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**Digital Switchover (DSO) Programme**

**Radio DSO Block 12C Nottinghamshire**

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## Document Details

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## 1 Nottinghamshire DSO narrative

The current Nottinghamshire local licence transmits on Block 12C and consists of three transmission sites. It is proposed in the new Ofcom block allocation plan to retain block 12C.

This multiplex is co-block with a number of regional multiplexes; MXR Northwest, MXR Severn Estuary and MXR Northeast. Currently Nottinghamshire suffers from significant incoming interference from MXR Northwest and minimal interference from other multiplexes.

The current infrastructure follows the current FM sites for Nottingham and Mansfield and uses Waltham instead of Newark (BBC local only). The current interference limited coverage for this multiplex already matches and exceeds that of the FM local services (which are also interference limited).

Coverage plots are presented with the following scenarios:

Case 1: The current transmission characteristics with the current levels of interference from other co-block multiplexes.

Case 2: It is not necessary to modify any of the existing sites and therefore case 2 is not presented.

Case 3: Essentially this is the same as case 1, in that there is no requirement to add additional stations to match the robust FM coverage. However in this document case 3 is shown with improvements made to the Northwest regional multiplex (details are given later in this document). This reduces the coverage, however these reductions in coverage still mean that case 3 is fulfilled and the coverage matches local FM.

Case 4: One additional site has been added to 'fill' the multiplex as much as practically possible. This case includes the full upgrades for Northwest regional.

The current and proposed block 12C allocations are shown below figure 1.

