Substantiation of Vodafone's Best Network in Bristol, Best Network in Glasgow and Best Network for Voice claims carried out by NET CHECK

20th April 2023 – 25th May 2023

SUBSTANTIATION OF CLAIMS

Claims:

Bristol's Best Network

Glasgow's Best Network

Best Network for Voice

SUMMARY

The claims "Bristol's Best Network", "Glasgow's Best Network" and "Best Network for Voice" achieved by Vodafone are based on NET CHECK's mobile benchmark that was carried out between the 20th of April and the 25th of May 2023, across the United Kingdom.

The purpose of the Benchmark was to assess the overall performance of the mobile networks in terms of accessibility, reliability, and quality of typical telecommunication services like voice calls, internet browsing, live video streaming, online gaming, online meetings as well as data up- and downloading.

This report is an independent evaluation that compares the network capabilities of four network operators: Vodafone, EE, Three, and O2.

NET CHECK BENCHMARK

NET CHECK was founded in 1999 as a company with the main field of expertise in improving quality of telecommunication networks. In the years to follow, NET CHECK has become a renowned partner of network operators and infrastructure providers for design, construction, operation, and optimisation of mobile and fixed communication networks of all technologies.

As part of the NC Group, NET CHECK is independent of any industry stakeholders. It is also a trusted partner of scientific and government institutions due to its high level of expertise, data quality and security.

To follow its mission to improve the network quality, NET CHECK has developed a number of communication network testing products.

The NET CHECK Benchmark is a testing procedure that measures the performances of different networks. It follows the NET CHECK Methodology, devised for evaluating user experience, and compares the different network operators by creating a ranking.

METHODOLOGY

The NET CHECK Benchmarking methodology strives to provide a precise, unbiased, and balanced assessment of network performances. It is based on ETSI (European Telecommunications Standards Institute) standards that were further developed by NET CHECK's experts and is in essence same for all markets that NET CHECK operates in.

The methodology is updated once a year in accordance with the technology and industry development.

In order to simulate user behavior, NET CHECK performs a series of tests across a geographically representative area using state-of-the-art technology. The measurement sets consist of equipment produced by the market leader Rohde & Schwarz and some of the latest commercially available Android smartphones, Samsung Galaxy S21+ 5G and Samsung Galaxy S22+ 5G. Using commercially available tariffs ensures to reflect the real user experience.

To capture the diversity of user behaviour, the tests are conducted in two ways:

- The **walk tests** replicate user experience in areas of interest like airports, train stations, malls, tourist attractions and pedestrian zones and in the means of public transport that connect them. The measurement engineers carry special backpacks containing the smartphones equipped with SIM cards of all the operators;

- The **drive tests** are performed along the highways, main and rural roads, and along the city streets. The smartphones are placed in the roof boxes on top of the measurement vehicles, and they simulate the users traveling by car.

This approach allows performance measurement of Data and Voice services for all the network operators simultaneously and in the same locations, averts bias and warrants credible comparison.

Voice services are tested in regular calls, Whatsapp calls and data being sent during regular calls. To measure the quality of data services, the test engineers perform data up- and downloads, web browsing, live video streaming and interactivity testing, consisting of online gaming and online meting simulations. All of these test activities are done in both drive and walk measurements.

The collected data is verified and analyzed to calculate Key Performance Indicators (KPIs). These KPIs form the basis for the ranking and are distinguished in two services: Data services and Voice services.

The maximum ranking for an operator is 1.000 ranking points, where 350 points is the maximum for voice services and 650 points is the maximum for data services.

The assessment criteria and ranking weights are determined exclusively by NET CHECK's experts.

THE RESULTS

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Facts from NET CHECK's tests conducted across the United Kingdom in April and May 2023:
- 32 cities
- 13 towns
- 5,000 km driven
- 1,160 km covered in walk and train tests
- 8,600 test calls performed
- 85,000 speech samples collected
- 107,000 data samples collected

In the overall UK-wide ranking, out of 350 possible ranking points for Voice services, Vodafone achieved the highest ranking with 310.21 points, Three achieved 301.37 points, EE achieved 298.69 points and O2 achieved 289.71 points. As a result, NET CHECK concludes that Vodafone is the best network for voice in the United Kingdom.

On a city level Vodafone achieved the best Voice results in London, Belfast, Birmingham, Bristol, Cardiff, Edinburgh, Glasgow, Leeds, Manchester and Sheffield.

