

2024 UK Mobile and Broadband Nationwide Connectivity Experience Report

A holistic look at connectivity across the UK, analysing the performance of ISPs and mobile operators individually, as well as the combined connectivity experience that people receive through partner bundle packages.

JULY 2024



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Executive Summary: Putting it into Context

Dr. Paul Carter, President and CEO of GWS comments:

“We’ve been independently testing commercial wireless networks for almost 30 years and have always adopted a consumer-led approach to our testing. Our differentiator is that we not only report on what networks could be delivering to end users but also on how people are using the networks and what they are actually experiencing – and then we put that into the context of what matters most to those users. To this end, careful scrutiny must be given when assessing the performance across the different types of wireless networks. For example, our polling shows that when at home there are around 13-14 devices connected via WiFi to a broadband network, the combination of which requires more bandwidth (higher throughput) than when a user is on a mobile network connected using a single smart device (such as a smartphone or tablet).

Whether on WiFi/broadband or mobile, from the consumer’s perspective it’s all the same, as moving from one to the other has become seamless in terms of transition and performance. They don’t need to think about the type of network they are connected to and probably don’t unless it’s an issue – like if their app won’t open, video won’t play, or image won’t post. What’s the relevance of all this? People now spend more time than ever on their smartphones – nearly one-third of their waking day. Furthermore, just over three-quarters of that time is spent connected to WiFi networks, so we’ve incorporated this into our testing and have released awards for both Best Broadband Experience and Best Mobile Experience. In addition, mergers and partnerships between mobile operators and broadband providers are resulting in more bundle deals coming onto the market at competitive price points. Our data shows that 24% of Brits are interested in changing networks this year and 29% of those cite “finding a better bundle deal” as a top reason driving that change. That’s why we’ve also released an award for Best Combined Connectivity Experience, combining results from both mobile operators and broadband providers (ISPs) into one score.

Overall, we collected 573 million data points and conducted over 1.5 million tests at all times of the day, measuring significant areas of network performance – from streaming videos to using the most popular apps – all of which contributed towards a detailed assessment of what the consumer experience is really like. The resulting scores for each area – mobile, broadband, and combined – are equally important to help operators analyse their own performance to drive quality improvements, and also to help consumers make more informed decisions about which network is best for them.

This year, Virgin Media O2 has produced a very strong set of results, picking up two awards for Best Broadband Experience and separately Best Combined Connectivity Experience for its bundle packages. EE has also seen impressive results for its network, which has won the Best Mobile Experience Award. Importantly, across the board, when compared to our 2023 results, we’ve also seen improvements in throughputs with reliability holding steady across the mobile operators.

But while the winners of our test may change from year to year, what’s clear is that consumer demand for high-performing wireless networks, whether that’s at home or on the go, continues to grow. We’re spending more time on our phones than ever before – they are our biggest confidants, our virtual assistants, our personal shoppers, our financial advisors, and our all-in-one entertainment systems. Our reliance on networks, both broadband and mobile, continues to grow, and the networks that innovate and tailor their offerings to best meet those consumer needs are the networks that will always come top.”

**BEST BROADBAND
EXPERIENCE AWARD**

Virgin Media

**BEST MOBILE
EXPERIENCE AWARD**

EE

**BEST COMBINED
CONNECTIVITY
EXPERIENCE AWARD**

Virgin Media O2

Snapshot of Tests Performed, Rankings Determined, and Data Collected

- ✓ Tests were run at random times, seven days a week.
- ✓ Tests measured throughputs, reliability, latency, packet loss, and video streaming metrics on both the mobile network and WiFi.
- ✓ Tests were conducted on the devices of real-life users from GWS' proprietary opt-in consumer panel of 6,000 participants (18+).
- ✓ 573 million data points were collected and over 1.5 million tests were conducted between December 1, 2023 and May 31, 2024. Test results were normalised, weighted, stat tested, and contrasted between service providers and operators to determine rankings and awards.
- ✓ In addition to running network performance tests, GWS generated insights into app usage and polled consumers on their wireless experiences.

