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## **Digital Switchover (DSO) Programme**

# **Radio DSO Block 10D Inverness**

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## Document Details

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001	dd/mm/10	Draft for Review
		Initial release
1.1	9/2/11	Change to 10D map to reflect modified editorial area
1.2	8/6/11	Text added regarding Orkney & Shetland

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## 1 Inverness DSO narrative

There was only one previously allocated transmitter for the Inverness area; Mounteagle on block 11B. It is proposed to merge the existing Inverness area with North West Scotland and operate the whole network on block 10D. The editorial area does not extend to Orkney & Shetland and are therefore not included in this document. Were there to be BBC and commercial demand to cover these islands in the local multiplex, an extension to the planning exercise would be needed.

The proposed Block 10D allocations are shown below and comprise Plymouth, Somerset, Humberside, Wrexham & North Wales, Dumfries & Galloway and Inverness.

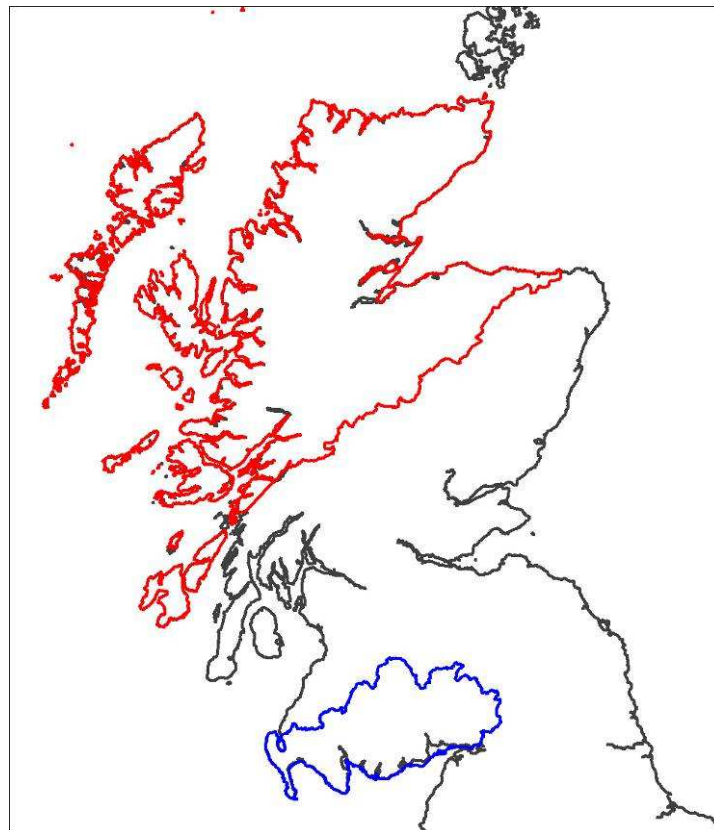


Figure 1.1: Proposed Block 10D allocations

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 proposed transmission characteristics are:

Site name	ERP	Site height m a.o.d.	Antenna height a.g.l	Antenna type
Mounteagle	10 kW	212	248	Dipoles

The coverage for the existing situation is shown in figure 2.1.

For case 2: Modified Network 1

Not applicable as it is not practical to increase the transmitter power.

For case 3: Modified Network 2

In this it was required to cover those areas currently served robustly by local FM services (BBC Local and Independent Moray Firth Radio). To achieve this twenty-six additional sites are required. The coverage of the Modified Network 2 is shown in figure 2.2.

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 an additional 6 sites (a total of 33) will be required. This is shown in figure 2.3.

It should be noted that due to its very large geographic area it was necessary to use relative timing to preserve the coverage from intra-SFN interference. This was especially difficult in the Islay Jura area. Consideration should be given to allocating these islands to the Glasgow multiplex to:

- Ease the timing issues within this multiplex
- To ensure that 'local' coverage on the Mull of Kintyre main road is contiguous; at present most of the coverage is from the Glasgow multiplex however there is a significant portion where this road is only covered by Inverness.

