

# Substantiation of speed, reliability, and 5G coverage claims across multiple UK metros - H1 2022

## SUBSTANTIATION OF CLAIMS

Last Reviewed: 26/07/2022

### Claims:

Speed, reliability, and 5G coverage comparisons between EE and competitors in the following metros:

- *Belfast*
- *Birmingham*
- *Bristol*
- *Cardiff*
- *Coventry*
- *Edinburgh*
- *Glasgow*
- *Hull*
- *Leeds and Bradford*
- *Leicester*
- *Liverpool*
- *London*
- *Manchester*
- *Newcastle*
- *Nottingham*
- *Sheffield*

## **Summary**

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EE's claim to be the most reliable and/or be fastest and/or have the most 5G coverage across the above metro areas is based on RootMetrics' extensive testing, which assesses reliability across a wide variety of call, text, and data tests using the latest devices and a geographically representative methodology. Metro-level test results are provided below for easy comparison of operator performance.

## **RootMetrics Awards**

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RootMetrics, an independent mobile analytics firm, publishes a series of reports, titled the UK RootScore® Report (the "RootScore Report"). The RootScore Report ranks the UK's four major mobile network operators ("MNOs") on a number of performance metrics, including "Network Reliability", "Network Speed", "Data Performance", "Network Accessibility," "Call Performance" and "Text Performance". The report also ranks MNOs on "Overall Performance".

In addition to testing across the nations, RootMetrics extensively tests 16 of the largest metropolitan areas (Eurostat 'Large Urban Zones' [LUZs]) within the UK. To provide objectivity, the boundaries of the areas we test for our RootScore Reports are defined by governments and official agencies—not by RootMetrics.

## **Why are these results robust?**

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RootMetrics uses scientific methodologies to design tests, measure activities, and collect data about mobile network performance that are representative of a consumer's mobile experience within a given market. RootMetrics then employs statistical techniques to verify and validate the results. This approach ensures all operators are measured on a level playing field, removes unintentional bias, and allows RootMetrics to provide actual, in-the-field data that confirms or challenges performance numbers that are otherwise only theoretical or based on ideal conditions. Weighting and stratification methods ensure that test data correctly represents the overall national population distribution.

We measure network reliability, accessibility, and speed performance across the activities that consumers use their smartphones for on a daily basis, like browsing webpages, using apps, making calls, and sending texts. Our methodology is designed to ensure that our tests measure performance across a wide range of real-world situations that consumers experience while using their smartphones on a daily basis. For example: we collect samples during periods of high and low congestion; we measure performance across variations in speed, from standing still to driving on the highway; and we perform tests whether coverage is poor or excellent or somewhere in between. We test each network head-to-head in these situations to make comparisons easy and assure all networks are measured on a level playing field.

Methodological Facts from RootMetrics' UK tests conducted between January and June 2022:

- 642,000 tests performed
- 26,600 miles driven
- 4 nations visited
- 16 of the largest metropolitan areas (Eurostat 'Large Urban Zones' [LUZs]) included

## Reliability and downlink testing

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The RootMetrics Network Reliability category provides a holistic look at reliability performance across data, call, and text testing. The reliability category addresses the two questions most fundamental to a reliable mobile experience for consumers: can I access the network and can I then stay connected to complete my intended task?

To answer these critical questions, RootMetrics assesses performance across the following key areas:

	Reliability
Call	<ul style="list-style-type: none"><li>• Mobile-to-mobile blocked outgoing call</li><li>• Mobile-to-mobile dropped outgoing call</li></ul>
Data	<ul style="list-style-type: none"><li>• Lite data (web/app) access success</li><li>• Lite data (web/app) task success</li><li>• Lite data (web/app) secure access success</li><li>• Lite data (web/app) secure task success</li><li>• Download/upload access success</li><li>• Download/upload task success</li></ul>
Text	<ul style="list-style-type: none"><li>• Intra/inter-network text send failure rate</li><li>• Intra/inter-network text receive failure rate</li></ul>

To evaluate downlink throughput performance, the RootMetrics testing application attempts to open and maintain 4 simultaneous HTTP connections to measure the total bytes transferred during the test period. Downlink throughput speed is measured during this testing.

