
Digital Switchover (DSO) Programme

Radio DSO Block 5A Derby

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1 Derby DSO narrative

The current Derby local licence is not yet built on Block 5A. This multiplex has been advertised on its original block 10B. The licensed characteristics (with Quarndon replacing Drum Hill as this site is not available for DAB services) form case 1 but using 5A; case 2 does not apply as this multiplex has not been built.

Case 1 includes two of the three current FM sites. Case 3 matches all three FM sites (Drum Hill, Stanton Moor and Buxton) plus Chesterfield and Lichfield which are in case 1.

Lichfield and Chesterfield provide significant coverage in addition to the current FM coverage. There is an area to the east around Ilkeston and Heanor, which has current FM coverage but for interference reasons is not served in cases 1 and 3. However these areas are well served by the adjacent multiplex of Nottingham so it is proposed not to present additional sites in these areas.

This multiplex is co-block with Suffolk and Oxfordshire neither of which has been built. This multiplex does suffer some interference from Suffolk and Oxfordshire, with Oxford, Puttocks Hill and Bretch Hill being the more dominant sources of interference.

The current and proposed block 5A allocations are shown below in figure 1.1

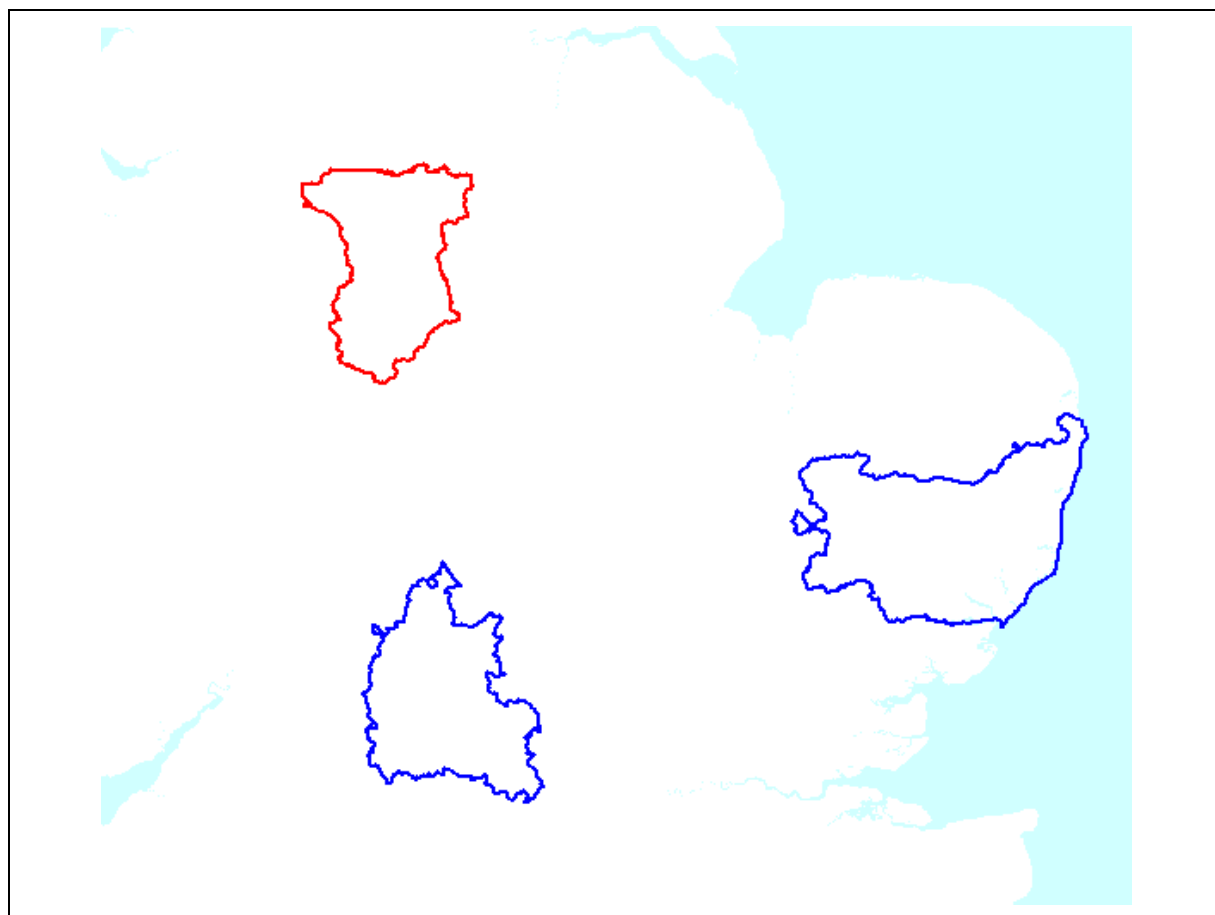


Figure 1.1: 5A block allocations

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: Licence situation

Initially this multiplex was advertised on 10B and four sites were proposed (Lichfield, Drum Hill, Stanton Moor and Chesterfield). Quarndon replaces Drum Hill as this site is not available for DAB and it performs a similar function to Drum Hill.

For case 2: Modified Network 1

Not applicable.

