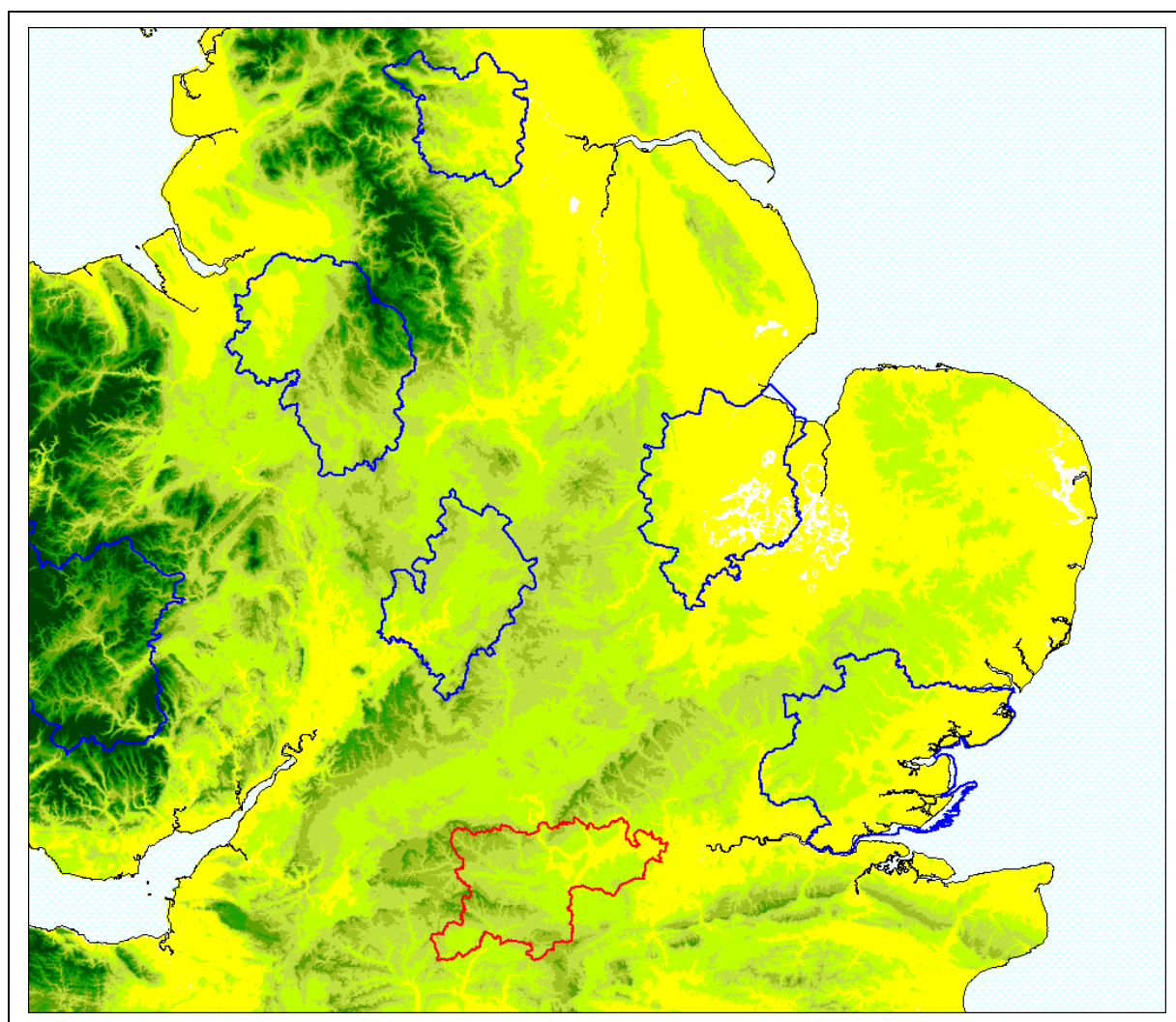


Figure 1.1: Proposed Block 12D allocations

There is a substantial editorial area overlaps with London (future Block 10C), this is shown on map, Figure 1.2 overleaf :-

In addition there are seven further abutting allocations where overspill is possible :-

Herts, Beds & Bucks (10D) to north-east

Oxford (future 5A) to north

Herts, Beds & Bucks (10D) to east

Swindon (11C) to north- west- there is also an insignificant overlap

West Wilts (future 10B) to west – there is also an insignificant overlap

South Hants (11C) to south

Sussex (11B) to south-east

FM Radio coverage is currently provided by BBC Berkshire (from *Hannington, Reading, Henle yand Windsor* transmitters) and Heart Thames Valley (from *Hannington, Broad Street Mall*

(Reading) and Henley transmitters). The editorial area is generally well served by these combined services, notable exceptions being an area to the east, including the towns of Ascot.