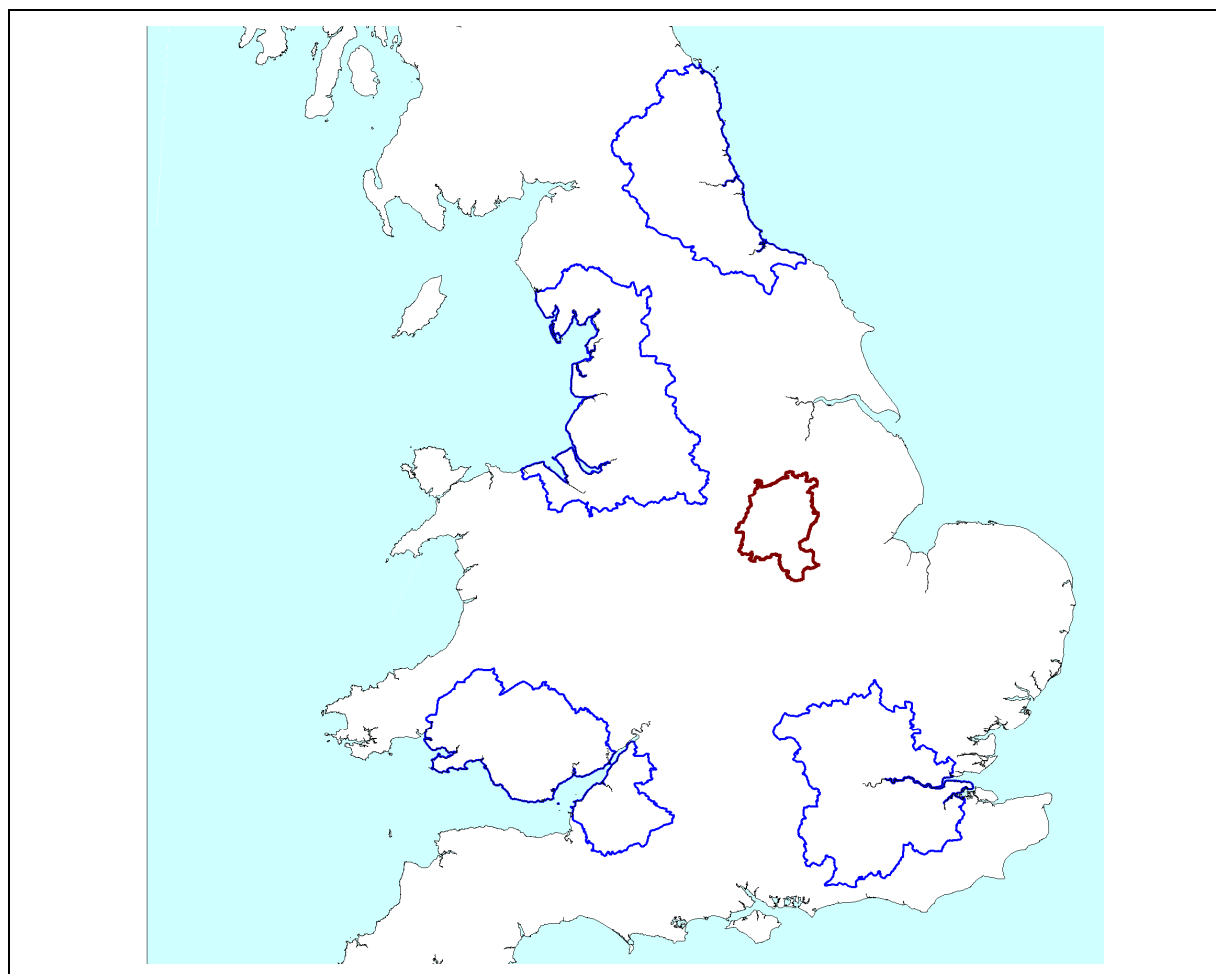


Figure 1.1: 12C block allocations

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: Current situation

The current allocated transmission characteristics are:

Site name	ERP	Site height m a.o.d.	Antenna height m a.g.l	Antenna type
Mapperley Ridge	1kW	122	53	Panels
Fishponds Hill	1kW	168	46	Dipoles
Waltham	4kW	133	137	Dipoles

The coverage for the existing situation is shown in figure 2.1 & 2.2

For case 2: Modified Network 1

It is not proposed to modify the current transmission sites.

For case 3: Modified Network 2

This is the same number of sites as case 1 but presented with upgrades for CE London and MXR Northwest.

For case 4: Modified Network 3

To complete the multiplex it will be necessary to use four transmitters of which three are existing sites.

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

This multiplex suffers from significant co-block interference from MXR Northwest, but minimal interference from other co-block multiplexes. The additional sites do have a small impact on the Northwest regional but negligible interference to the other multiplexes on 12C. The proposals for Nottinghamshire have no significant impact on the coverage of CE London, MXR Severn Estuary or MXR Northeast.

Transmitter station modified or added	Characteristics of proposal
Winter Hill	Move from current antenna to the national antenna (share with BBC, Digital One and potentially Manchester local 10B).
Pendle Forest	Increase ERP to 1.5kW and share with BBC national antenna
Moel-y-Parc	Move to the national antenna and retain ERP at 5kW
Haslingden	Same characteristics as BBC national
Darwen	Same characteristics as BBC national
Saddleworth	Same characteristics as BBC national
Littleborough	Same characteristics as BBC national
St Johns Beacon	Same characteristics as proposed for Liverpool 10C but at 500W ERP

### Proposed changes to MXR Northwest

Transmitter station modified or added	Characteristics of proposal
Alexandra Palace	Increased ERP to 800W
Bluebell Hill	Increased ERP to 1kW
Guildford	Increased ERP to 1kW
Reigate	Increased ERP to 1.3kW
Wrotham	Included (Kemsing removed)
BT tower	Proposal
Epping Green	Same characteristics as BBC national
Chepping Wycombe	Same characteristics as BBC national

### Proposed changes to CE London

## 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 noise limited

Figure 2.2 Case 1 Current Situation interference limited

Figure 2.3 Case 3 Current network (modified interference from MXR Northwest & CE London)