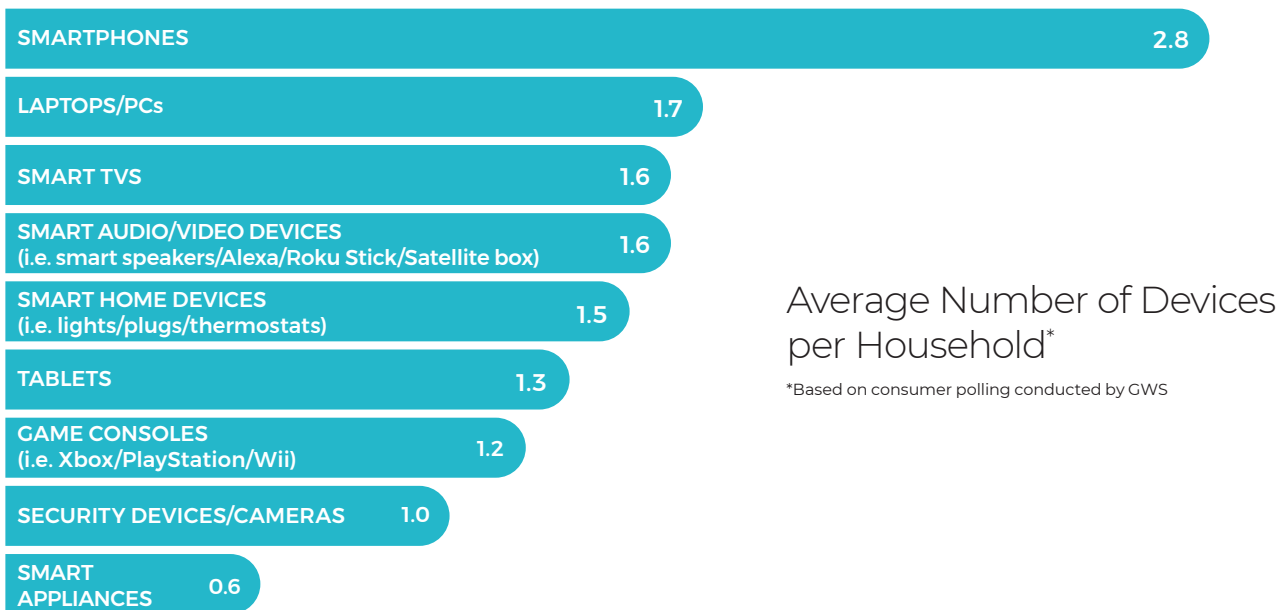
Network Test Results

1. Best Broadband Experience

Winner: Virgin Media

The state of broadband in UK homes

Broadband performance is central to our lives online, especially where people have multiple connected devices in the home. GWS test data shows that people spend nearly one-third of their waking day on their smartphones, and most of that time (78%) is spent on WiFi networks. Beyond this, GWS polling data reveals that people have between 13 and 14 connected devices running on home broadband networks, which collectively increases the throughputs required to run all simultaneously. This includes at least four smartphones and tablets as well as two laptops concurrently connected to the internet via broadband. But as well as this, game consoles, smart TVs, smart audio devices and smart speakers, smart home appliances, and security devices are all running off home WiFi networks (see table below). What's more, over half of all households say that the majority of members in their house are using the WiFi simultaneously for more than 5 hours a day, showing the importance of stable and fast broadband connections for work and play.



When factoring in the number of connected wireless devices at home, the average throughput requirement for a UK resident is therefore much higher than when a person connects to a mobile network using their smart device, which is a performance aspect that needs to be considered when assessing ISPs.

2024 Best Broadband Experience Ranked by Provider

ISP	RANK
Virgin Media	1
Vodafone Broadband	2
TalkTalk	3
Sky Broadband	3
EE	5
BT	5
PlusNet	7
Three Broadband	8

Performance Metrics Measured: reliability, latency, upload and download network available throughputs, delivered throughputs, packet loss, and video streaming (resolution, freezing, and loading). The results are normalised and weighted to determine a score in relation to the award ranking; see Methodology for more details.

