800 MHz & 2.6 GHz Combined Award – Additional simulation results using alternative site data

Publication date:

Contents

Section 1

Additional simulation results using alternative site data

1.1 Key simulation parameters

Following a request we have re-run the same LTE simulation model used to generate results for the January 2012 consultation[1] with the following key parameters.

a) Sites – alternative data set

b) Ofcom – 'Mav var' parameters

c) Network loading = 85%

d) Coverage threshold = SINR of -5 dB

e) LTE system bandwidth = 10 MHz

f) LTE resource block bandwidth = 180 kHz

For a full description of the Ofcom simulation model please see annex 14 of the January 2012 consultation.

We present results for two different in-building depth assumptions; the first is based on an in-building depth of 5 metres and the second on a combination of 10 and 15 metres.

The table below gives the mean BPL values corresponding to 5, 10 and 15 metres used in the document. These are the same as used for the 'max var' case in the January 2012 consultation. It should be noted that, as indicated in the January 2012 consultation, depth (in metres) should not be interpreted literally as a physical distance but rather as an indication of hardness to serve.

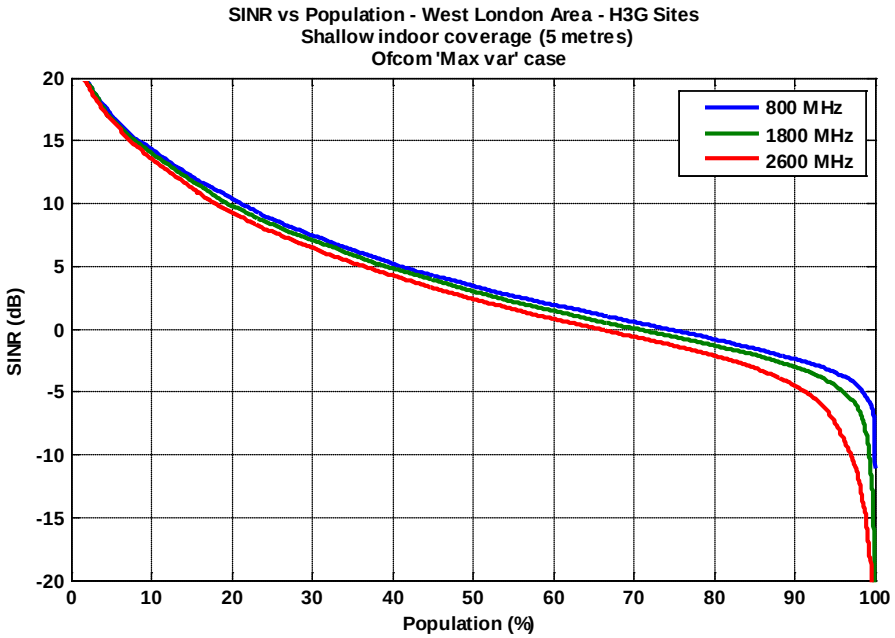
	800 MHz	900 MHz	1800 MHz	2100 MHz	2600 MHz
Suburban/Rural					
5 metres	6.3	6.9	10.2	10.9	11.9
10 metres	9.6	10.5	15.9	17.0	18.7
15 metres	12.8	14.1	21.5	23.2	25.5
Urban					
5 metres	9.0	9.5	12.9	13.6	14.6
10 metres	12.2	13.1	18.5	19.7	21.4
15 metres	15.5	16.7	24.2	25.7	28.2
Dense Urban					
5 metres	11.6	12.2	15.5	16.3	17.3
10 metres	14.8	15.8	21.2	22.4	24.1
15 metres	18.1	19.4	26.9	28.5	30.8

[1] "Second consultation on assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues", dated 12 January 2012.