The proposed Editorial Area has changed significantly (and now covers the whole of Berkshire; the solid purple contour represents the proposed Reading & Basingstoke (12D) editorial area.

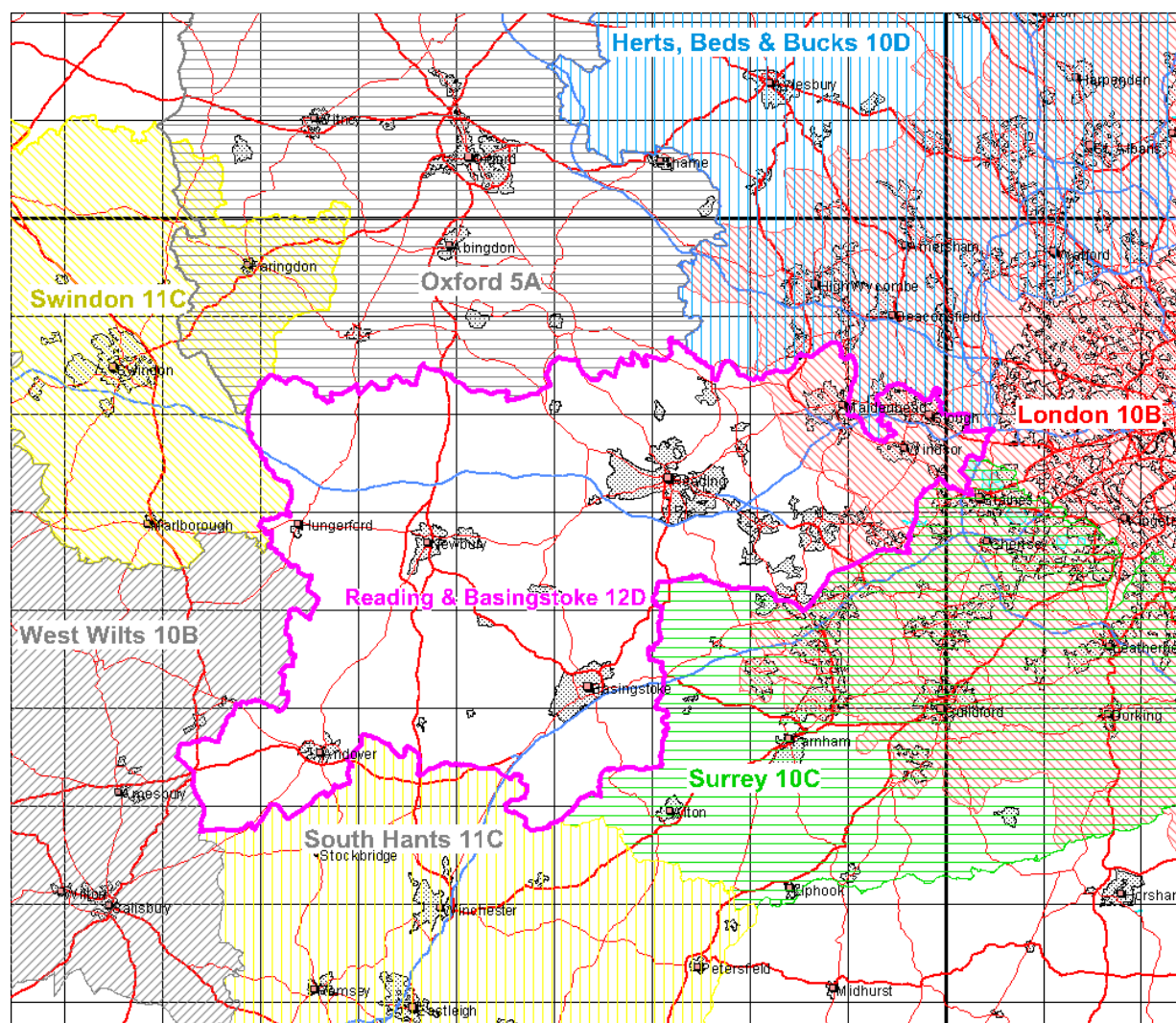


Figure 1.2: Reading & Basingstoke (12D) Editorial Area with Surrounding Multiplexes

In planning for each multiplex, Ofcom have required coverage assessments:

- For each area four sets of maps should be produced as follows:
 1. **Current Situation** - Map showing current actual coverage (or launch plans where a multiplex 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

Figures 2-1, 2-2 and 2-3 shows the current 'on-air' situation in Reading & Basingstoke (12D). There are four transmitters on-air, listed at beginning of *Section 1* the antenna horizontal radiation patterns (HRPs) are overlaid. Outdoor interference limited coverage includes the eight co-block interferers including West Wilts (12D). In the proposed plan, this West Wilts (12D) allocation will move to another block.