In Bristol, out of 1,000 possible overall ranking points, Vodafone achieved the highest ranking with 859.20 overall points, Three achieved 820.82 points, EE achieved 805.19 points and O2 691.31 points. As a result, NET CHECK concludes that Vodafone is the best network in Bristol.
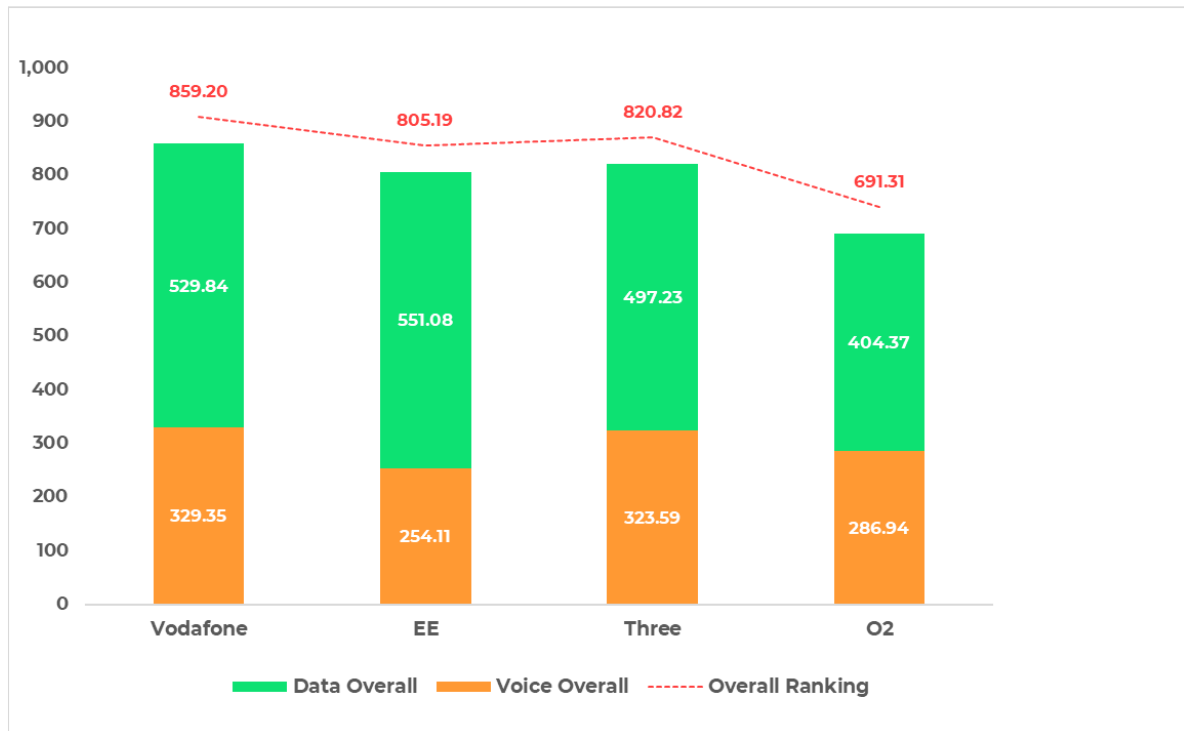
In Glasgow, out of 1,000 possible overall ranking points, Vodafone achieved the highest ranking with 921.39 overall points, EE achieved 919.86 points, O2 achieved 794.17 and Three achieved 746.52 points. As a result, NET CHECK concludes that Vodafone is the best network in Glasgow.