## Speed, reliability, and 5G coverage comparisons

The tables below provides key H1 2022 scoring and download throughput comparisons across metros in which EE has made reliability, speed, or 5G coverage claims. Links to associated RootScore Reports are as follows:

[Belfast RootScore® Report May, 2022](#)  
[Birmingham RootScore® Report May, 2022](#)  
[Bristol RootScore® Report February, 2022](#)  
[Cardiff RootScore® Report March, 2022](#)  
[Coventry RootScore® Report January 2022](#)  
[Edinburgh RootScore® Report March 2022](#)  
[Glasgow RootScore® Report March 2022](#)  
[Hull RootScore® Report June 2022](#)  
[Leeds RootScore® Report February 2022](#)

[Leicester RootScore® Report May 2022](#)  
[Liverpool RootScore® Report May 2022](#)  
[London RootScore® Report April 2022](#)  
[Manchester RootScore® Report April 2022](#)  
[Newcastle RootScore® Report May 2022](#)  
[Nottingham RootScore® Report February 2022](#)  
[Sheffield RootScore® Report February 2022](#)

Market	EE 5G% coverage	O2 5G% coverage	Three 5G% coverage	Vodafone 5G% coverage
<b>Belfast</b>	44.7%	40.2%	20.8%	22.6%
<b>Birmingham</b>	32.6%	38.4%	62.2%	44.3%
<b>Bristol</b>	45.0%	35.9%	34.0%	55.6%
<b>Cardiff</b>	28.4%	32.8%	41.8%	43.5%
<b>Coventry</b>	18.5%	24.2%	24.2%	7.8%
<b>Edinburgh</b>	34.9%	54.9%	36.5%	15.7%
<b>Glasgow</b>	40.7%	18.5%	37.5%	28.9%
<b>Leeds</b>	40.5%	41.5%	51.6%	16.7%
<b>Leicester</b>	25.8%	31.2%	56.8%	7.5%
<b>Liverpool</b>	46.5%	46.4%	44.1%	57.0%
<b>London</b>	52.0%	30.3%	47.0%	41.2%
<b>Manchester</b>	50.7%	30.9%	52.9%	40.0%
<b>Newcastle</b>	37.3%	40.4%	22.6%	20.0%
<b>Nottingham</b>	56.4%	20.0%	56.1%	4.1%
<b>Sheffield</b>	53.4%	22.2%	41.4%	14.6%

Substantiation of metro performance claims

Market	EE Reliability RootScore	O2 Reliability RootScore	Three Reliability RootScore	Vodafone Reliability RootScore
<b>Belfast</b>	99.6	95.4	98.3	97.9
<b>Birmingham</b>	99.4	95.8	98.4	97.9
<b>Bristol</b>	99.4	97.3	97.8	99.0
<b>Cardiff</b>	98.6	98.1	99.0	98.9
<b>Coventry</b>	99.4	99.2	95.2	99.1
<b>Edinburgh</b>	99.8	97.7	98.2	99.2
<b>Glasgow</b>	99.5	98.0	97.5	98.9
<b>Hull</b>	98.7	98.2	95.7	98.6
<b>Leeds</b>	99.4	98.7	98.0	97.8
<b>Leicester</b>	99.5	99.7	98.3	98.5
<b>Liverpool</b>	99.6	96.6	98.9	99.2
<b>London</b>	99.3	97.3	97.2	97.3
<b>Manchester</b>	99.6	97.3	98.7	99.0
<b>Newcastle</b>	99.2	98.3	97.2	98.6
<b>Nottingham</b>	99.8	98.8	98.3	97.5
<b>Sheffield</b>	99.6	98.2	98.1	98.6

<b>Market</b>	<b>EE median download speed (Mbps)</b>	<b>O2 median download speed (Mbps)</b>	<b>Three median download speed (Mbps)</b>	<b>Vodafone median download speed (Mbps)</b>
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<b>Belfast</b>	98.5	65.8	72.6	84.9
<b>Birmingham</b>	93.8	47.2	80.2	80.2
<b>Bristol</b>	96.1	72.0	75.3	87.8
<b>Cardiff</b>	91.4	50.8	82.8	81.4
<b>Coventry</b>	93.1	72.3	70.1	48.7
<b>Edinburgh</b>	97.6	62.2	79.7	75.2
<b>Glasgow</b>	98.8	32.8	80.8	74.3
<b>Leeds</b>	97.8	70.1	83.7	62.1
<b>Leicester</b>	95.8	84.9	83.7	77.1
<b>Liverpool</b>	98.4	57.7	83.9	85.3
<b>London</b>	97.1	76.9	79.8	77.4
<b>Manchester</b>	98.2	37.7	84.8	84.6
<b>Newcastle</b>	96.0	80.5	69.9	74.4
<b>Nottingham</b>	98.3	68.0	79.5	54.5
<b>Sheffield</b>	98.4	73.4	80.6	72.4