For case 2: Modified network 1

The maximum effective radiated power (ERP) of Coppid Beach, which serves areas of Wokingham and Bracknell, has been increased by +6dB from 250W to 1kW in order to improve coverage.

Figures 2-4 & 2-5 show the predicted coverages.

For case 3: Modified Network 2

In this it was required to cover areas where existing local FM. The area is generally well served by FM except for the Ascot area where coverage is marginal. In order to overcome interference from other 12D multiplexes, it is necessary to deploy a relatively large number of additional transmitters - all of the transmitters planned for Modified Network 2 (Robust FM coverage); five further sites are required although coverage still does not match exactly that of the FM coverage. Areas remaining unserved are Ascot/Sunninghill/Sunningdale and the Sandhurst area – it has not been possible to identify suitable sites in these comparatively wealthy suburbs although it should be possible to install small transmitters located possibly on rooftops without undue outgoing interference. Goring remains unserved *Figures 2-6 & 2-7 shows this coverage which broadly matches FM coverage.*

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). This case remains the same as 'Case 3' above, although further small infill transmitters could be added to the network without causing undue outgoing interference.

Proposals for London (Future Block 10B) overlaps the areas remaining unserved (Ascot/Sunninghill/Sunningdale and Sandhurst) but coverage remains indifferent from this multiplex too.

1.1 Incoming interference and sensitivity to other co-block multiplexes

The general 'Benchmark' for indoor and outdoor co-block interference protection is for 99% time

With all nine Transmitters, indoor coverage was predicted to be 94.6% of the Editorial Area (1% Time interference). Outdoor (Road) coverage was 88.7% (1% Time interference).

The most significant interfering co-block multiplex is Southend & Chelmsford (12D), although Coventy (12D) and Peterborough (12D) impact upon Reading & Basingstoke (12D). N Ireland (12D), West & Mid Wales (12D), Stoke (12D), Leeds (12D) and Edinburgh (12D) have no significant impact.

1.2 Outgoing interference to other co-block multiplexes

There is a slight impact to other co-block allocations from the proposals contained in this report, primarily to the coverage to Southend & Chelmsford (12D) although this has been minimised by careful attention to ERP/HRP of the proposed Membury transmitter – therefore DAB antennas in use, or proposed, cannot be used at this site. The Hannington transmitter (on air) impacts Southend & Chelmsford (12D); both these transmitters are necessary to provide wide area coverage to Reading & Basingstoke (12D).

2 Coverage of the Multiplex

2.1 Coverage Maps

Coverage maps for the DAB are generally presented with three colours unless otherwise stated:

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 Existing Situation

Figure 2-2 Existing Situation – Outdoor Only: 1% Time Interference

Figure 2-3 Modified Network 1

Figure 2-4 Modified Network 1 – Outdoor Only: 1% Time Interference

Figure 2-5 Modified Network 2

Figure 2-6 Modified Network 2 – Outdoor Only: 1% Time Interference

Note: There are no separate plots for Modified Network 3 because they are identical to Modified Network 2