UK-wide Voice ranking results from the Mobile Network Benchmark
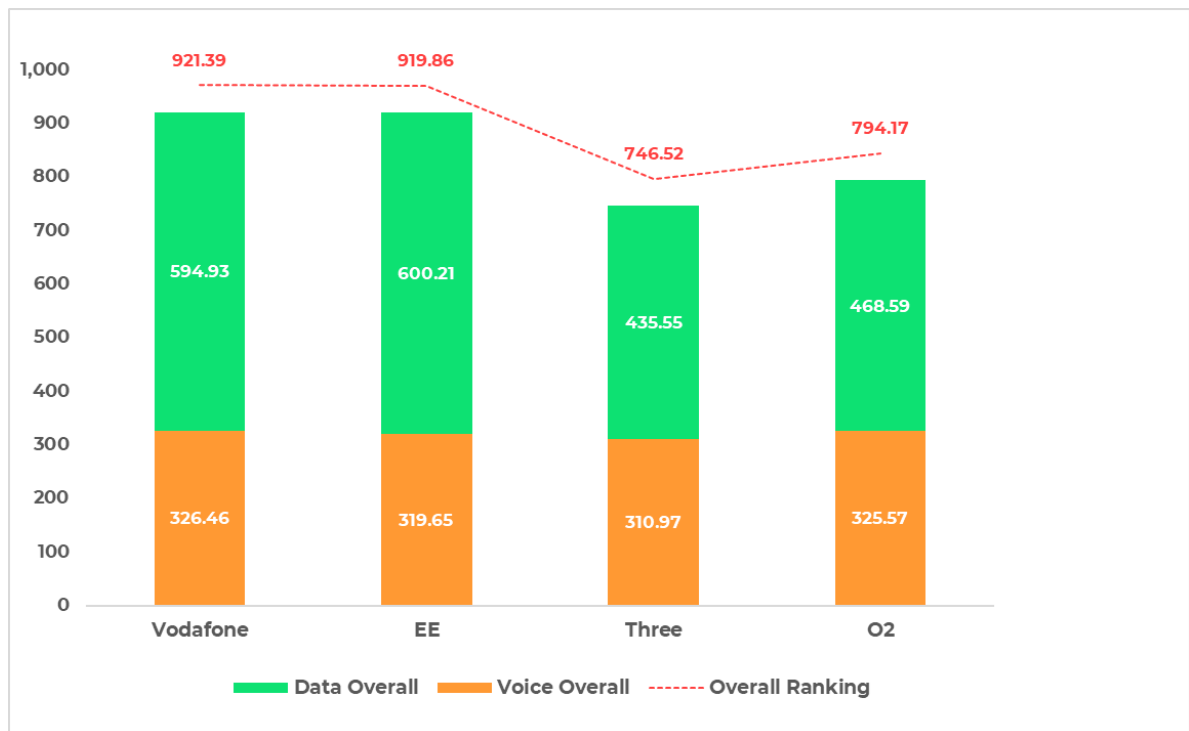executed by NET CHECK between 20th of April and 25th of May
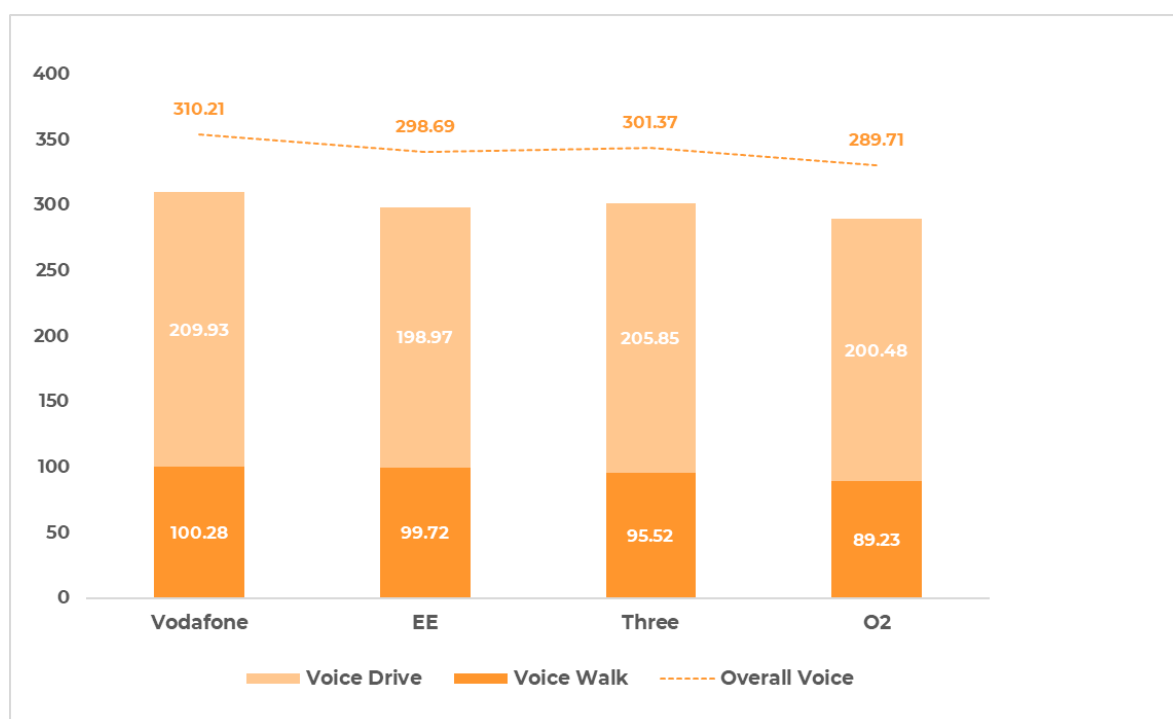
Results from the Mobile Network Benchmark in Bristol
executed by NET CHECK between 20th of April and 25th of May

Bristol chart. Overall Ranking values: Vodafone 859.20, EE 805.19, Three 820.82, O2 691.31.

Operator	Data Overall	Voice Overall
Vodafone	529.84	329.35
EE	551.08	254.11
Three	497.23	323.59
O2	404.37	286.94

Legend: Data Overall, Voice Overall, Overall Ranking

Results from the Mobile Network Benchmark in Glasgow
executed by NET CHECK between 20th of April and 25th of May

Glasgow chart. Overall Ranking values: Vodafone 921.39, EE 919.86, Three 746.52, O2 794.17.

Operator	Data Overall	Voice Overall
Vodafone	594.93	326.46
EE	600.21	319.65
Three	435.55	310.97
O2	468.59	325.57

Legend: Data Overall, Voice Overall, Overall Ranking

Full verification details can be found on https://nc-group.net/download/7340/?tmstv=1699981036