Test Results: Following performance tests conducted across the UK’s major nationwide ISPs, GWS found that Virgin Media has the Best Broadband Experience out of all ISPs tested. As a highlight, Virgin Media led the pack when looking at mean download throughputs (across all panellists), offering over 170Mbps. The next closest provider was Vodafone broadband offering less than half the throughput (over 75Mbps), illustrating a significant divide in performance when it came to download throughput. VMO2 also performed best in video streaming finishing top with best resolution and quickest time to load. In addition, GWS also measured the percentage of time that ISPs were able to maintain high definition (HD) resolution during the streaming tests (i.e., maintain video resolution at 720p or greater). Virgin Media led the way at 94%.

2. Best Mobile Experience

Winner: EE

Consumer usage of operator mobile networks

The proportion of time that consumers spend connected to mobile networks is significantly lower than WiFi at just 22%. But access continues to be important, especially when looking at what people are doing on those devices, which is focused on social media, communication, and navigation.

In fact, GWS analytics data shows that people spend over 50% of their time on just 10 primary apps when connected to a mobile network, with Facebook at the top, followed by Chrome Browser, WhatsApp, Google Maps, YouTube, TikTok, Facebook Messenger, Instagram, Gmail, and Snapchat. While all of these apps are popular, none of them require extremely high throughputs (see following paragraphs).

Instead, when people are mobile, the larger concern becomes coverage and reliability. Of the 24% of Brits that were interested in changing mobile operators, over 33% responded that it was because of “poor signal and black spots.” In addition, the specific technology used was not necessarily a factor.

When polling users on mobile network performance, GWS found that over half of Brits (56%) said they did not mind whether they were receiving 4G or 5G coverage, so long as they could complete the task at hand. Even for the 44% that believe 5G is important, life still goes on for a majority of this group when they don't get a 5G signal; meaning that they continue on with their tasks using whatever connection they have rather than wait until they are in 5G coverage.

So, while the benefits of 5G for the broader industry and technology innovations are clear, on a daily basis, consumers appear satisfied to complete everyday tasks using much lower throughputs. To demonstrate this point, GWS measured the throughputs that are delivered to consumers while using their apps and found that these throughputs are generally much lower than the maximum throughputs the mobile networks are capable of providing.

2024 Best Mobile Experience Ranked by Operator

MOBILE OPERATOR	RANK
EE	1
Vodafone	2
Three	3
O2	4

Performance Metrics Measured: reliability, latency, upload and download network available throughputs, delivered throughputs, packet loss, and video streaming (resolution, freezing, and loading). The results are normalised and weighted to determine a score in relation to the award ranking; see Methodology for more details.

Test Results: GWS testing found that EE provides the Best Mobile Experience by a major operator in the UK. EE performed top in most of the test categories including reliability, latency, and all three video streaming tasks. In terms of streaming, GWS also measured the percentage of time that operators were able to maintain high definition (HD) resolution during the streaming tests (i.e., maintain video resolution at 720p or greater). EE came top at 80%. When looking at throughputs, Three had the highest download throughput at 63 Mbps and was tied with EE for the highest upload throughput at 17 Mbps.

3. Best Combined Connectivity Experience

Winner: Virgin Media O2

The rise of bundled packages and the need for a combined mobile and ISP score:

In a final award, GWS analysed the performance of partner network bundles across ISP and mobile and found Virgin Media O2 to have the Best Combined Connectivity Experience. This is important because of the rise in bundled packages - recent GWS data found that the desire to switch to a bundle deal is one of the top three reasons why consumers are looking to change their mobile network provider.

Even for those consumers who aren't currently looking to change, when asked what would make them change operators, getting a good bundled deal from another operator was one of their top three choices.