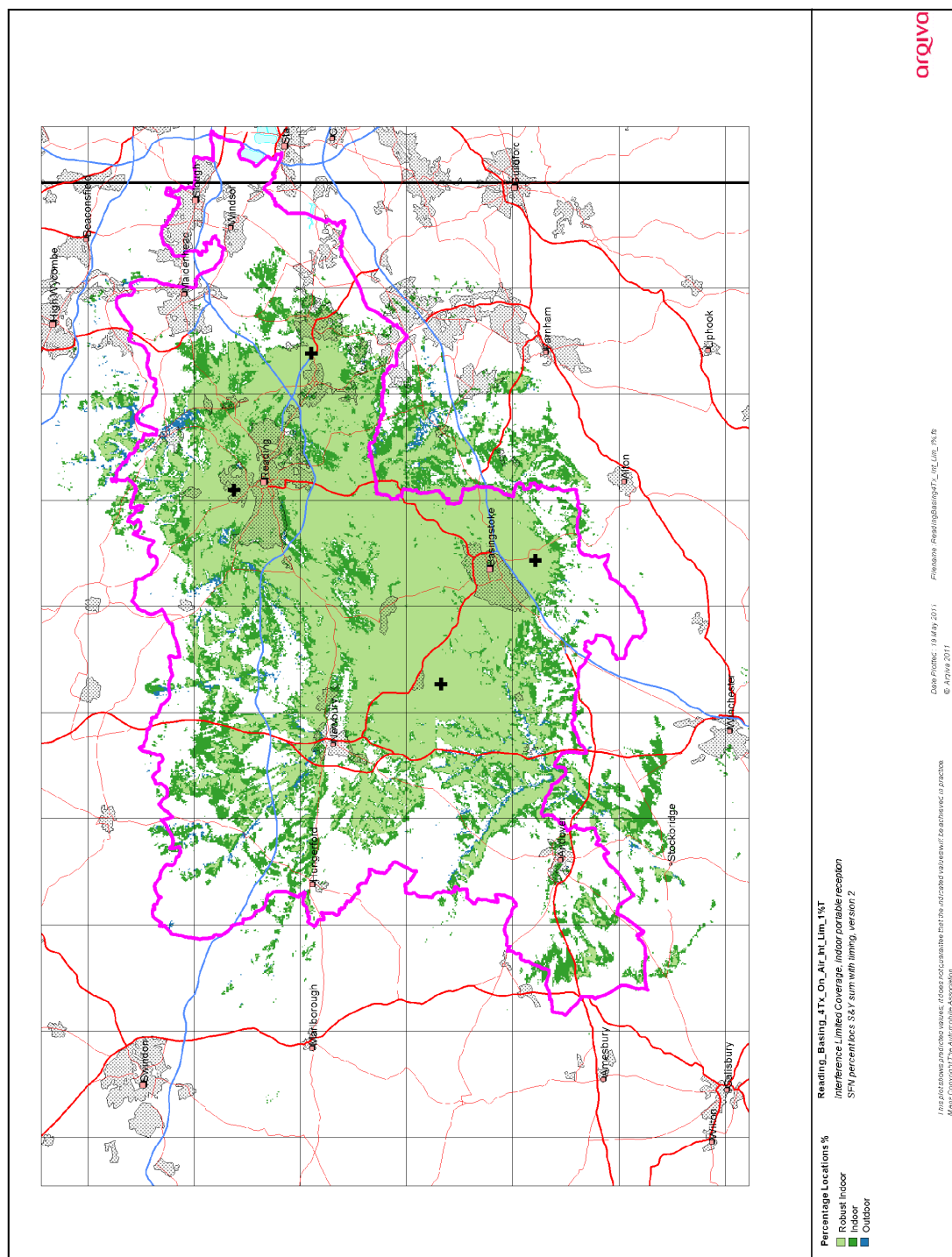


Figure 2-1. Current Situation

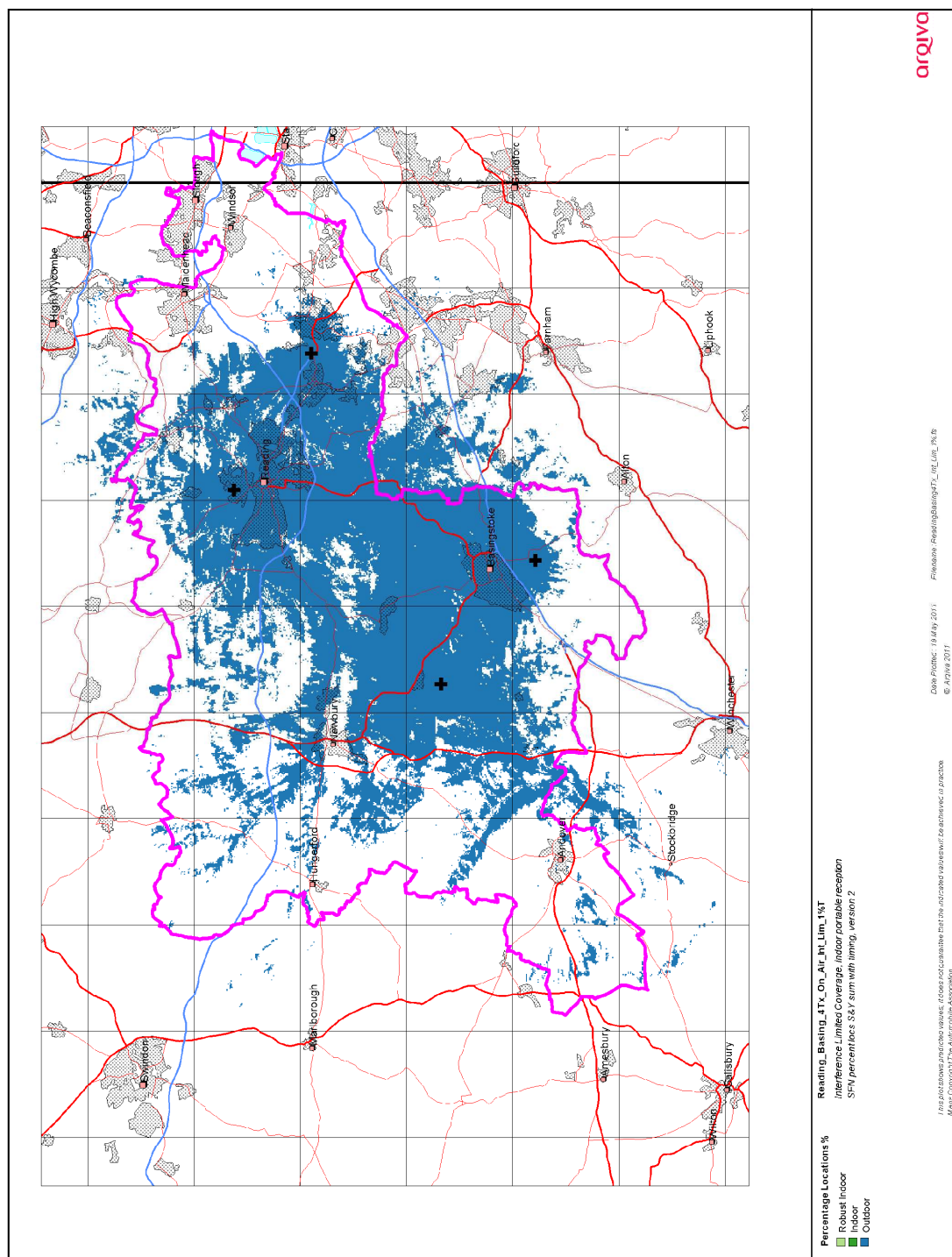


Figure 2-2. Current Situation – Outdoor Only 1% Time Interference

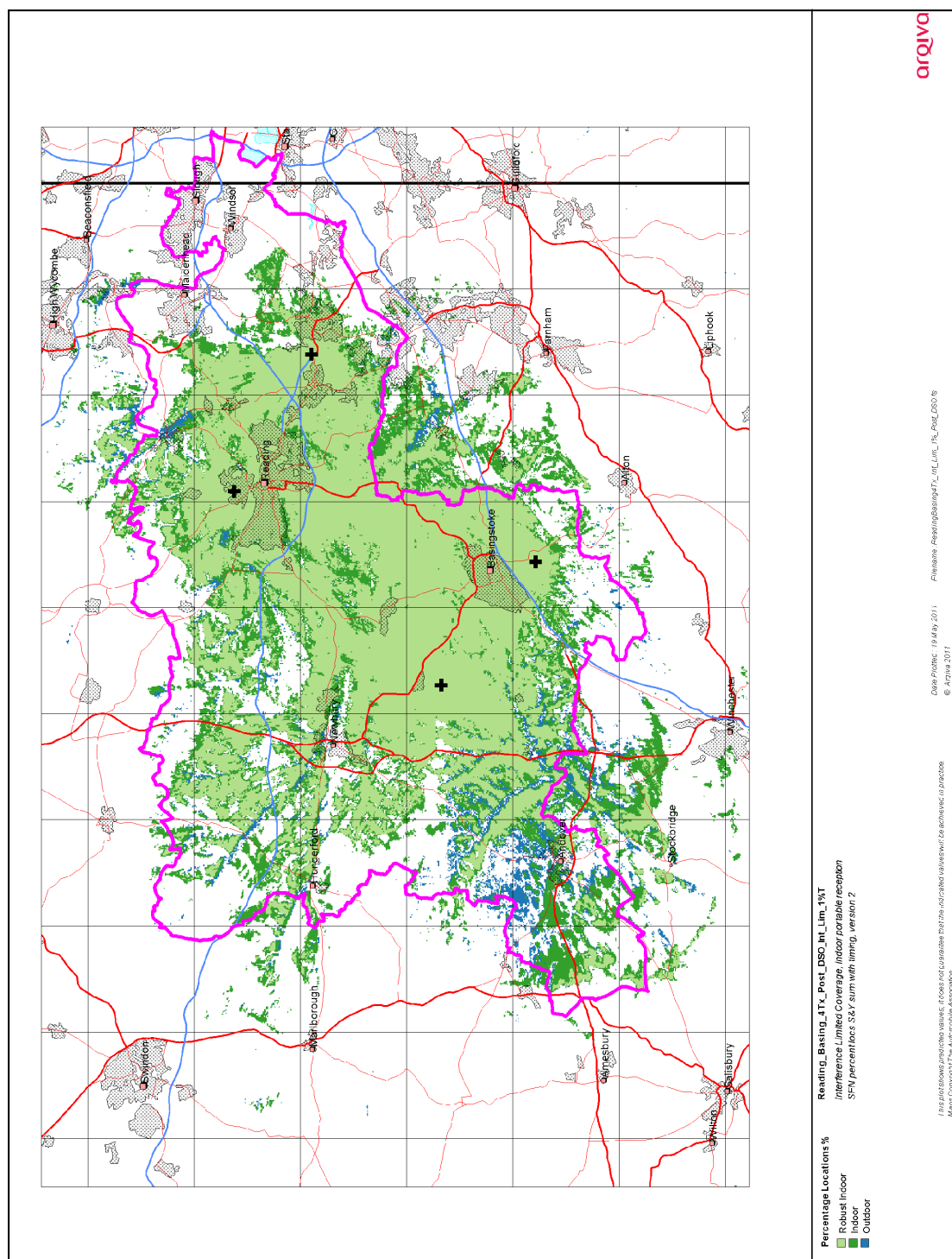


Figure 2-3. Modified Network 1

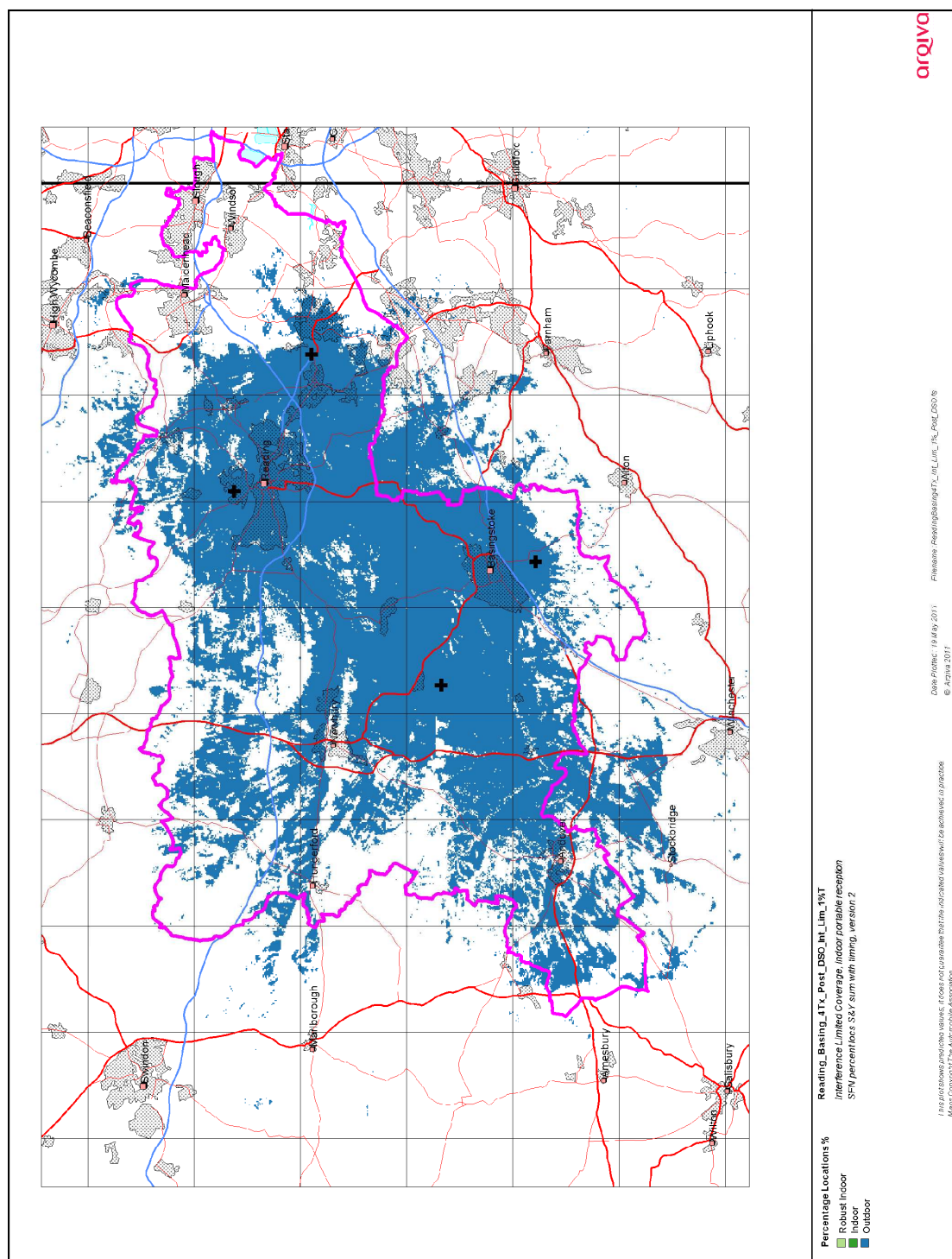


Figure 2-4. Modified Network 1 – Outdoor Only, 1% Time Interference

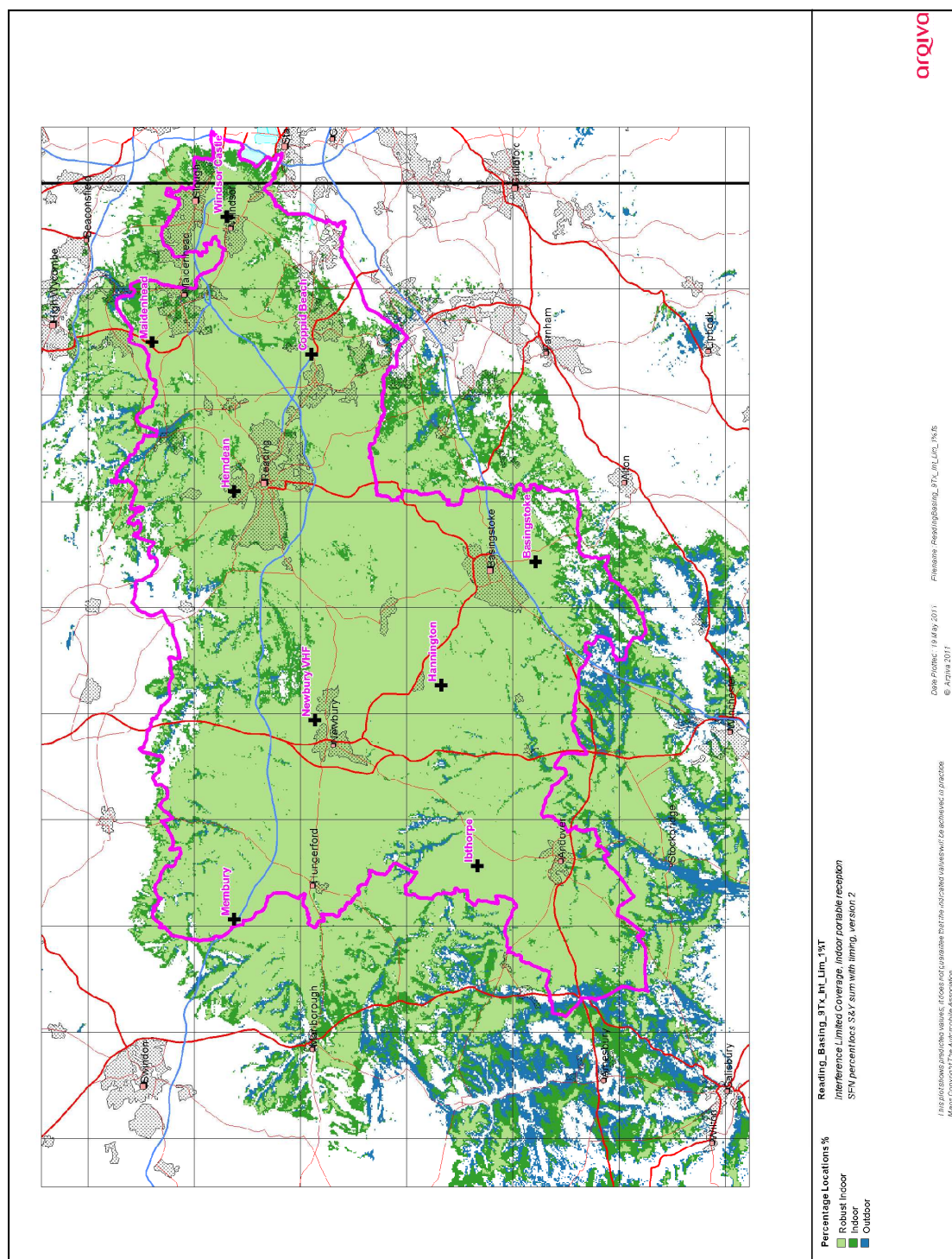


Figure 2-5. Modified Network 2

