
Digital Switchover (DSO) Programme

Radio DSO Block 10C North Devon

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1 North Devon DSO narrative

Block 10C for North Devon is a new allocation. There are no editorial area overlaps with the adjacent allocations of Somerset 10D (to the east), Exeter & Torbay 11C (to south-east), Plymouth 10D (to south) and Cornwall & Scillies 11B (to the west) although there will be a certain amount of overspill from these areas. The proposed Block 10C allocations including Liverpool, North Yorkshire, Gloucester, Northampton, Surrey and North Devon are shown Fig 1.1 below.

The generally hilly and sparsely populated area in the west of the region – roughly south of a line drawn between Okehampton and Bude – is probably best served from transmitters allocated to the Cornwall and Scillies multiplex which includes Caradon Hill, or from transmitters allocated to the Plymouth multiplex including transmitters at Bude and North Hessary Tor on Dartmoor.

The North Devon DAB allocation is a sub-area of that of the existing FM BBC Devon which, as its name suggests, covers the whole of Devon; it's a close judgement in deciding the relative merits of assigning North Hessary Tor to either the North Devon or Plymouth multiplexes – especially in the light of coverage from the Cornwall multiplex, and its FM BBC Cornwall cousin.

North Hessary Tor could be added to the North Devon multiplex but coverage within the Editorial Area would generally be limited to hill tops and it will not have a significant impact upon the valleys where most of the roads and villages reside. Significantly, the unserved part of the A30 road connecting Okehampton and Launceston would still require several fillers, perhaps as many as five, to complete the coverage. It is felt, on balance, that the area south of the Bude-Launceston line is best served from the Cornwall 11B and Plymouth 10D multiplexes. This will not contiguously serve the A30 as mentioned above; still requiring perhaps as many five fillers.

The hilly terrain which is a general hindrance to coverage, together with North Devon's relative remoteness has also mitigated the effects of interference from co-block multiplexes. The only significant interference, being to the high ground along the north coast, west of Minehead and east of Ilfracombe. This interference is principally attributed to several proposed transmitters in the Gloucester co-block Multiplex (predominantly Churchdown Hill, Stockend Wood and Dursley) which have a relatively unobstructed path down the Mouth of the Severn. Interference from the other 10C co-block allocations are insignificant.