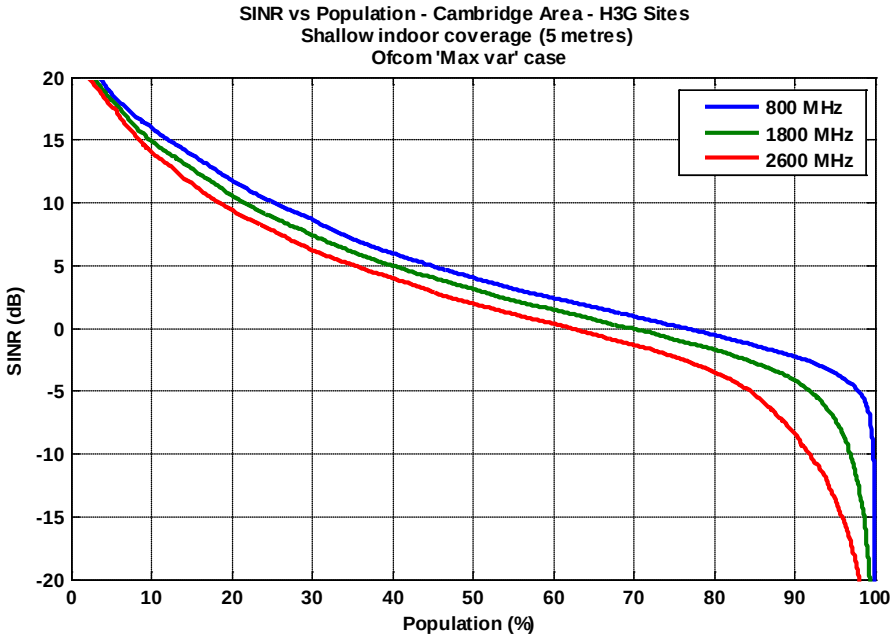
Approximately 91% of our West London sample points and 99% of our Cambridge sample points are classified as suburban or rural clutter.

1.2 SINR results for 5 metre indoor coverage

West London

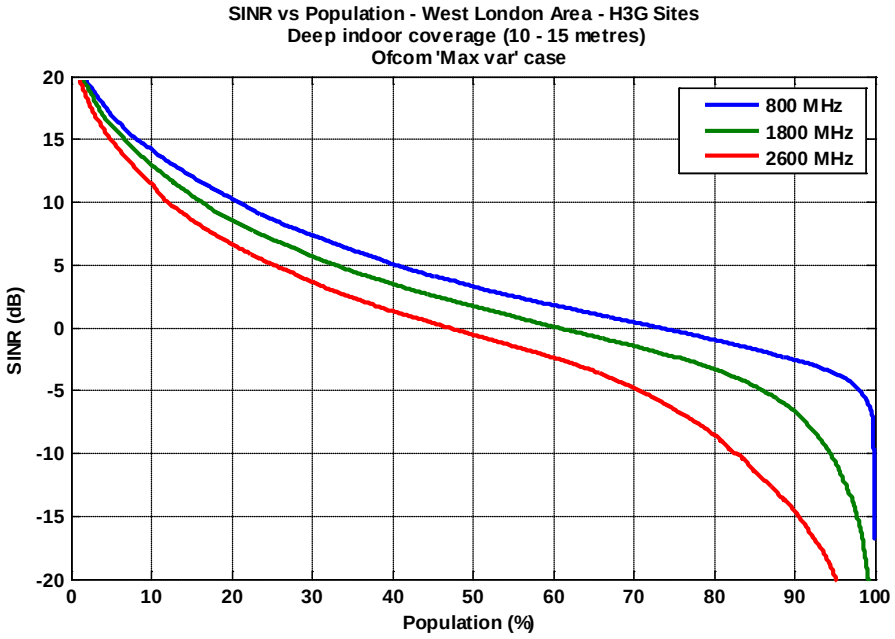


Cambridge

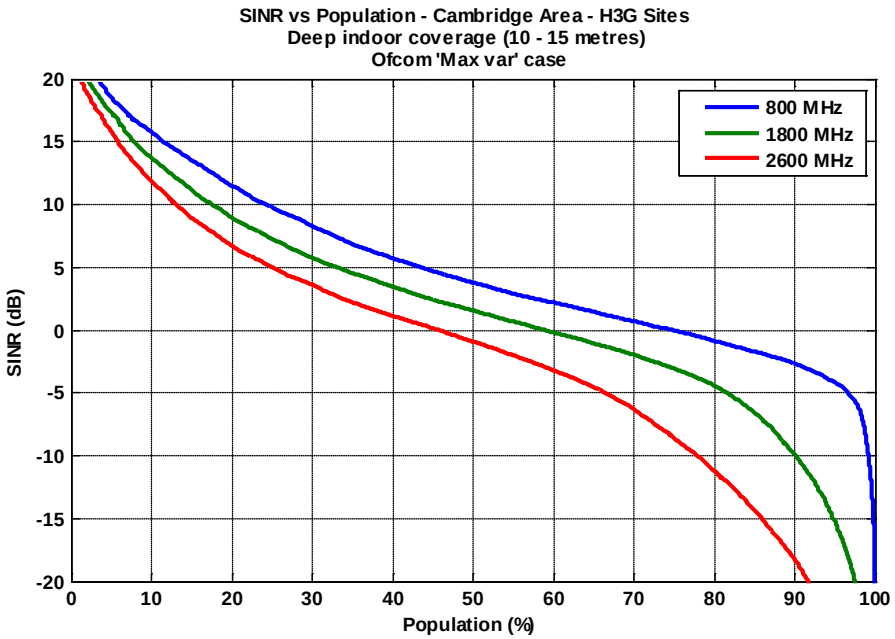


1.3 SINR results for 10-15 metre indoor coverage

West London



Cambridge



1.4 Summary of SINR coverage results

The percentage of the population where our simulation predicts an SINR of -5 dB or better is given in the tables below.