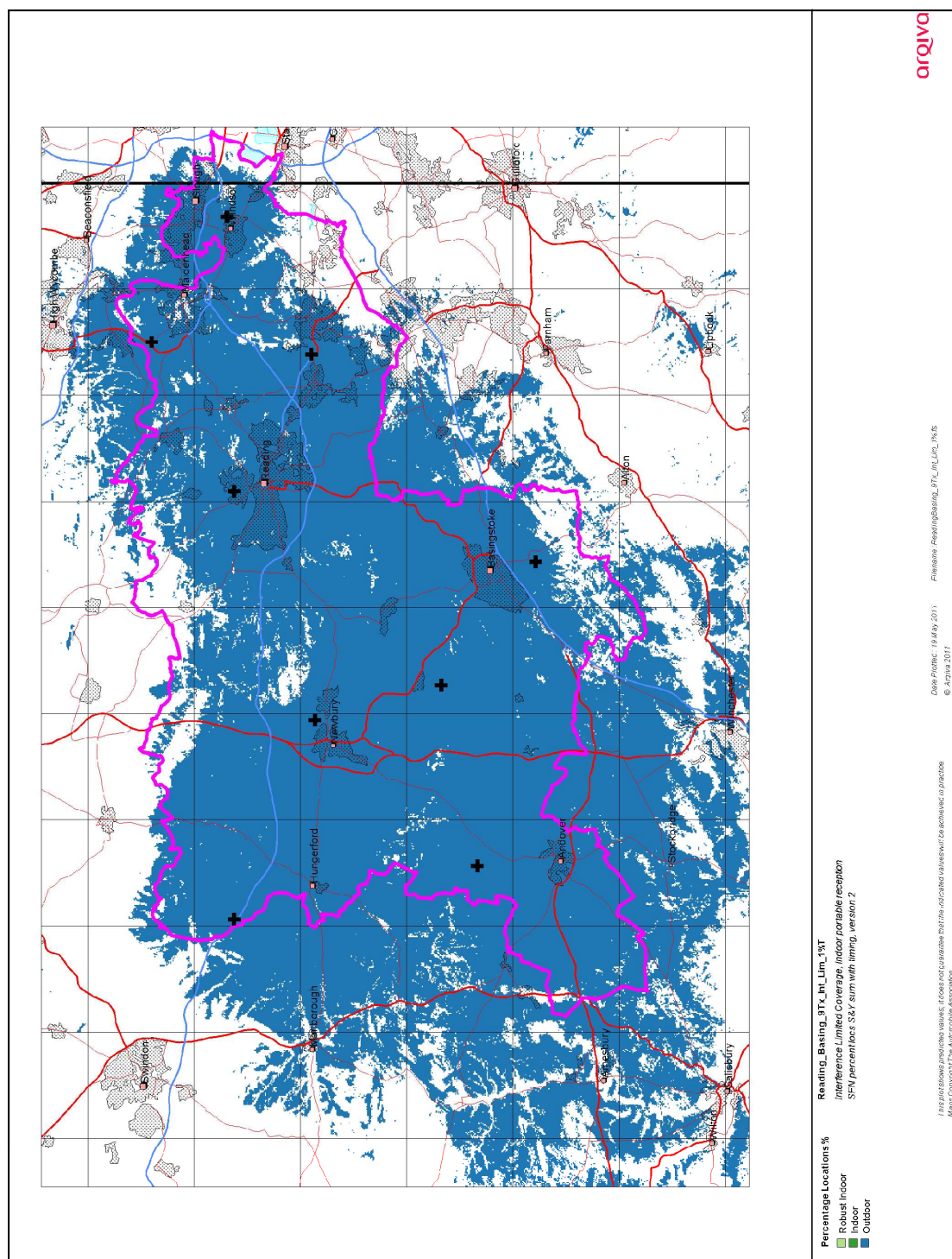


Figure 2-6. Modified Network 2 – Outdoor Only, 1% Time Interference

2.2 Population Coverage tables within Editorial Area

Table 2-1 Population - Proportional Indoor Coverage: Total 461,692 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 (4Tx)	Existing	-	267,743	-	-	57.99
Current (4Tx)	Existing	-	286,075	-	-	61.96
Windsor Castle	New	74,907 (16.22%)	368,618	82,543	17.88	79.84
Ibthorpe	New	25,082 (5.43%)	388,212	19,594	4.24	84.08