2024 Best Combined Connectivity Experience Ranked by Combined Providers

COMBINED PROVIDERS		RANK
MOBILE OPERATOR	ISP	
O2	Virgin Media	1
Sky Mobile	Sky Broadband	2
EE	BT	3
Vodafone	Vodafone Broadband	3
EE	EE	5
Three	Three Broadband	6

Performance Metrics Measured: reliability, latency, upload and download network available throughputs, delivered throughputs, packet loss, and video streaming (resolution, freezing, and loading). The results are normalised and weighted to determine a score in relation to the award ranking; see Methodology for more details.

Test Results: GWS tests determined that Virgin Media O2 provided the Best Combined Connectivity Experience. While Virgin Media O2 performed at or near the top in a majority of the metrics, Sky also performed well in video streaming and reliability. Interestingly, reliability across all combined providers remained constant when compared to last year’s results. When looking at throughputs, the fastest average available download throughput by a combined provider was offered by Virgin Media O2 at over 150Mbps – well over double the average of its closest rival (EE/BT with an average download throughput of over 65Mbps). When looking at available uploads, Virgin Media O2 was also top with an average throughput of 34Mbps.

Concluding Comments

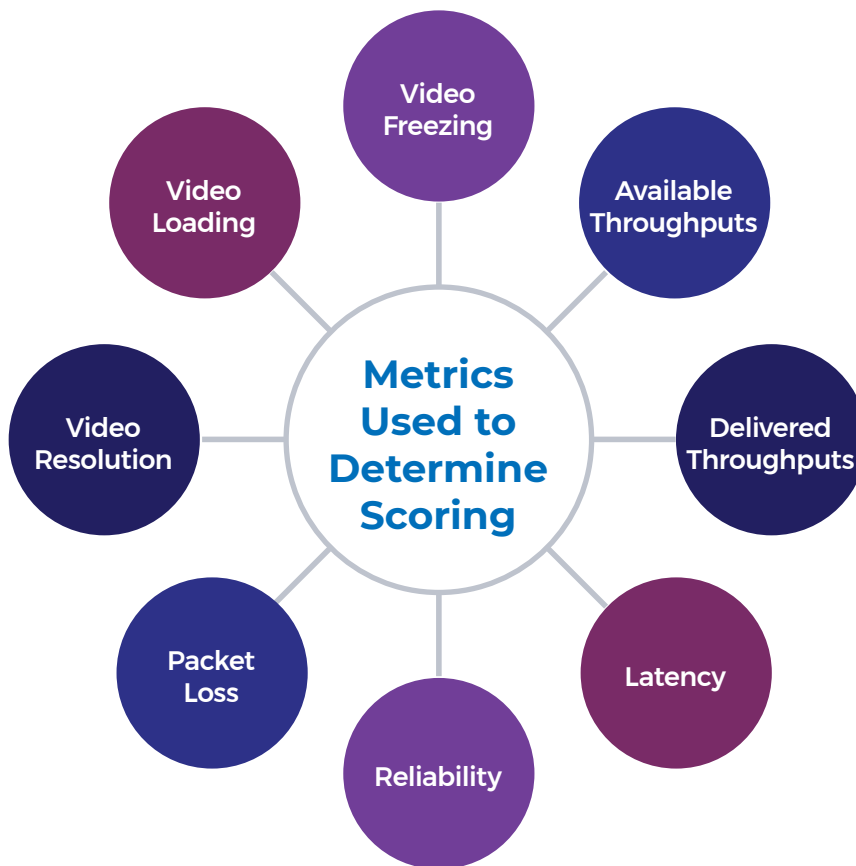
This report looked at consumer experience and measured wireless network performance across mobile and broadband – following the consumer’s path as they navigate through their daily lives. Key takeaways:

- Test performance scores demonstrated that some mobile operators and ISPs help consumers along that path better than others. In particular, Virgin Media and EE led the way with best performing broadband and mobile networks respectively.
- Broadband and mobile performance aren’t necessarily alike – for example, consumers simply need more horsepower, more throughput at home than on the go thanks to the plethora of connected home devices (phones, tablets, laptops, TVs, appliances, etc.).
- Furthermore, our tests demonstrated that the throughputs mobile networks are capable of providing exceeded what was actually delivered while the consumer is on an app. This is good – it means that mobile operators are meeting consumer needs.
- But it’s not all about speed, there are other critical elements that operators need to provide to have a top performing network including those related to reliability and video streaming performance.
- Mobile and broadband are becoming intertwined – from the seamless experience that consumers now expect when using their smart devices to the bundled services that operators are increasingly providing. As a result, our scoring also ranked the combined performance of those bundled services; for which Virgin Media O2 scored top.