For case 3: Modified Network 2

To match the local FM services Buxton needs to be added (as this is a current FM site). It should be noted that there is some co-block interference which would indicate additional sites would be required to closely match the FM notably in the Heanor and Ilkeston areas. However as can be seen in figure 1.2 below there are significant overlaps, notably with Nottingham to the east and current planning for this multiplex serves these areas well.

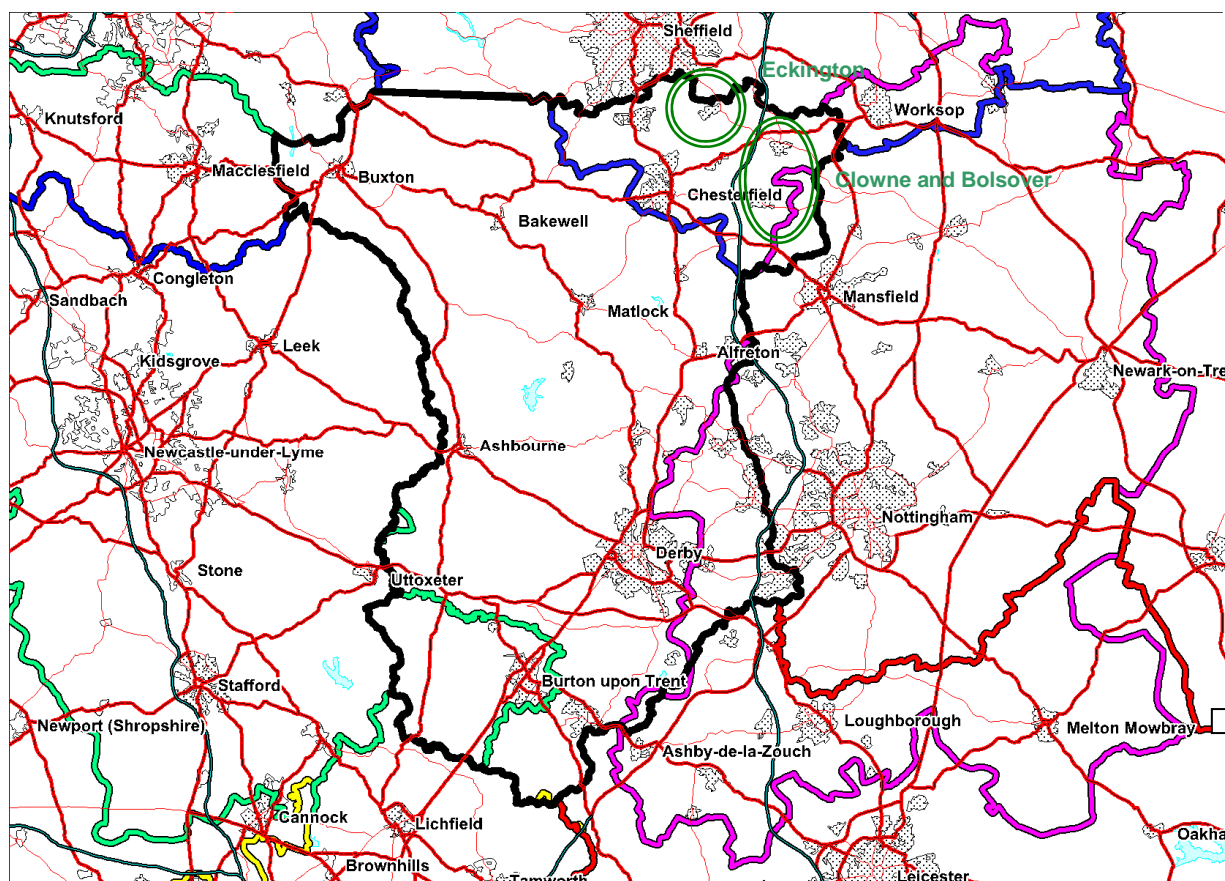


Figure 1.2 Derby overlap with adjacent multiplexes

In addition to the northeast of the editorial area there are a number of issues:

- To the east of Bolsover and around Clowne, there is no local FM service. Additional sites would not yield much additional coverage, but the proposed Nottingham multiplex easily serves these areas (primarily from Fishponds Hill). This coverage issue is not due to interference but local terrain.
- Eekington is similarly well served by South Yorkshire.

For case 4: Modified Network 3

An additional two transmitters (total of eight sites) have been added to cover the town of Ashbourne and the main road to the north linking Ashbourne with Buxton. These two sites provide coverage in area not covered by other multiplexes. A third site is proposed at Bolehill. This site provides good coverage to the Wirksworth area and links the northern part of the multiplex to the southern part, giving a more contiguous coverage to the multiplex.

1.1 Outgoing interference and sensitivity to other co-block multiplexes

This multiplex does suffer from some interference from both Suffolk and Oxfordshire. This affects the mobile coverage. Neither of the interfering multiplexes dominate; it is general interference. Whilst notable it has been decided not to show 5% time interference as a study of 1% interference to 95, 97 and 99% locations shows in general that ~8% of the coverage is for 97-99% locations and a further ~3% for 95-97% locations for both case 1, 3 and 4. This indicates that whilst the coverage is affected the interference is not too significant. For this reason coverage maps are presented as indoor only and mobile only (displaying 95, 97 and 99% locations, but all for 99% time).

Figure 2.7 has been added to show the overlap with the Nottingham multiplex in areas not served by Derby.