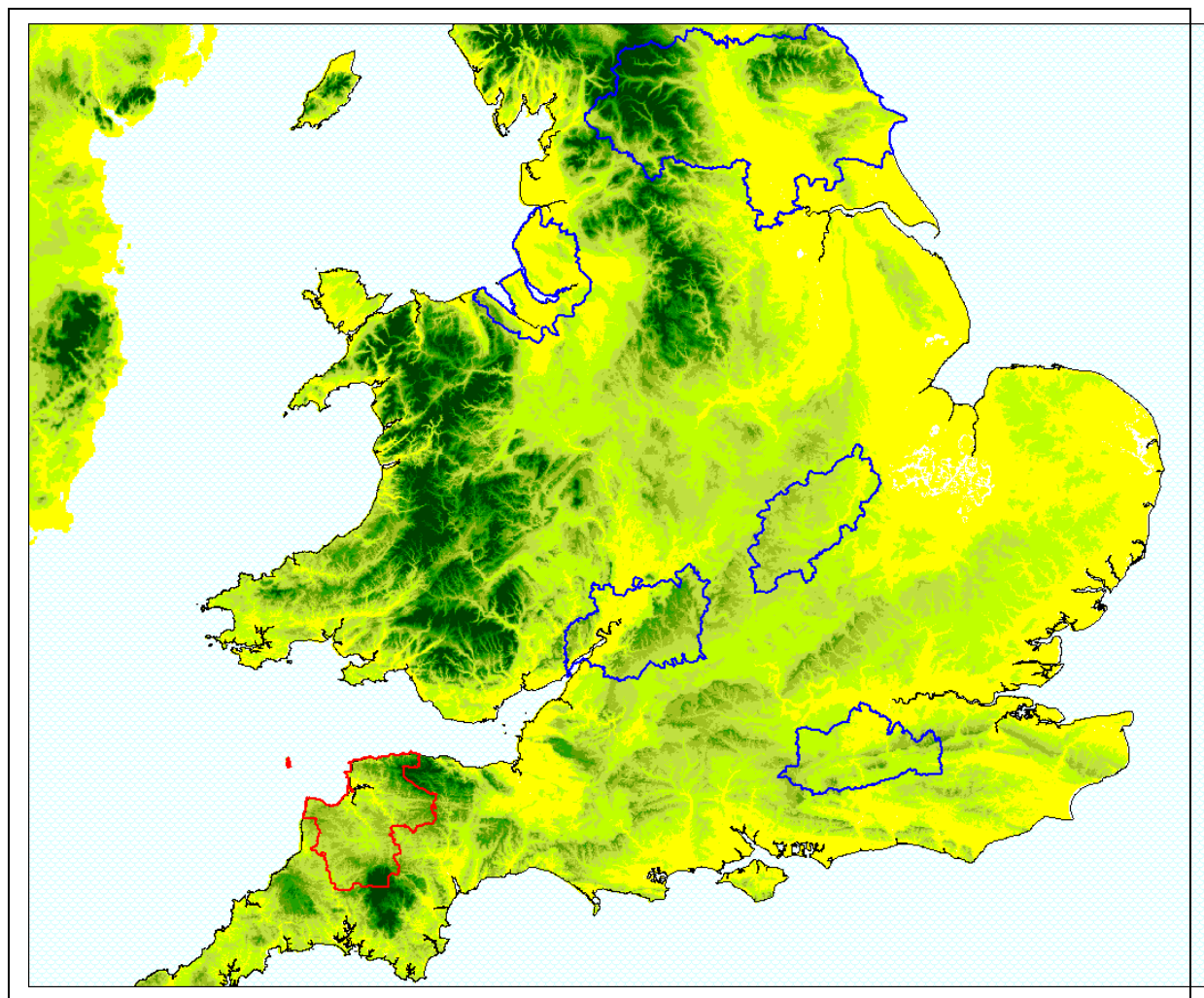


Figure 1.1: Proposed Block 10C allocations

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

Not applicable

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 Devon and Independent Heart Devon) is robust. To achieve this, six sites were required; the coverage of the Modified Network 2 is shown in Figure 2-1 (indoor/outdoor), Figure 2-2 (outdoor only 99% time interference protected) and Figure 2-3 (outdoor only 95% time interference protection from Gloucester and 99% time interference protection from Northampton, Liverpool and Surrey multiplexes)

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 a further 14 sites will be required, bringing the total number to 20 sites. This is shown in Figures 2-4 (indoor/outdoor), 2-5 (outdoor only 99% time interference protected) & 2-6 (outdoor only 95% time interference protected)

As noted earlier, North Devon coverage is affected along the north coast by interference from co-block allocation Gloucester. Outdoor interference limited coverage predictions have been made for all three 'interferers' and it is predicted that 91.46% of roads will be served at 1% time interference and this improves to 92.35%, (+44km), when interference from Gloucester multiplex is protected for 5% time. The majority of roads in this region are generally in the valleys, so coverage is generally terrain limited rather than interference limited (except for the relatively small area on the north coast as mentioned above).

Some additional notes:**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. An additional 'outdoor' prediction has been made at 5% time interference from the Gloucester multiplex, the predominant interferer, in order to illustrate the improvement

North Yorkshire, also a Block 10C allocation, has no affect upon coverage to North Devon

1.2 Outgoing interference to other co-block multiplexes

There is slight impact to other co-block allocations, primarily Gloucester, from the proposals contained in this report

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 Modified Network 2

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

Figure 2-3 Modified Network 2 – Outdoor Only 5% Time Interference from Gloucester and 1% time interference from Northants, Liverpool and Surrey

Figure 2-4 Modified Network 3

Figure 2-5 Modified Network 3 Outdoor Only 1% Time Interference

Figure 2-6 Modified Network 3 – Outdoor Only 5% Time Interference from Gloucester and 1% Time Interference from Northants, Liverpool & Surrey