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

There is no impact on any other 10D multiplex from the DSO proposal contained within this document.

Inverness is unaffected by co-block interference from the other 10D multiplexes.

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## 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 Current Situation

Figure 2-2 Modified Network 2

Figure 2-3 Modified Network 3

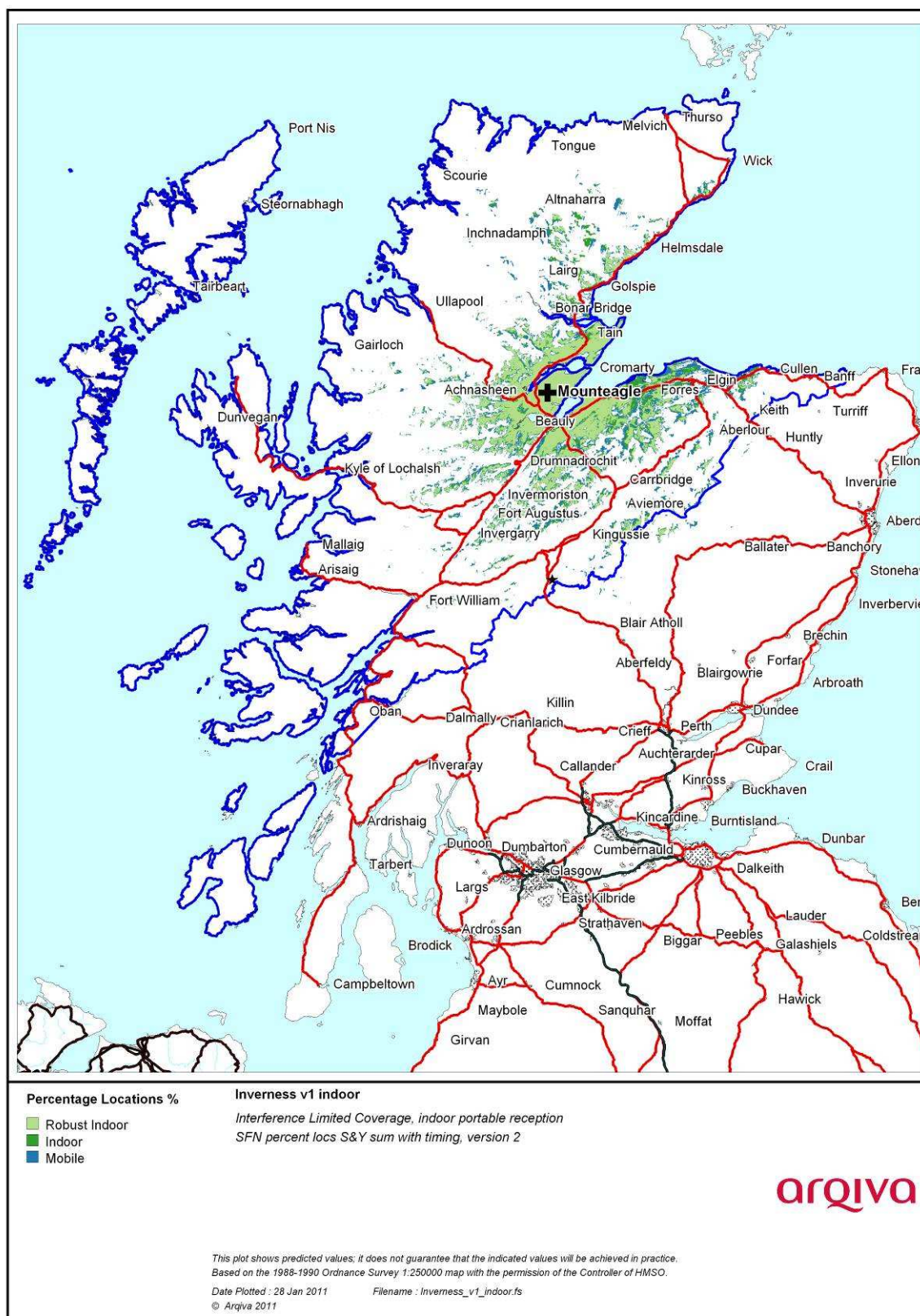


Figure 2-1. Current Situation

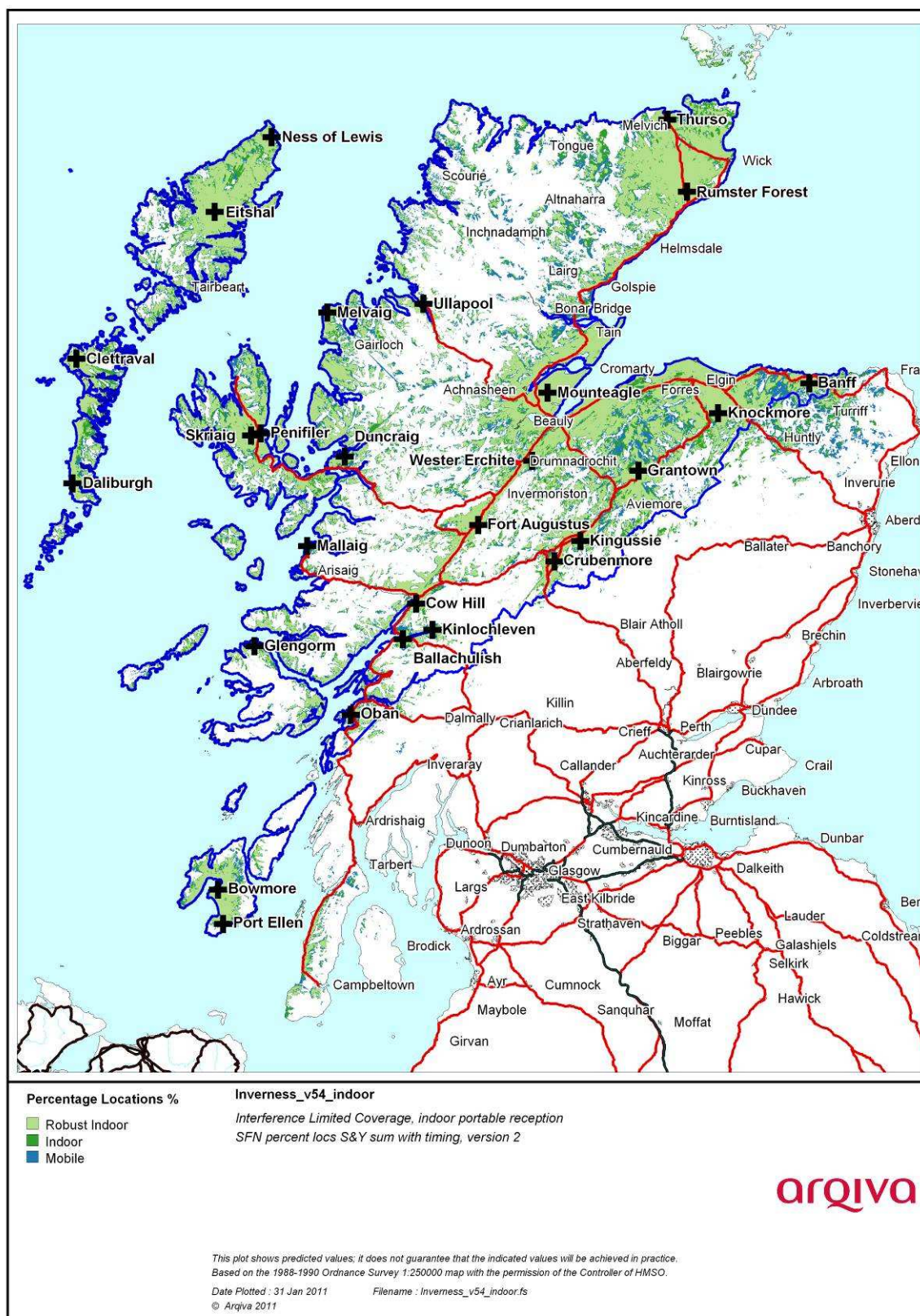


Figure 2-2. Modified Network 2

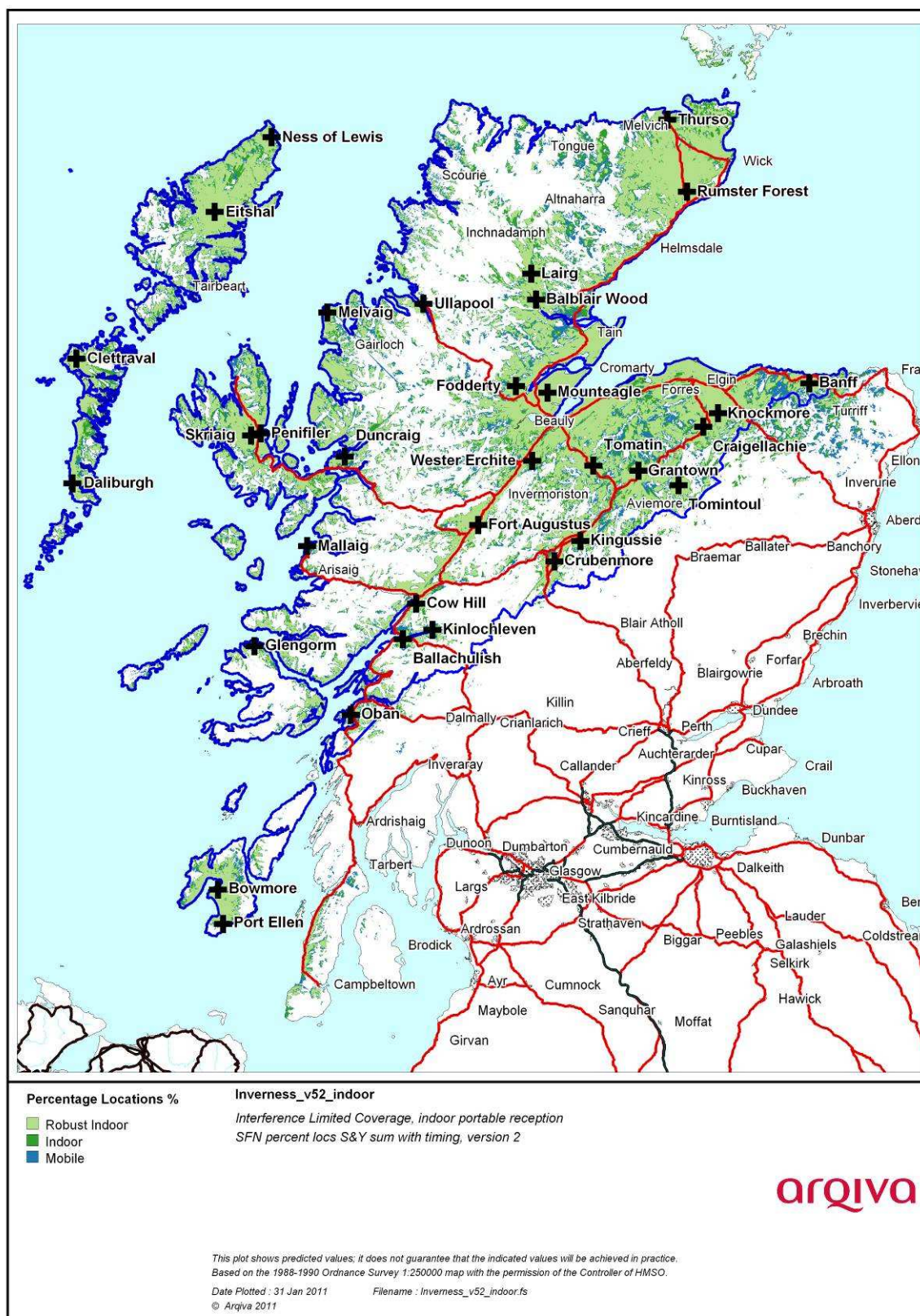


Figure 2-3. Modified Network 3

## Population Coverage tables within Editorial Area

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

: Total 187,426

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