West London

Frequency	5 metres	10 – 15 metres
800 MHz	98.5 %	98.2 %
1800 MHz	96.1 %	86.1 %
2600 MHz	91.4 %	70.8 %

Cambridge

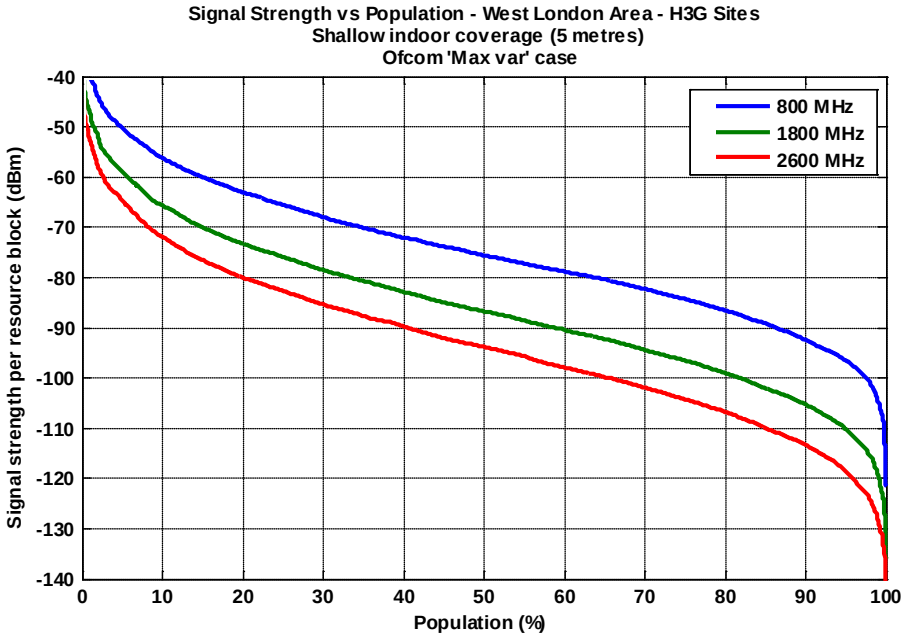
Frequency	5 metres	10 – 15 metres
800 MHz	98.0 %	96.7 %
1800 MHz	91.5 %	81.7 %
2600 MHz	84.7 %	66.4 %

1.5 Signal strength results

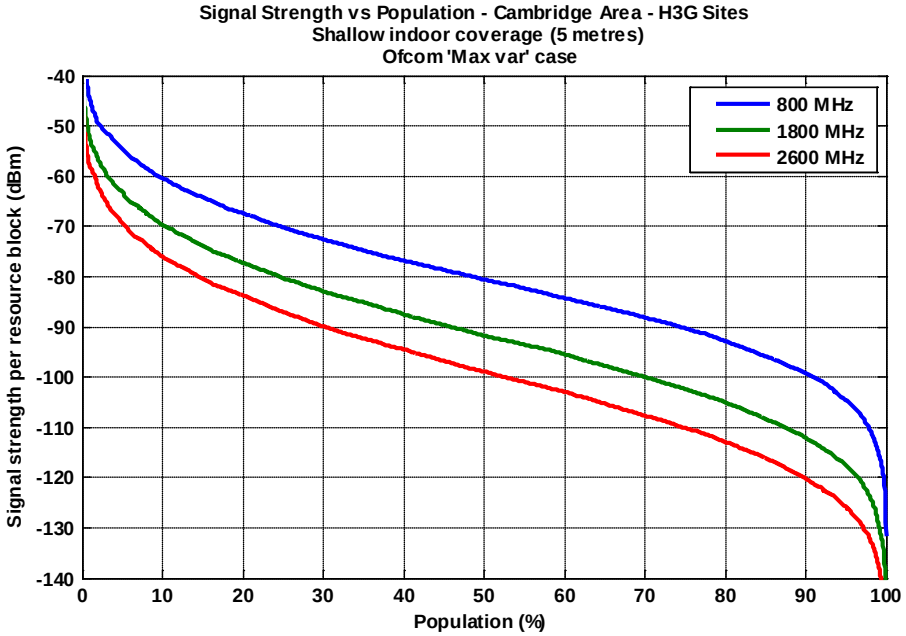
As indicated above, in the January 2012 consultation, Ofcom did not use signal strength as the metric to estimate the coverage of a minimum data-rate service (e.g. 1 Mbps) from an LTE network. The results below illustrate the signal strength vs population distributions for the West London and Cambridge simulation areas. They are provided for information only; they do not imply that we now consider signal strength as an appropriate metric for the coverage of a minimum data-rate service.