Figure 2.4 Case 4 Modified network 3



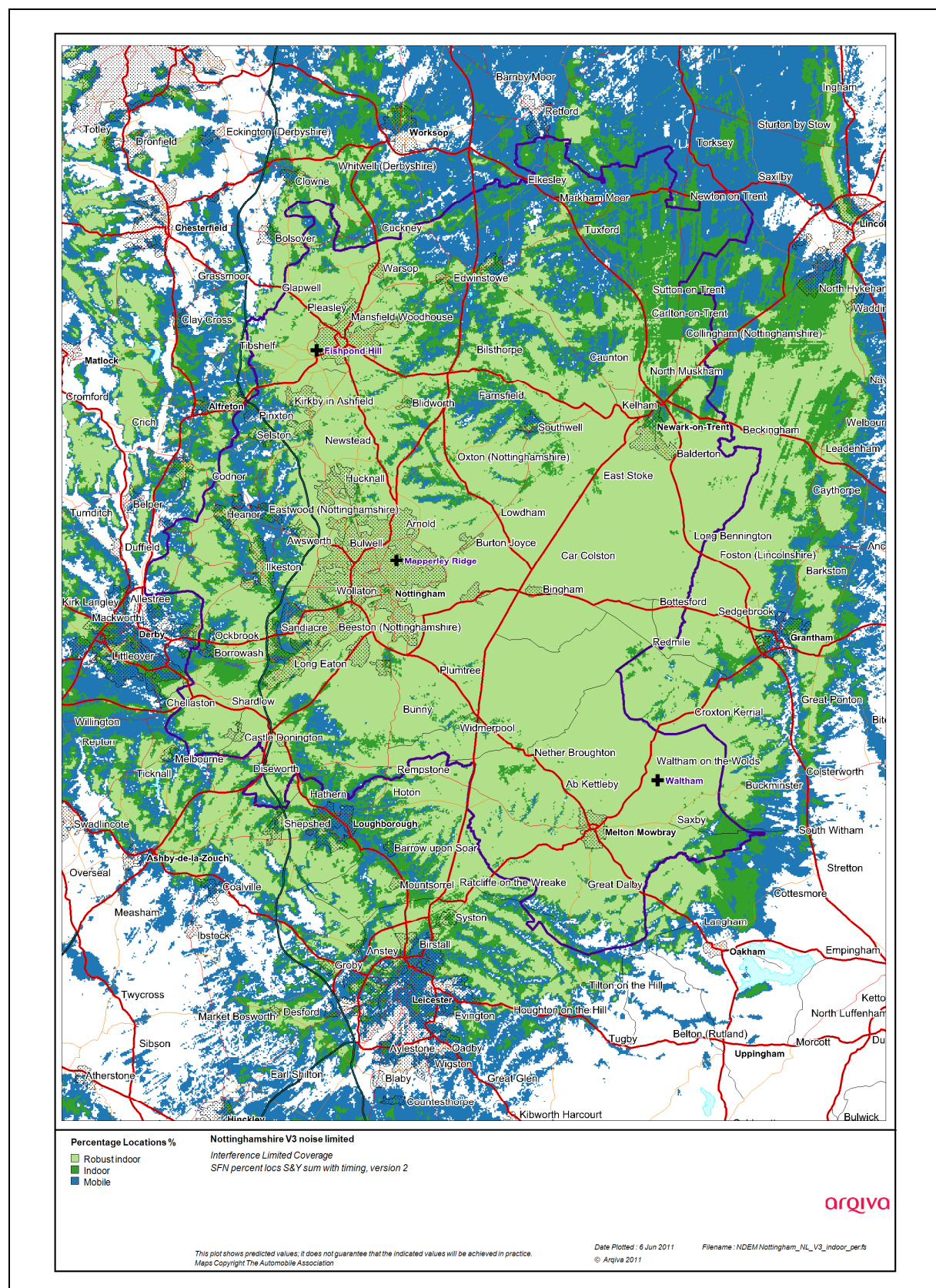


Figure 2.1 Case 1 Current Situation noise limited