2 Coverage of the Multiplex

2.1 Coverage Maps

Coverage maps for the indoor DAB are presented with two colours:

Dark Green = Indoor coverage (80-95% locations at 99% time)

Light Green = Robust indoor coverage (>95% locations at 99% time)

Coverage maps for the mobile DAB are presented with three colours:

Light Red = Mobile coverage (95% < 97% locations at 99% time)

Light Blue = Mobile coverage (97 < 99% locations at 99% time)

Light Green = Mobile coverage (>99% locations at 99% time)

- Figure 2.1 Case 1 indoor only
- Figure 2.2 Case 1 mobile only
- Figure 2.3 Case 3 indoor only
- Figure 2.4 Case 3 mobile only
- Figure 2.5 Case 4 indoor only
- Figure 2.6 Case 4 mobile only
- Figure 2.7 Case 4 Nottingham mobile only

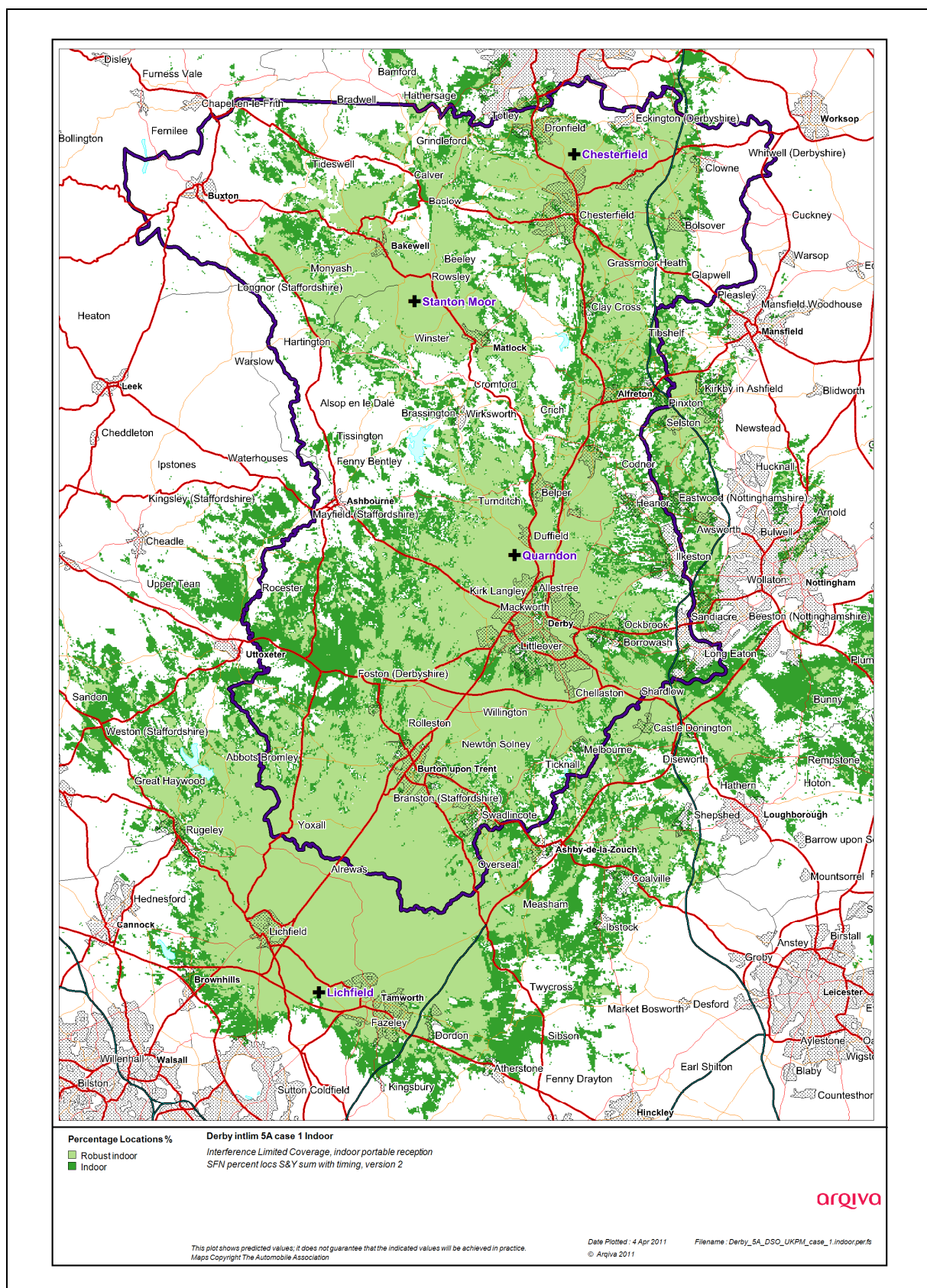


Figure 2.1: Case 1 indoor only

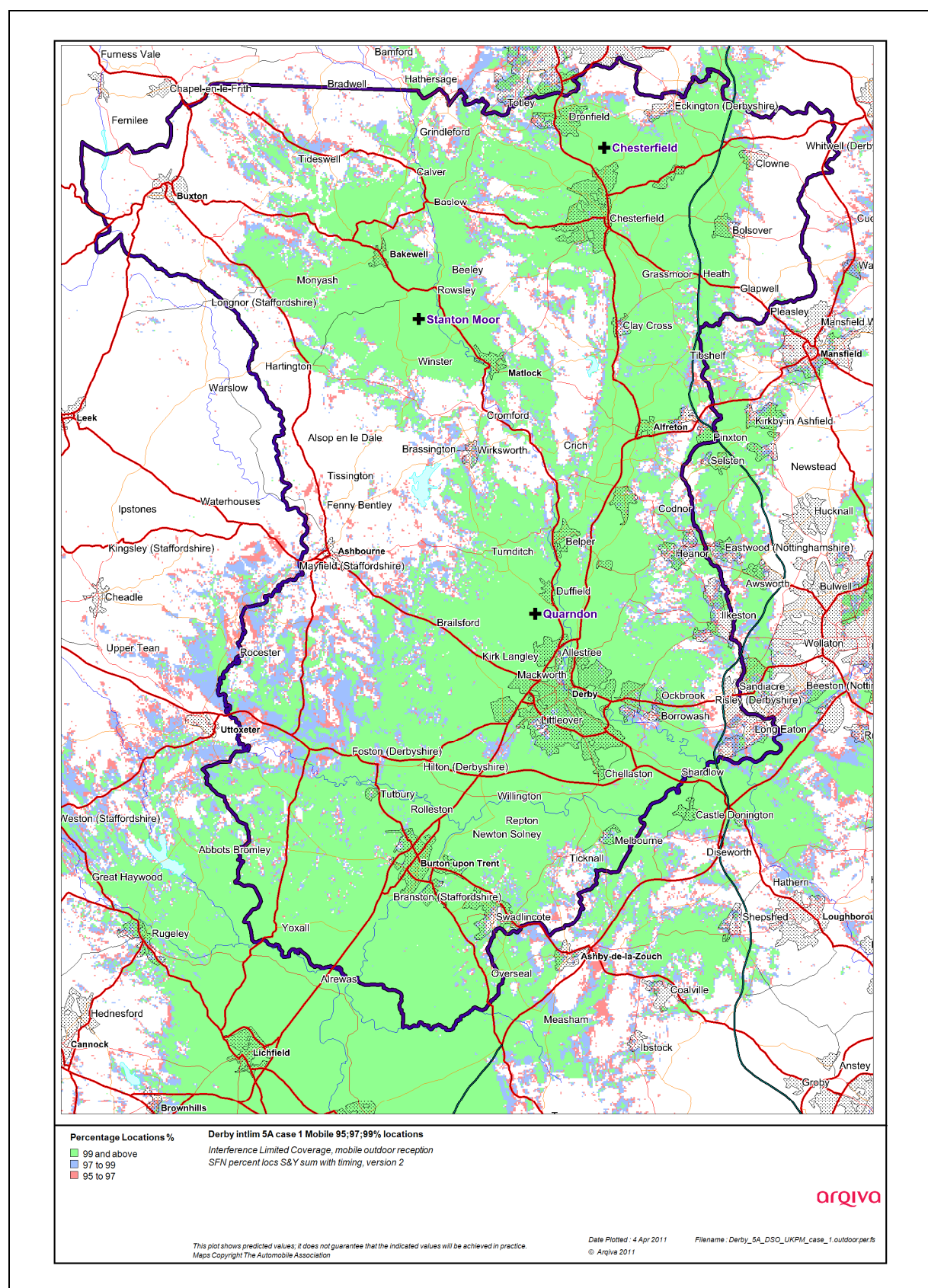


Figure 2.2 Case 1 mobile only

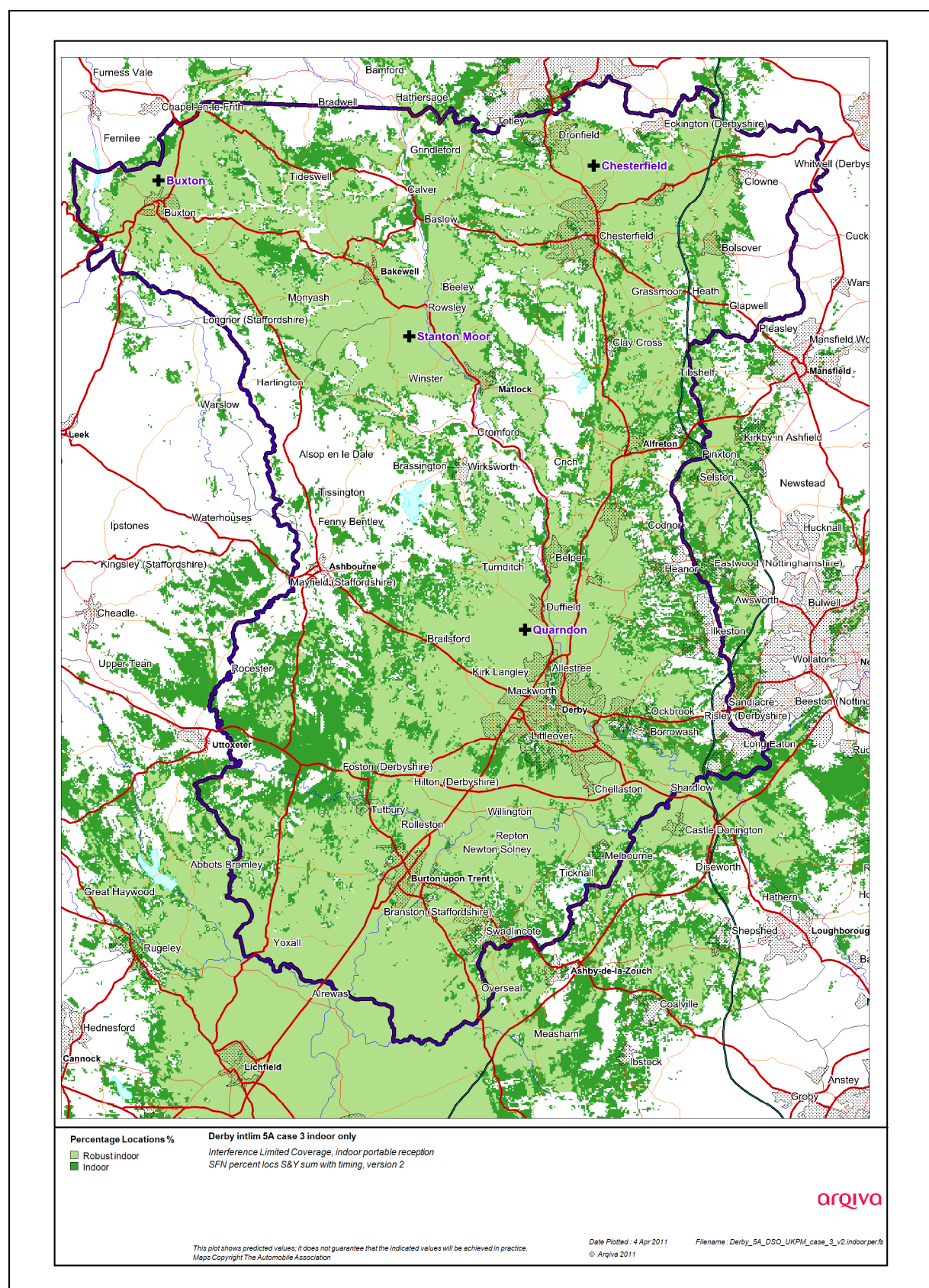


Figure 2.3 Case 3 indoor only

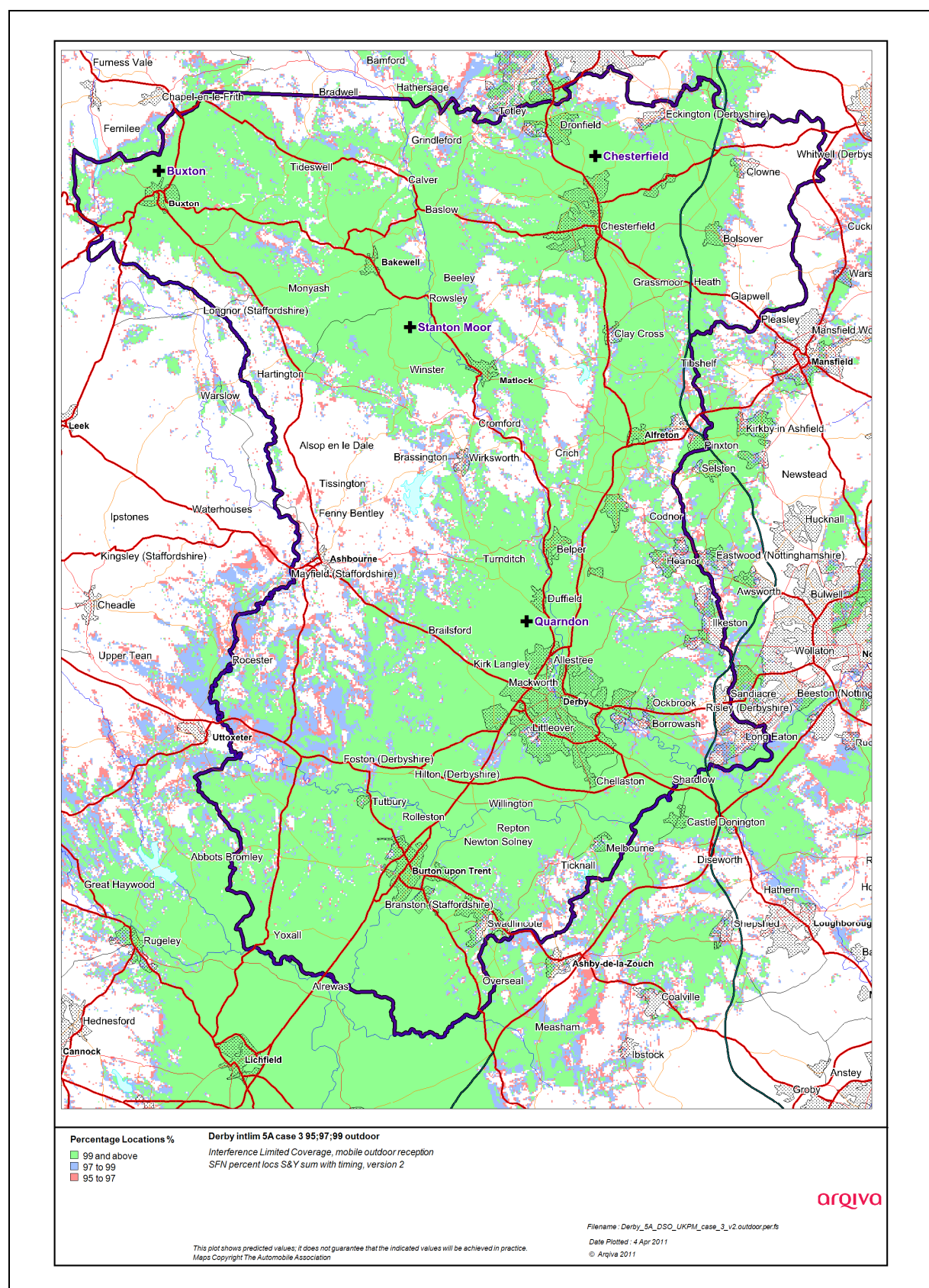


Figure 2.4 Case 3 mobile only

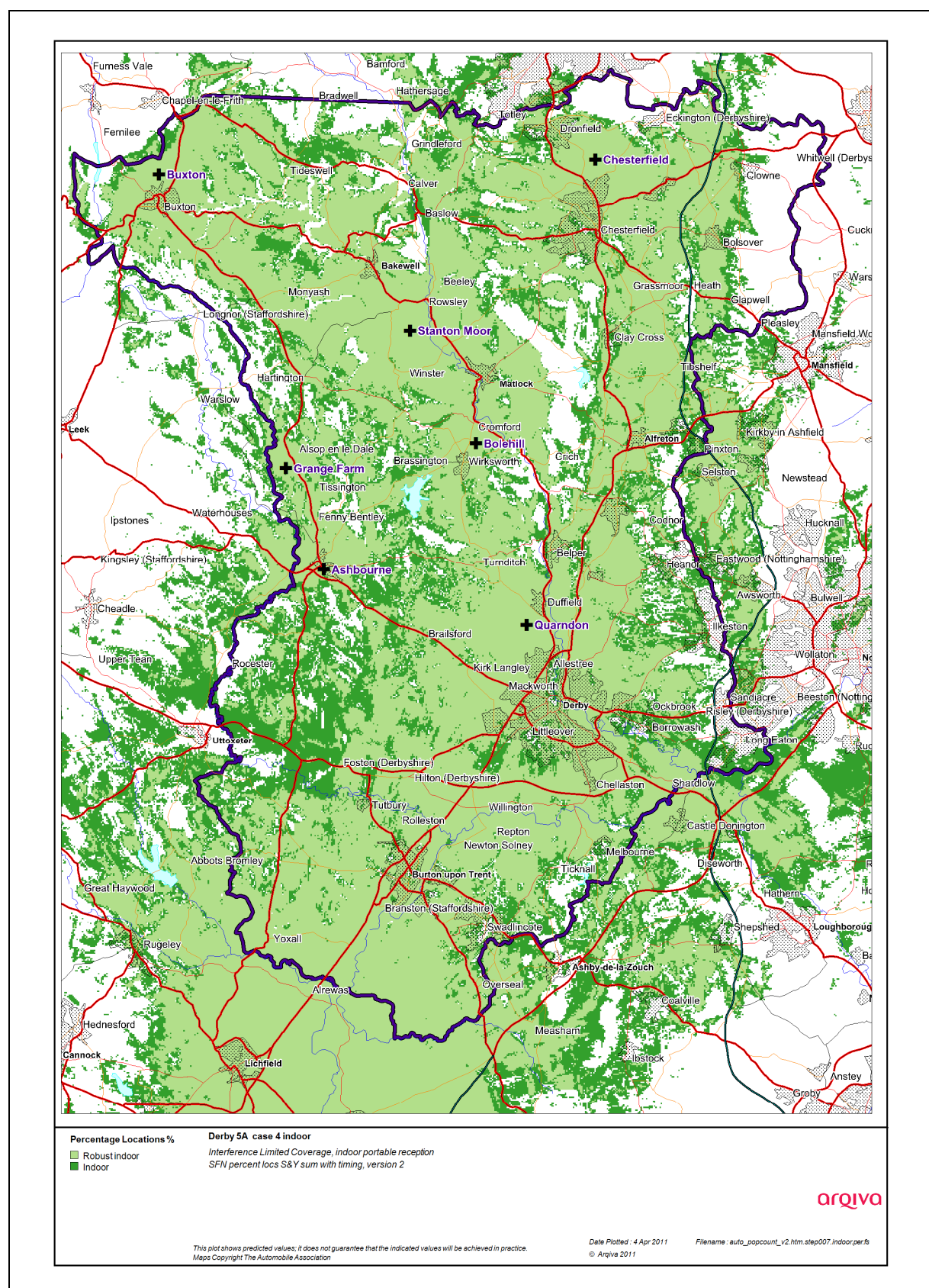


Figure 2.5 Case 4 indoor only

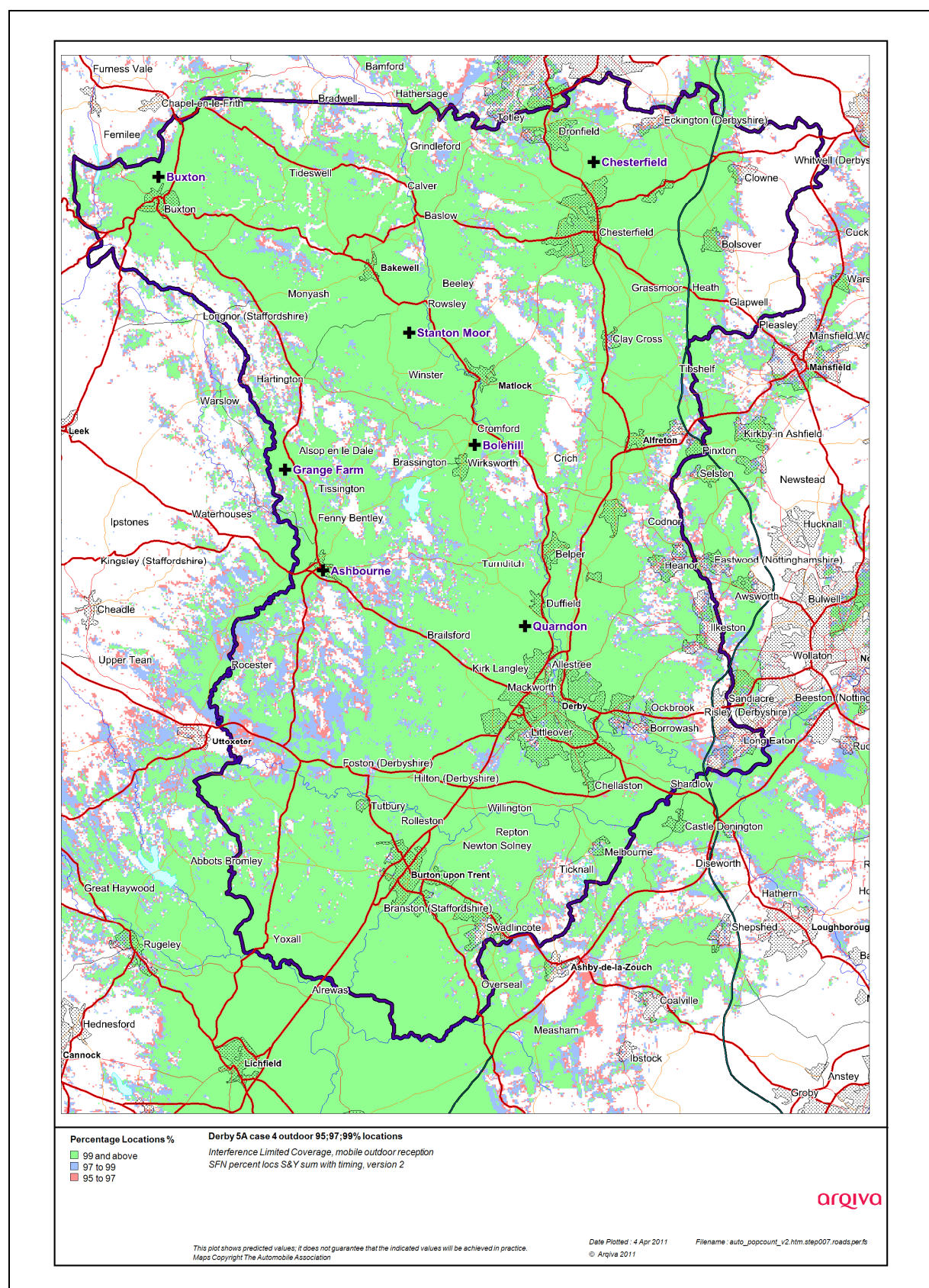


Figure 2.6 Case 4 mobile only

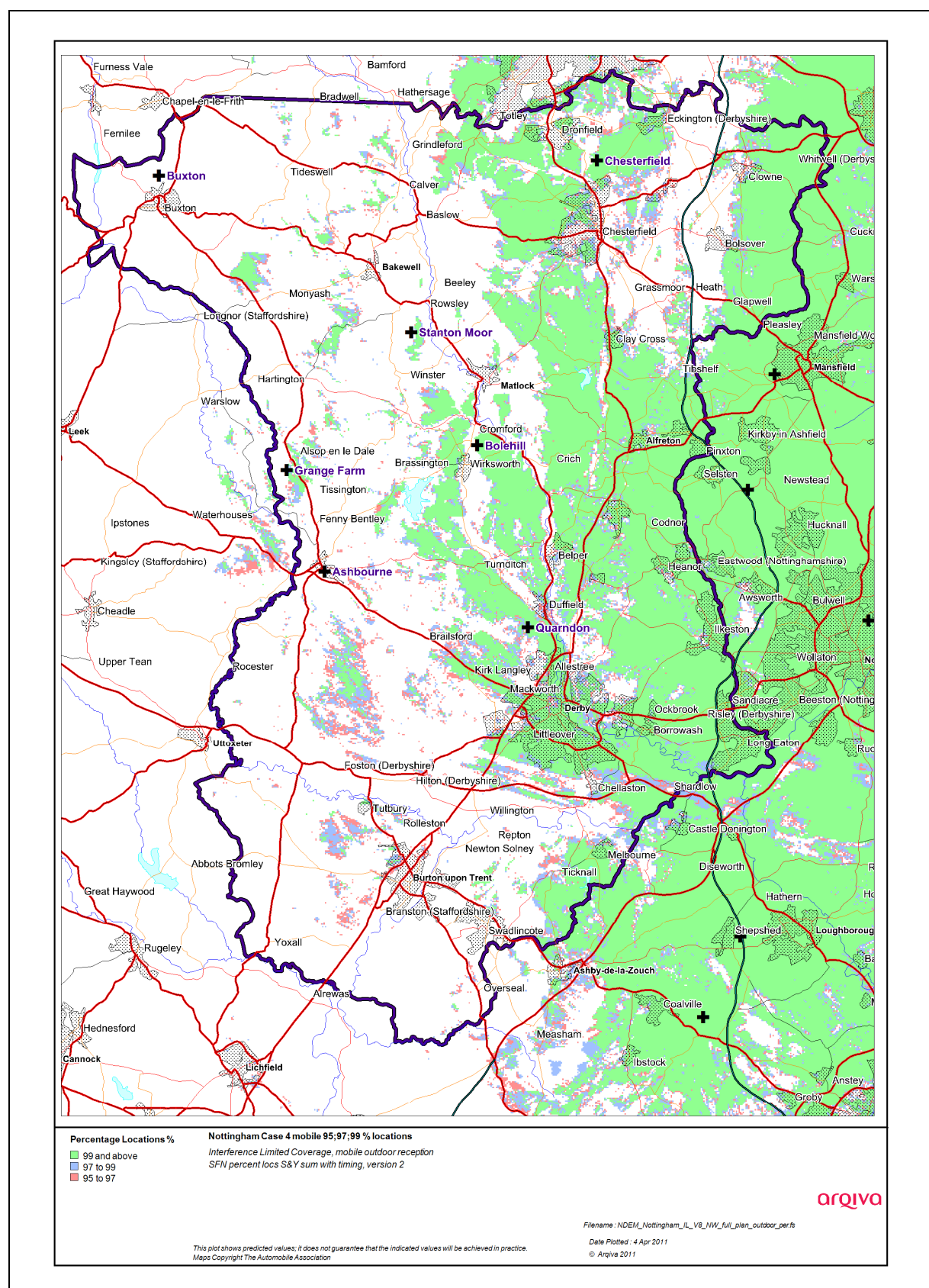


Figure 2.7 Nottingham mobile only Case 4