Current (1 tx)	Shared Existing Infrastructure	65,171 (35.9%)	65,171	-	-	35.9%
Knockmore	Existing site new antenna	31,870 (17.0%)	93,363	31,192	15.5%	51.4%
Rumster Forest	Shared Existing Infrastructure	20,181 (10.8%)	110,761	14,398	7.7%	59.1%
Eitshal	Shared Existing Infrastructure	7,318 (3.9%)	117,903	7,142	3.8%	62.9%
Oban	Shared Existing Infrastructure	5,390 (2.9%)	123,292	5,389	2.9%	65.8%
Cow Hill	Shared Existing Infrastructure	5,364 (2.9%)	128,668	5,376	2.9%	68.7%
Grantown	Existing site new antenna	4,083 (2.2%)	133,337	4,669	2.4%	71.1%
Banff	Existing site new antenna	7,309 (3.9%)	136,681	3,374	1.8%	72.9%
Skriaig	Existing site new antenna	2,946 (1.6%)	139,681	2,970	1.6%	74.5%
Thurso	Existing site new antenna	4,517 (2.4%)	142,041	2,360	1.3%	75.8%
Kingussie	Existing site new antenna	1,709 (0.9%)	143,758	1,717	0.9%	76.7%
Cletraval	Existing site new antenna	1,430 (0.8%)	145,351	1,593	0.9%	77.6%
Fodderty	Existing site new antenna	6,641 (3.5%)	146,582	1,231	0.6%	78.2%
Wester Erchite	Existing site new antenna	832 (0.4%)	147,798	1,216	0.7%	78.9%
Melvaig	Existing site new antenna	1,368 (0.7%)	148,963	1,165	0.6%	79.5%
Duncraig	Existing site new antenna	1,181 (0.6%)	150,121	1,158	0.6%	80.1%
Balblair Wood	Existing site new antenna	4,169 (2.2%)	151,154	1,033	0.5%	80.6%

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
Port Ellen	Existing site new antenna	938 (0.5%)	152,089	935	0.5%	81.1%
Ullapool	Existing site new antenna	918 (0.5%)	153,020	931	0.5%	81.6%
Glengorm	Existing site new antenna	968 (0.5%)	153,842	822	0.5%	82.1%
Ballachulish	Existing site new antenna	784 (0.4%)	154,625	783	0.4%	82.5%
Daliburgh	Existing site new antenna	650 (0.3%)	155,374	749	0.4%	82.9%
Mallaig	Existing site new antenna	663 (0.4%)	156,055	681	0.4%	83.3%
Bowmore	Existing site new antenna	982 (0.5%)	156,705	650	0.3%	83.6%
Craigellachie	Existing site new antenna	1,263 (0.7%)	157,347	642	0.4%	84.0%
Ness of Lewis	Existing site new antenna	663 (0.4%)	157,980	633	0.3%	84.3%
Fort Augustus	Existing site new antenna	553 (0.3%)	158,479	499	0.3%	84.6%
Kinlochleven	Existing site new antenna	555 (0.3%)	158,965	486	0.2%	84.8%
Lairg	Existing site new antenna	533 (0.3%)	159,369	404	0.2%	85.0%
Tomintoul	Existing site new antenna	284 (0.2%)	159,688	319	0.2%	85.2%
Tomatin	Existing site new antenna	252 (0.1%)	159,981	293	0.2%	85.4%
Penifiler	Existing site new antenna	1,291 (0.7%)	160,136	155	0.1%	85.5%
Crubenmore	Existing site new antenna	1,311 (0.7%)	160,256	120	0.0%	85.5%