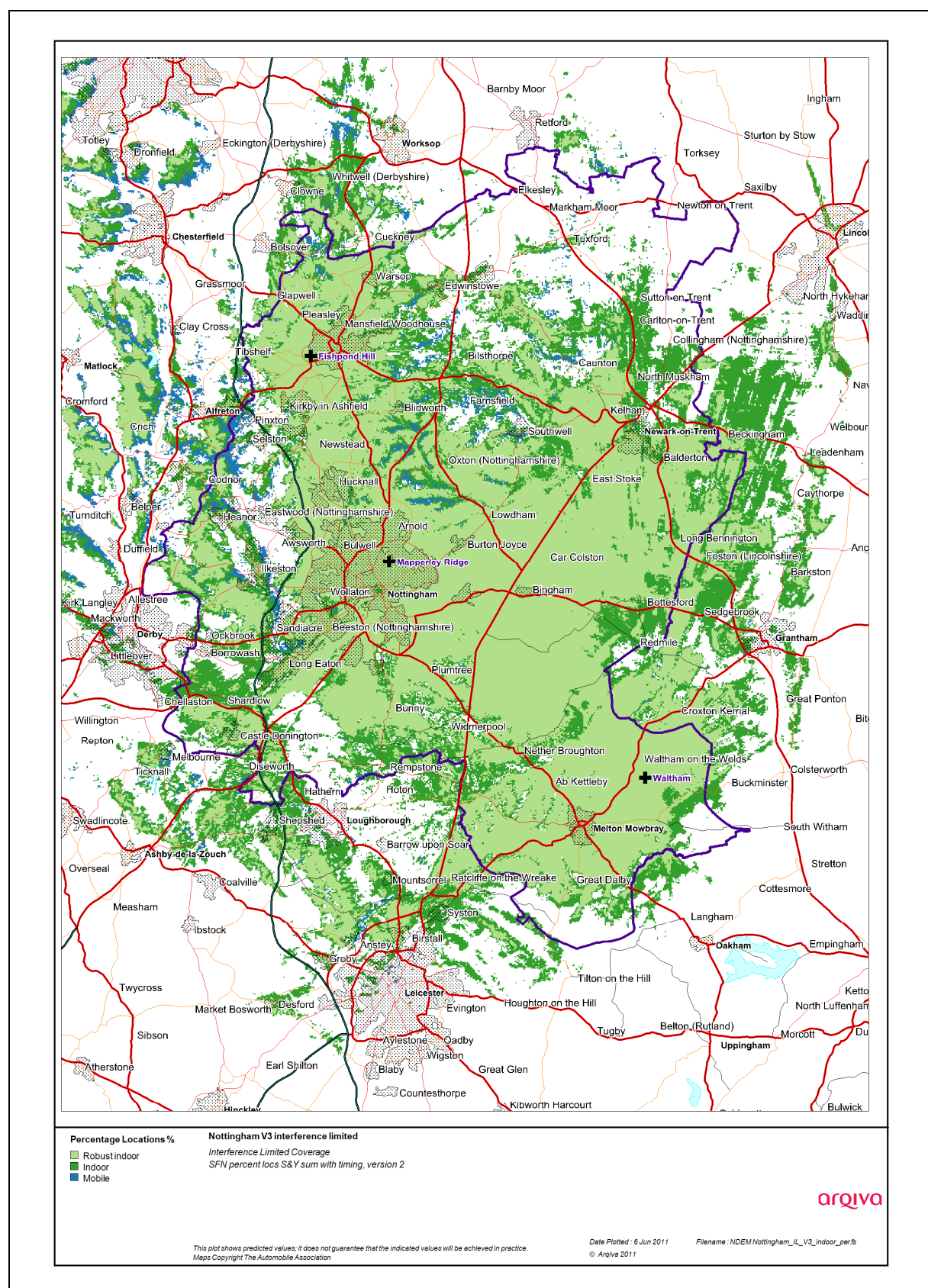


Figure 2.2 Case 1 Current Situation interference limited