2.2 Population Coverage tables within Editorial Area

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

: Total 463002.0

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
Quarndon	New Site	127608 (27.56%)	127608	-	-	27.56
Chesterfield	Existing DAB	78853 (17.03%)	217284	89675	19.37	46.93
Lichfield	Existing DAB new antenna	84705 (18.29%)	322180	104897	22.66	69.59
Stanton Moor	Existing DAB	14295 (3.09%)	350942	28761	6.21	75.80
Buxton	Existing DAB	11685 (2.52%)	364592	13651	2.95	78.75
Bolehill	New Site	9122 (1.97%)	375011	10419	2.25	81.00
Ashbourne	New Site	4307 (0.93%)	379400	4390	0.95	81.94
Grange Farm	New Site	219 (0.05%)	380014	614	0.13	82.08

Case 1	-	Yellow =	Original licence application
Case 2	-	Purple + Yellow=	Modified Network 1 (N/A)
Case 3	-	Purple + Yellow +Orange=	Modified Network 2
Case 4	-	Purple + Yellow +Orange + green =	Modified network 3

Table 2-2. Road coverage 99% location 99%T: Total roads 756.9 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
Quarndon	New Site	150.3	-	-	19.86
Chesterfield	Existing DAB	252.6	102.3	13.51	33.37
Lichfield	Existing DAB new antenna	407.0	154.4	20.40	53.77
Stanton Moor	Existing DAB	476.8	69.9	9.23	63.00
Buxton	Existing DAB	537.3	60.5	8.00	70.99