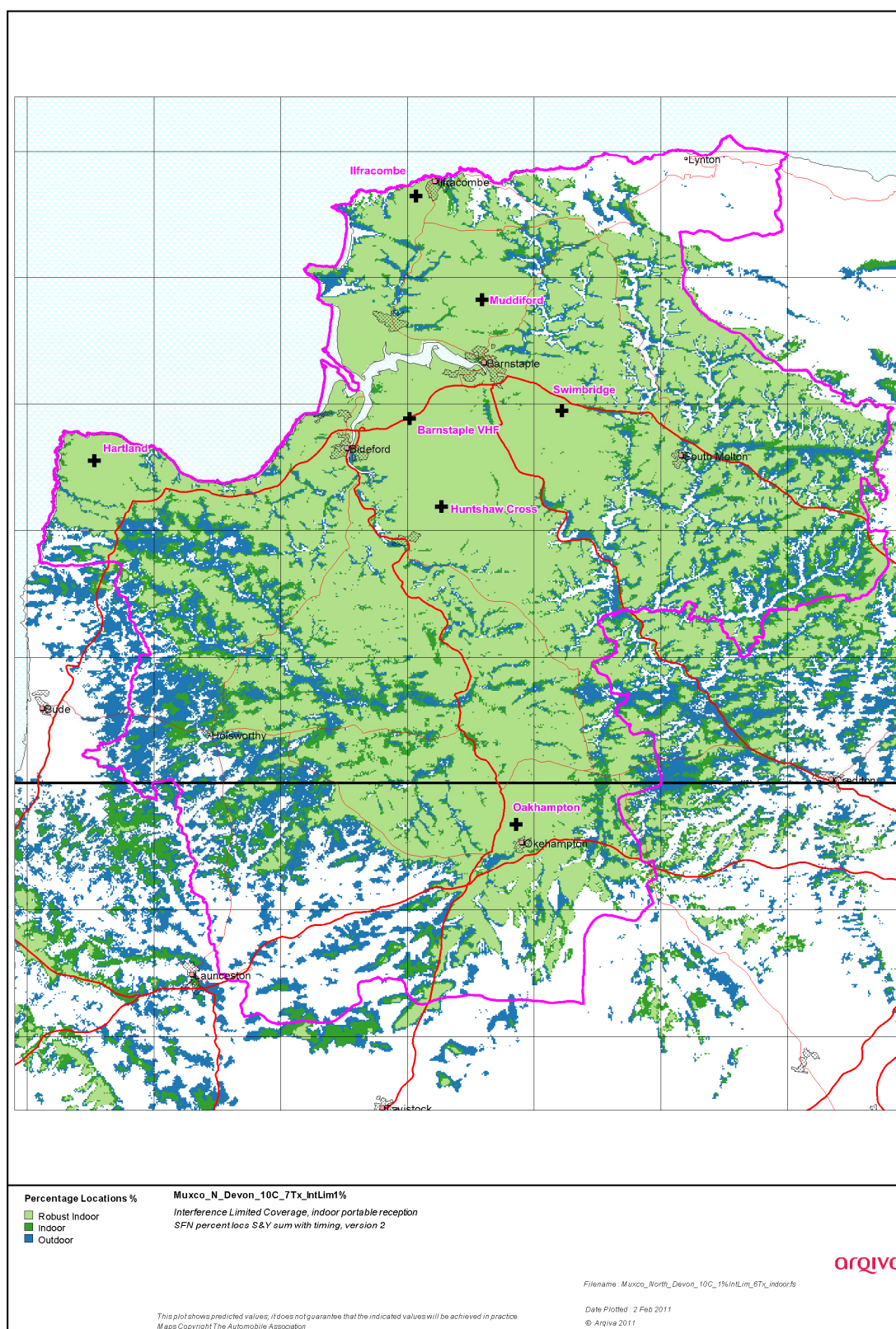


Figure 2-1. Modified Network 2

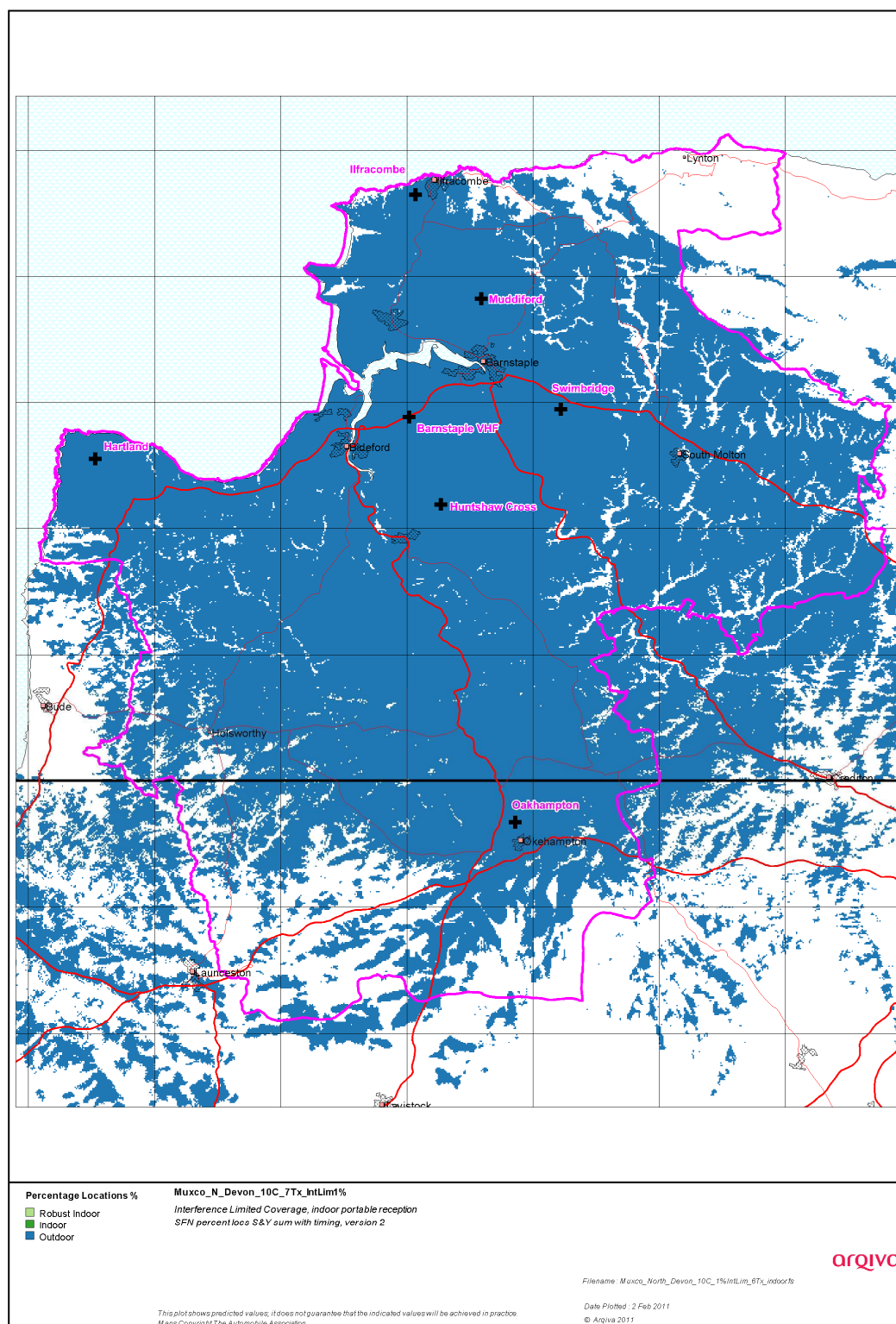


Figure 2-2. Modified Network 2- Outdoor Only 1% Time Interference

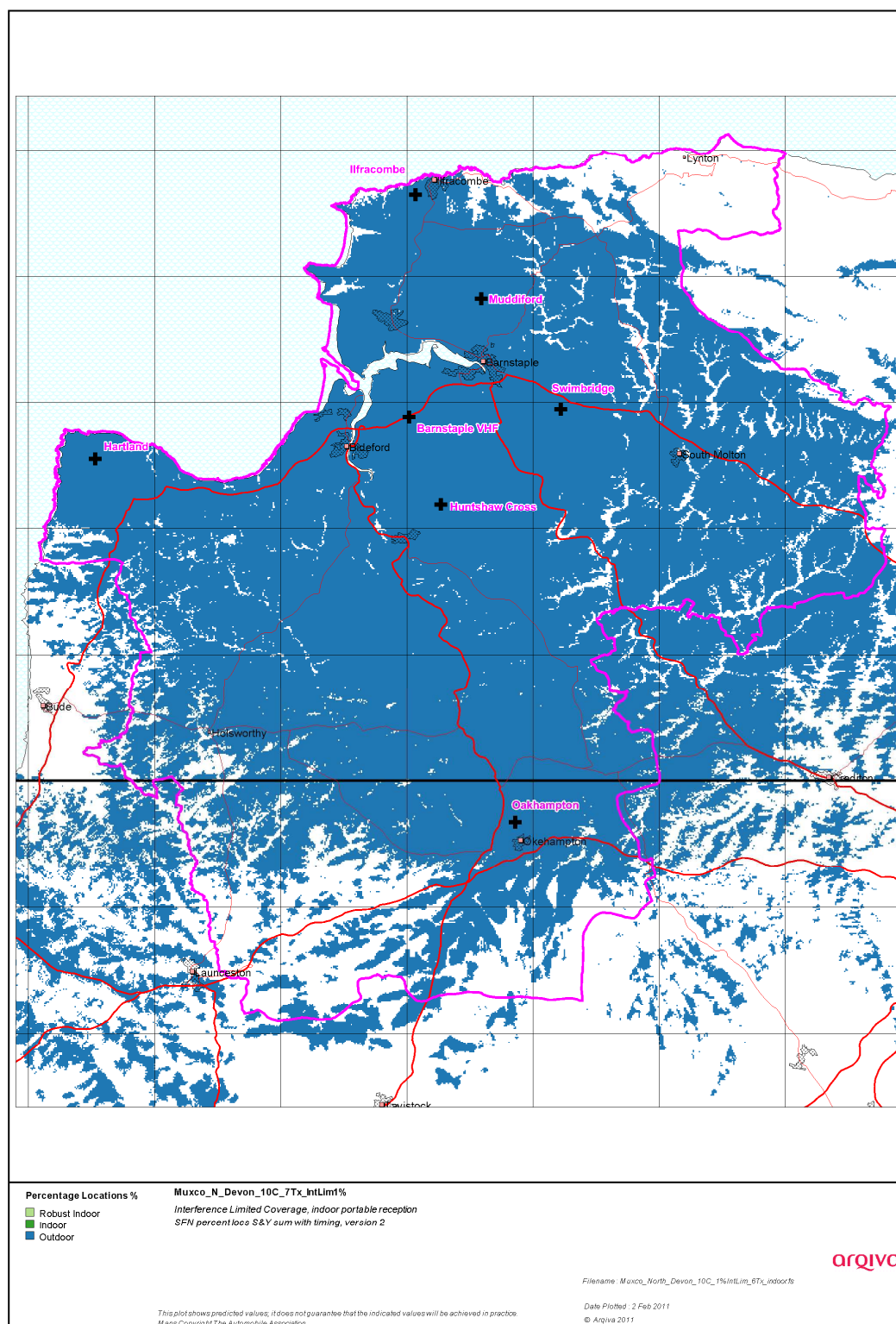


Figure 2-3. Modified Network 2- Outdoor Only 5% Time Interference Gloucester

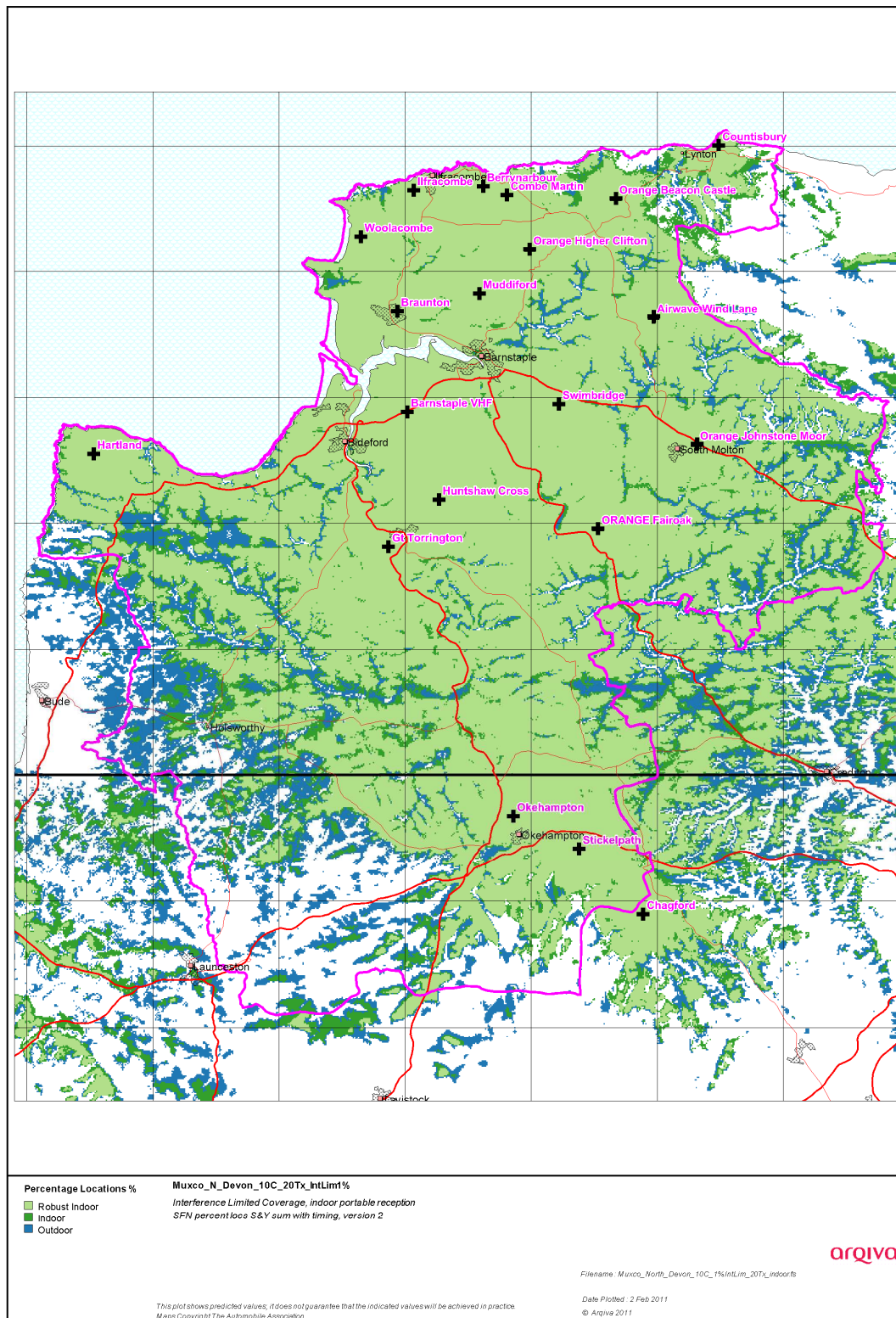


Figure 2-4. Modified Network 3

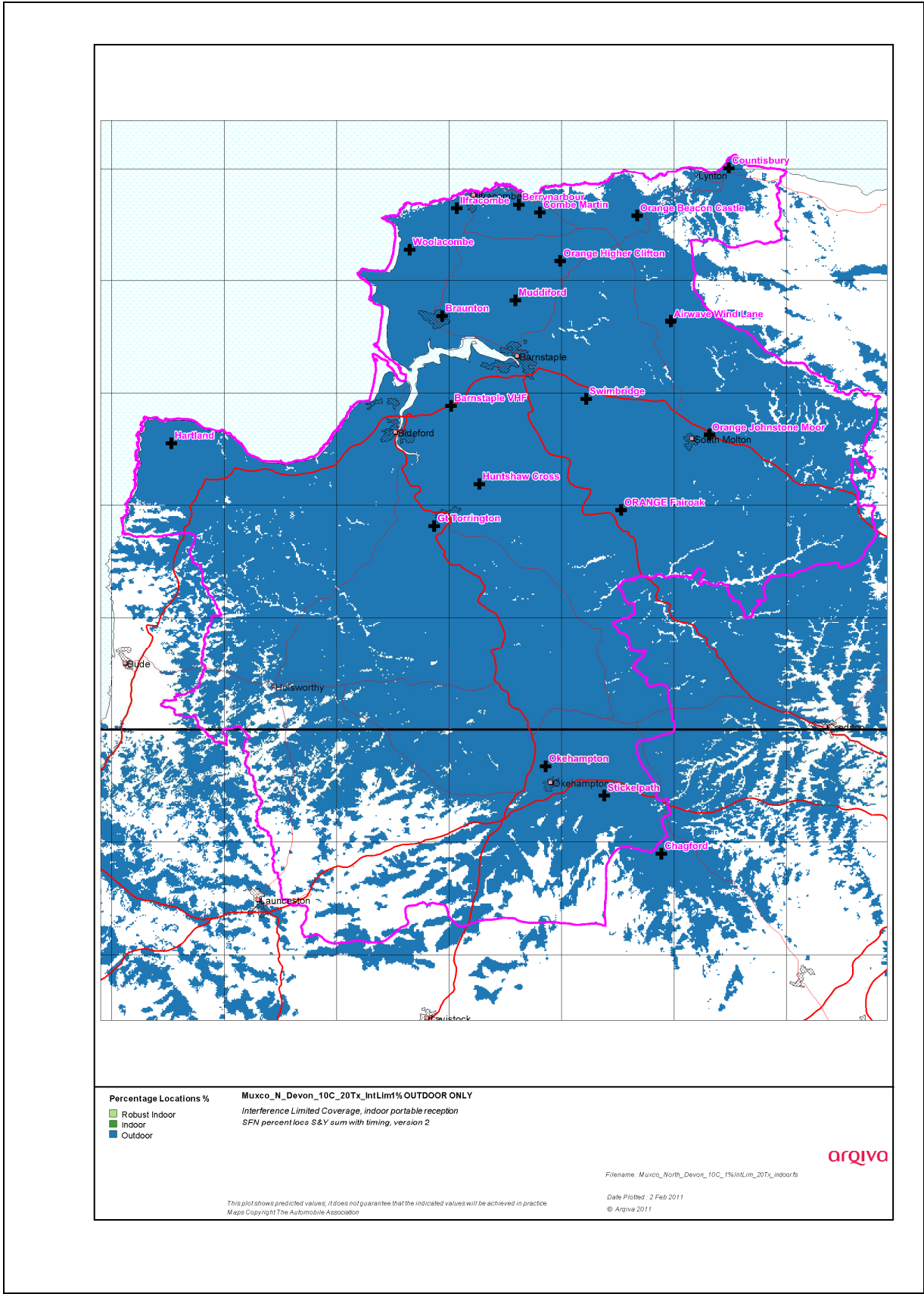


Figure 2-5. Modified Network 3 – Outdoor Only 1% Time Interference

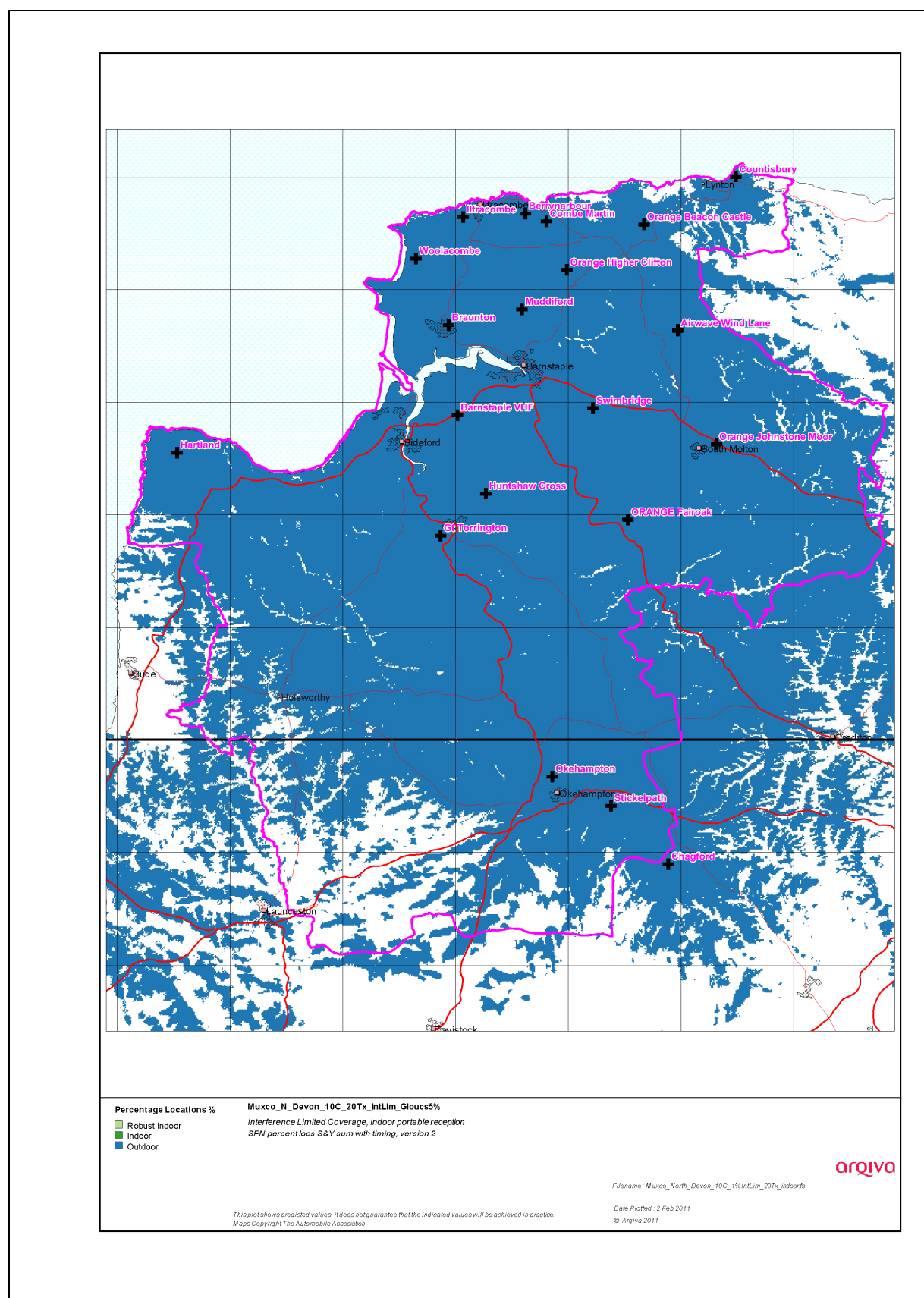


Figure 2-6. Modified Network 3 – Outdoor Only 5% Time Interference Gloucester

2.2 Population Coverage tables within Editorial Area