1.6 Signal strength results for 5 metre indoor coverage

West London

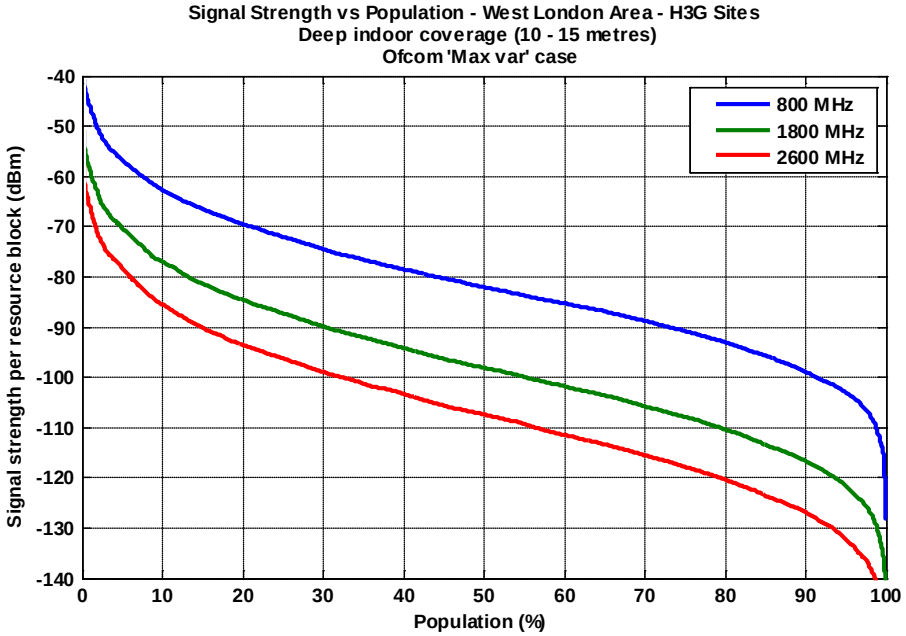


Cambridge

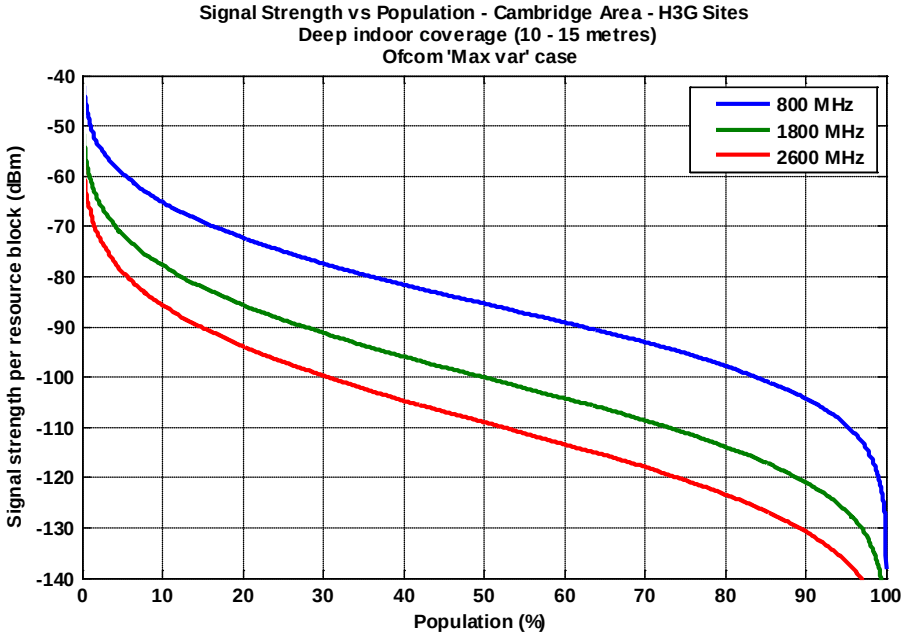


1.7 Signal strength results for 10 - 15 metres indoor coverage

West London



Cambridge


Signal Strength vs Population - Cambridge Area - H3G Sites
Deep indoor coverage (10 - 15 metres)
Ofcom 'Max var' case
800 MHz
1800 MHz
2600 MHz
Signal strength per resource block (dBm)
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
0
10
20
30
40
50
60
70
80
90
100
Population (%)