Bolehill	New Site	573.8	36.5	4.82	75.81
Ashbourne	New Site	590.4	16.5	2.18	78.00
Grange Farm	New Site	595.8	5.5	0.72	78.72

Case 1	-	Yellow =	Original licence application
Case 2	-	Purple + Yellow=	Modified Network 1 (N/A)
Case 3	-	Purple + Yellow +Orange=	Modified Network 2
Case 4	-	Purple + Yellow +Orange + green =	Modified network 3

Table 2-3. Mobile coverage to 95, 97 and 99% locations for each case

Case	Mobile Coverage km & percentage coverage) <i>95% Locations & 99% Time Interference Protection</i>	Mobile Coverage km & percentage coverage) <i>97% Locations & 99% Time Interference Protection</i>	Mobile Coverage km & percentage coverage) <i>99% Locations & 99% Time Interference Protection</i>
1	562.7 (74.34%)	539.3 (71.25%)	476.8 (63.0%)
2			
3	622.6 (82.25%)	601.2 (79.43%)	537.3 (70.99%)
4	674.0 (89.05%)	657.0 (86.80%)	595.8 (78.72%)

Table 2-4. 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	350941.5 (75.80%)	476.8 (63.0%)
2		
3	364592.1 (78.75%)	537.3 (70.99%)
4	3800014 (82.08%)	595.8 (78.72%)

Case 1 - Yellow = Original licence application

Case 2 - Purple + Yellow = Modified Network 1 (N/A)

Case 3 - Purple + Yellow + Orange = Modified Network 2

Case 4 - Purple + Yellow + Orange + green = Modified network 3