Table 2-1 Population coverage proportional indoor: Total 81,919 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 (%)
Huntshaw Cross	New - Existing in use Infrastructure	49,729 (56.65%)	49,729	49,729	56.65	56.65
Ilfracombe UHF	New	5,033 (6.14%)	53,726	3,997	8.93	65.58
Okehampton UHF	New	6,515 (7.95%)	58,394	4,669	5.70	71.28
Braunton UHF	New	16,365 (19.98%)	64,040	5,646	6.90	78.18
Woolacombe UHF	New	5,315 (6.49%)	66,061	2,021	2.46	80.64
Swimbridge UHF	New	8,942 (10.92%)	68,042	1,981	2.42	83.06
Barnstaple VHF	New	28,949 (35.34%)	69,681	1,639	2.00	85.06
Countisbury UHF	New	867 (1.06%)	70,596	915	1.12	86.18
Stickelpath UHF	New	2,152 (2.63%)	71,503	3,183	0.78	87.29
Hartland UHF	New	853 (1.04%)	72,347	844	1.03	88.32
Orange-Johnstone Moor	New	2,839 (3.47%)	72,779	432	0.52	88.84
Gt Torrington UHF	New	3,375 (4.12%)	73,014	235	0.29	89.13
Berrynarbour UHF	New	1,759 (2.15%)	74,828	1,814	2.21	91.34
Orange – Beacon Castle	New	206 (0.25%)	75,058	230	0.29	91.63
Airwave – Wind Lane	New	492 (0.60%)	75,314	256	0.31	91.94

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 (%)
Combe Martin UHF	New	1,676 (2.05%)	75,418	104	0.13	92.07
Muddiford UHF	New	491 (0.6%)	75,587	169	0.20	92.27
Orange – Higher Clifton	New	386 (0.47%)	75,652	65	0.08	92.35
Orange - Fairoak	New	1,416 (1.73%)	75,791	139	0.17	92.52