Case 1	-	Yellow =	Current or planned coverage
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Yellow +Orange=	Modified Network 2
Case 4	-	Yellow + Orange + Green=	Modified network 3

Table 2-2. Road coverage 99% location 99%T: Total roads 2,985km

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
Current (1 tx)	Shared Existing Infrastructure	372	-	-	12.5%
Knockmore	Existing site new antenna	571	199	5.3%	17.8%
Rumster Forest	Shared Existing Infrastructure	701	130	4.0%	21.8%
Eitshal	Shared Existing Infrastructure	841	140	4.4%	26.2%
Oban	Shared Existing Infrastructure	882	41	1.2%	27.4%
Cow Hill	Shared Existing Infrastructure	951	69	2.2%	29.6%
Grantown	Existing site new antenna	1,019	68	2.1%	31.7%
Banff	Existing site new antenna	1,021	1	0.1%	31.8%
Skriaig	Existing site new antenna	1,142	121	3.7%	35.5%
Thurso	Existing site new antenna	1,152	10	0/3%	35.8%
Kingussie	Existing site new antenna	1,190	38	1.2%	37.0%
Cletraval	Existing site new antenna	1,273	83	2.6%	39.6%
Fodderty	Existing site new antenna	1,286	13	0.4%	40.0%
Wester Erchite	Existing site new antenna	1,323	37	1.1%	41.1%
Melvaig	Existing site new antenna	1,359	37	1.2%	42.4%
Duncraig	Existing site new antenna	1,407	48	1.5%	43.8%
Balblair Wood	Existing site new antenna	1,468	61	1.9%	45.7%
Port Ellen	Existing site new antenna	1,509	42	1.3%	47.0%
Ullapool	Existing site new antenna	1,528	18	0.5%	47.5%
Glengorm	Existing site new antenna	1,534	7	0.2%	47.7%

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
Ballachulish	Existing site new antenna	1,552	17	0.6%	48.3%
Daliburgh	Existing site new antenna	1,572	20	0.6%	48.9%
Mallaig	Existing site new antenna	1,586	14	0.4%	49.3%
Bowmore	Existing site new antenna	1,599	13	0.5%	49.8%
Craigellachie	Existing site new antenna	1,603	4	0.1%	49.9%
Ness of Lewis	Existing site new antenna	1,610	7	0.2%	50.1%
Fort Augustus	Existing site new antenna	1,636	26	0.8%	50.9%
Kinlochleven	Existing site new antenna	1,636	0	0.0%	50.9%
Lairg	Existing site new antenna	1,661	24	0.8%	51.7%
Tomintoul	Existing site new antenna	1,678	18	0.5%	52.2%
Tomatin	Existing site new antenna	1,684	6	0.2%	52.4%
Penifiler	Existing site new antenna	1,685	1	0.0%	52.4%
Crubenmore	Existing site new antenna	1,721	37	1.2%	53.6%

Case 1	-	Yellow =	Current or planned coverage
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Yellow +Orange=	Modified Network 2
Case 4	-	Yellow + Orange + Green=	Modified network 3

Table 2-3. Summary of Coverage within Editorial Area for each case  
99% time Interference

Case	Indoor Households & (percentage coverage)	Mobile Coverage km & percentage coverage) 99% locations
1	65,171 (35.9%)	372 (12.5%)
2	n/a	n/a
3	156,461 (83.5%)	1,596 (49.7%)
4	160,256 (85.5%)	1,721 53.6%)

Case 1	-	Yellow =	Current or planned coverage
Case 2	-	Not Applicable	Modified Network 1
Case 3	-	Yellow +Orange=	Modified Network 2
Case 4	-	Yellow + Orange + Green=	Modified network 3