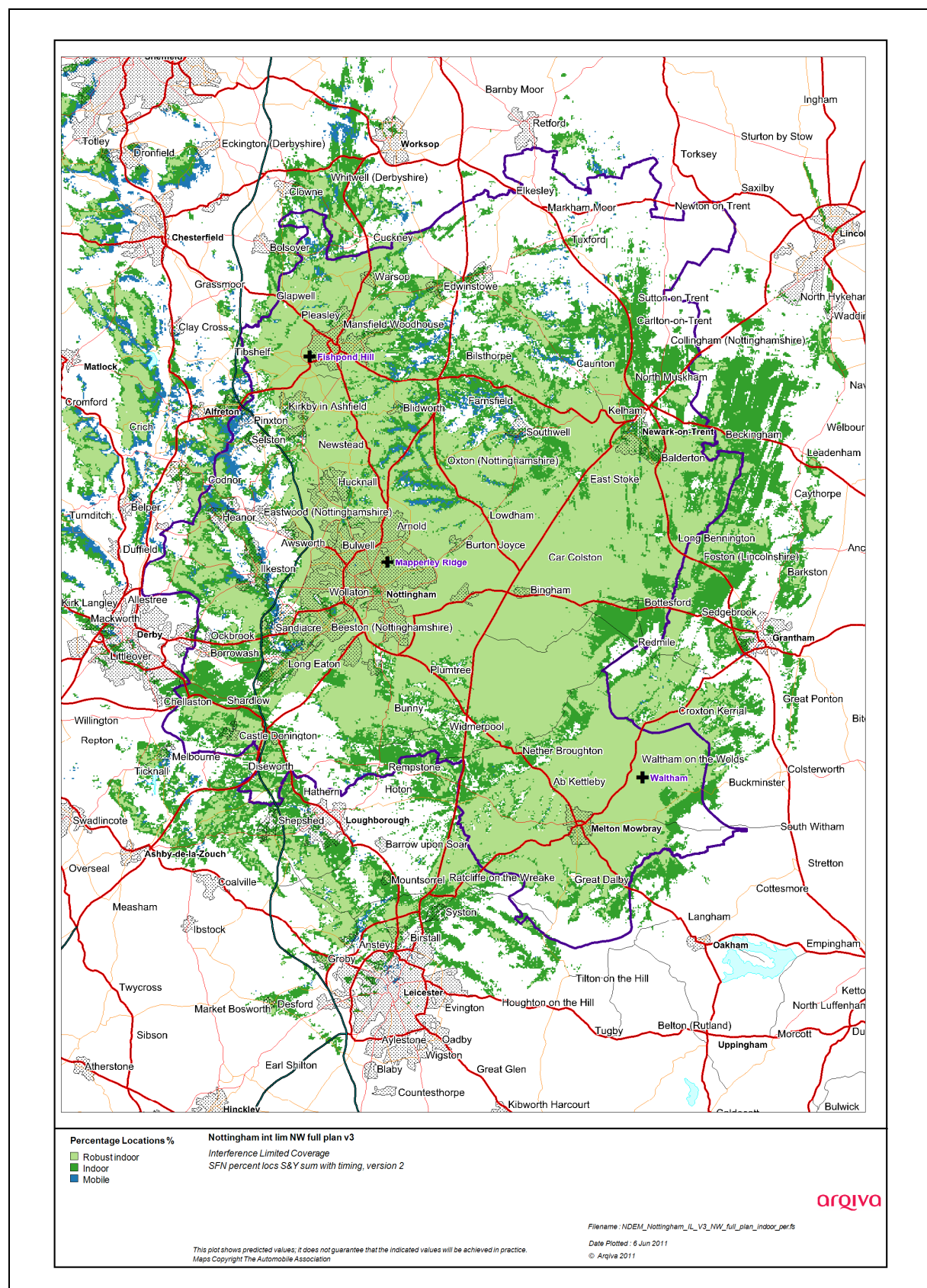


Figure 2.3 Case 3 current network (modified interference from MXR Northwest &amp; CE London)