Chagford UHF	New	223 (0.27%)	75,874			92.62

Case 1		Light yellow	Existing Network – Not applicable
Case 2	-	Purple	Modified Network 1 – Not applicable
Case 3	-	Purple + Blue	Modified Network 2
Case 4	-	Purple + Blue + Green	Modified Network 3

Table 2-2. Road coverage 99% Locations and 99% Time: Total roads 462.1 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 (%)
Huntshaw Cross	New - Existing in use Infrastructure	315.5	315.5	68.29	68.29
Ilfracombe UHF	New	325.4	9.9	2.14	70.43
Okehampton UHF	New	340.0	14.6	1.68	75.31
Braunton UHF	New	355.7	15.7	1.68	76.99
Woolacombe UHF	New	360.1	4.4	0.94	77.93
Swimbridge UHF	New	368.9	8.8	1.92	79.85
Barnstaple VHF	New	373.4	4.5	0.97	80.82

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 (%)
Countisbury UHF	New	388.0	14.6	3.14	83.96
Stickelpath UHF	New	392.1	4.1	0.91	84.87
Hartland UHF	New	392.4	0.3	0.05	84.92
Orange-Johnstone Moor	New	393.9	1.5	0.33	85.25
Gt Torrington UHF	New	394.1	0.2	0.04	85.29
Berrynarbour UHF	New	403.3	9.2	1.99	87.28
Orange – Beacon Castle	New	406.9	3.6	0.79	88.07
Airwave – Wind Lane	New	415.3	8.4	1.8	89.87
Combe Martin UHF	New	416.6	1.3	0.28	90.15
Muddiford UHF	New	417.2	0.6	0.15	90.30
Orange – Higher Clifton	New	418.0	0.8	0.16	90.46
Orange - Fair Oak	New	422.1	4.1	0.88	91.34
Chagford UHF	New	422.6	0.5	0.12	91.46

Case 1		Light yellow	Existing Network - Not Applicable
Case 2	-	Purple	Modified Network 1- Not Applicable
Case 3	-	Purple + Blue	Modified Network 2
Case 4	-	Purple + Blue + Green	Modified Network 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>	Mobile Coverage km & percentage coverage <i>99% Locations & 95% Time Interference Protection</i>
1	n/a	n/a	n/a
2	n/a	n/a	n/a
3	67,794 (82.76%)	378.0 (81.81%)	384.6 (83.23%)
4	75,874 (92.62%)	422.6 (91.46%)	426.7 (92.35%)

Case 1		Light yellow	Existing Network - Not Applicable
Case 2	-	Purple	Modified Network 1- Not Applicable
Case 3	-	Purple + Blue	Modified Network 2
Case 4	-	Purple + Blue + Green	Modified Network 3