Maidenhead	New	17,469 (3.78%)	411,833	23,621	5.12	89.20
Membury	New-Existing Infrastructure	22,249 (4.82%)	429,411	17,578	3.81	93.01
Newbury VHF	New	36,211 (7.84%)	432,159	2,748	0.59	93.60

Case 1
Case 2 -
Case 3 -
Case 4 -

Light yellow
Purple
Blue
Blue + Green

Existing Network
Modified Network 1
Modified Network 2
Modified Network 3 – n/a -same as Case 3

Table 2-2. Road Coverage 99% Locations and 99% Time Interference Protection

Total Roads 723.1 km

Site Scenario and Incremental Additional Sites	Site Type	Total Road Length (km)	Increase in Road Length (km)	Incremental Percentage of Road Length (%)	Percentage of Roads within Editorial Area (%)
Current (4Tx)	Existing	327.2	-	-	45.73
Current (4Tx)	Existing	403.9	-	-	55.86
Windsor Castle	New	465.7	61.8	8.54	64.4
Ibthorpe	New	506.0	40.3	5.6	70.0
Maidenhead	New	561.5	55.5	7.6	77.6
Membury	New-Existing Infrastructure	634.3	72.8	10.1	87.7
Newbury VHF	New	641.6	7.3	1.00	88.7

Case 1		Light yellow	Existing Network
Case 2	-	Purple	Modified Network 1
Case 3	-	Blue	Modified Network 2
Case 4	-	Blue + Green	Modified Network 3 – n/a - same as Case 3

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 & 99% Time Interference Protection</i>
1	267,743 (57.99%)	327.2 (45.73%)
2	286,075 (61.95%)	403.9 (55.86%)
3	432,159 (93.60%)	641.6 (88.70%)
4	432,159 (93.60%)	641.6 (88.70%)