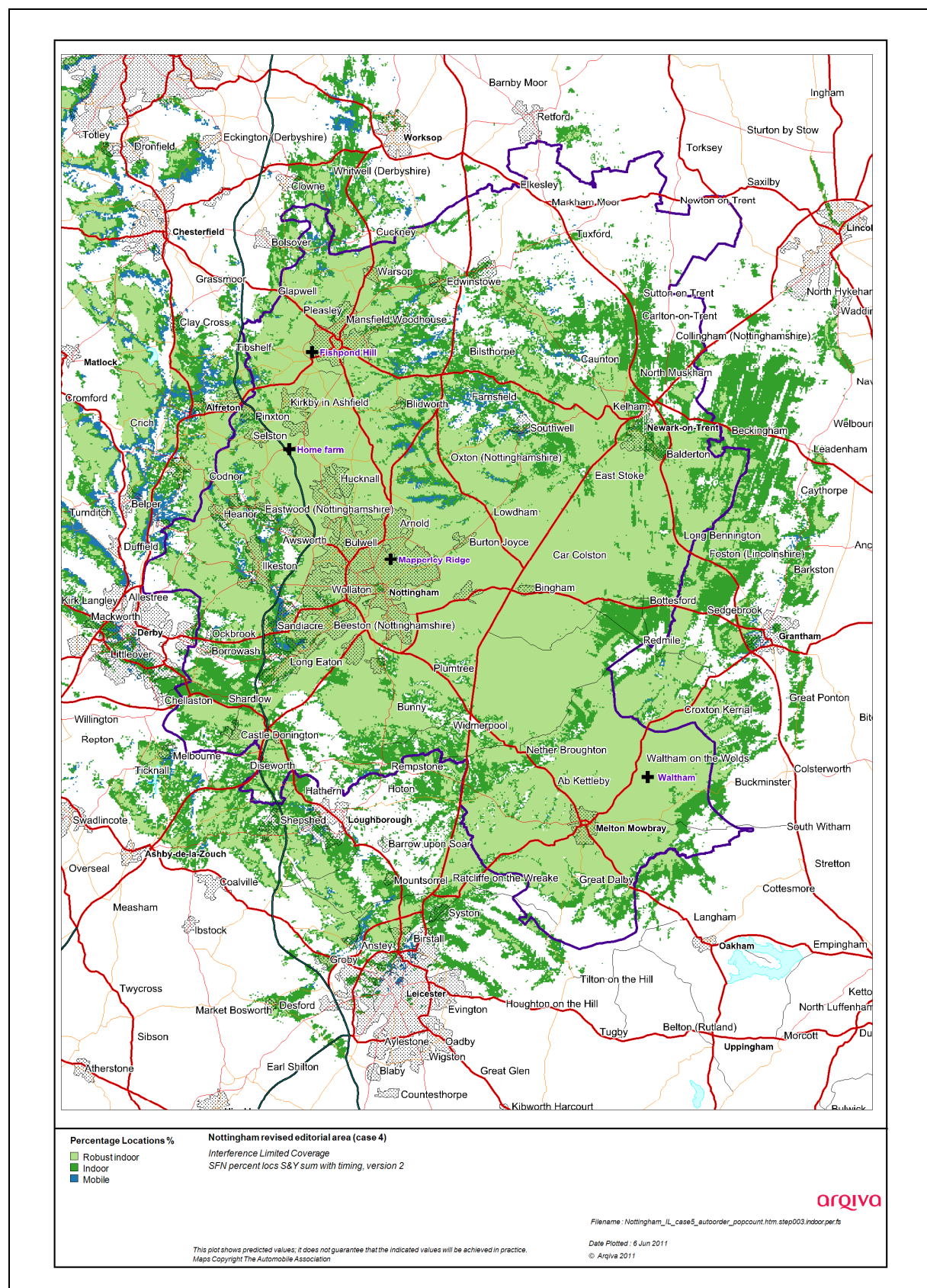


Figure 2.4 Case 4 modified network 3

## 2.2 Population Coverage tables within Editorial Area

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

: Total 537,454

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
Nottinghamshire (Case 1)	Current infrastructure 3 sites	459499 (85.5%)	459499	-	-	85.5
Mapperley Ridge (case 3)	Current infrastructure	265169 (49.34%)	265169	-	-	49.34
Fishpond Hill	Current infrastructure	86571 (16.11%)	366780	101611	18.91	68.24
Waltham	Current infrastructure	102558 (19.08%)	458169	91389	17.00	85.25
Home Farm	New Site	40975 (7.62%)	491639	33470	6.23	91.48

Case 1	-	Yellow =	Current coverage
Case 2	-	Purple + Yellow=	Modified Network 1
Case 3	-	Purple + Yellow +Orange=	Current plus regional upgrades
Case 4	-	Purple + Yellow +Orange + green =	Modified network 3

*Table 2-2. Road coverage 99% location 99%T: Total roads 757 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
Nottinghamshire (Case 1)	Current infrastructure 3 sites	629	-	-	83.1
Mapperley Ridge (case 3)	Current infrastructure	201.9	-	-	26.67
Fishpond Hill	Current infrastructure	307.2	105.3	13.91	40.58
Waltham	Current infrastructure	512.7	205.4	27.13	67.71
Home Farm	New Site	555.0	42.4	5.60	73.31

Case 1	-	Yellow =	Current
Case 2	-	Purple + Yellow=	Modified Network 1
Case 3	-	Purple + Yellow +Orange=	Current plus regional upgrades
Case 4	-	Purple + Yellow +Orange + 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 &amp; 99% Time Interference Protection</i>
1 (noise limited)	486507.5 (90.52%)	755 (99.7%)
1 (current interference )	459498.7 (85.5%)	629 (83.1%)
2	-	-
3 (upgrade to MXR NW included)	458169 (85.25%)	513 (67.7%)
4	491639 (91.48%)	555 (73.3%)

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