Methodology – Data Collection, Testing and Ranking, and Consumer Polling

Data Source for Performance Rankings, App Engagement Insights, and Consumer Sentiment: All data was collected from GWS’ opt-in consumer panel of just over 6,000 participants (18+) making up a nationally representative sample of people from around the UK. This is a panel of real-life users who use their phones and tablet devices as normal throughout the day; as a result, the data GWS gathered provides the most accurate picture of the nation’s connectivity experience. Data was anonymously collected from Android smartphones/tablets during a six-month period (December 1, 2023 through May 31, 2024) and reported in aggregate for market research purposes only.

Performance Tests (what was tested and how the awards were determined): GWS conducted a series of tests in the background, measuring and analysing mobile and ISP broadband network performance involving network available throughputs, network delivered throughputs, latency, reliability, packet loss, and video streaming (including video loading, video resolution, and video freezing).



More about the metrics – what was measured:

- Network available throughputs: determined by conducting multithreaded HTTP download and upload tasks and measuring the average throughputs.
- Network delivered throughputs: determined by measuring the average throughput at the time an application is in use by a panellist.
- Reliability: determined by measuring the completion rate of simulated tasks.
- Latency: determined by conducting a ping test and measuring the ping latency.
- Packet loss: determined by conducting a ping test and measuring the percentage of ping packets lost.

- Video streaming – loading: determined by measuring the time to first clip at the start of a video task.
- Video streaming – resolution: determined by measuring the mean video resolution during the video playback.
- Video streaming – freezing: determined by measuring the percentage of freezing occurring during the video playback.

The results were normalised and weighted to determine mobile operator and ISP scores in relation to the three awards (Best Broadband Experience, Best Mobile Experience, and Best Combined Connectivity Experience). In addition, scores have been statistically tested to determine specific rankings. Further, scoring for the Best Combined Connectivity Experience award also takes into consideration the ratio of panellists time spent on WiFi to time spent on mobile networks and weights accordingly.

In total, GWS collected 573 million data points and conducted over 1.5 million tests during the six-month test period to determine the results. Tests were run at random times, seven days a week, on both mobile and WiFi networks. Broadband results are based on average (mean) scores derived from panellists participating across a range of tiered broadband throughput plans. For the Best Combined Connectivity Experience award, scoring was based only on tests from a mobile network and that operator’s broadband partner. For example, Sky Mobile test results from a Sky Mobile panellist were paired with Sky Broadband test results from that panellist.

App Engagement (how users engage with their apps): GWS collected app engagement data from user devices to understand how, what, and when consumers connect and use their apps. Data collected includes which apps were used, frequency of use, and other similar metrics. Data is weighted to be a demographic representation of the U.K. adult population (18+).

Consumer Polling (consumer sentiment about what’s important to them): GWS conducted surveys, polling panellists about their network experience as it relates to their activities and expectations. All information collected was weighted to a user’s demographic representation of the U.K. adult population (aged 18+).

6,000
PARTICIPANTS

6
MONTH
TEST PERIOD

OVER
1/2 BILLION
DATA POINTS
COLLECTED

1.5
MILLION+
TESTS CONDUCTED

ABOUT GWS

For most consumers today, their smart device is their life’s remote control. As an independent wireless insights consulting firm, GWS measures every aspect of how people live, work, and play via their mobile devices – as well as how mobile network performance affects them.

Combining our market-leading network benchmarking technology and methodology with deep behavioural data, we help businesses and organisations to drive innovation and deliver better customer experiences through wireless insights, anywhere in the world. Championing the needs of mobile and broadband users by understanding and testing the things that matter to them, we’ve evolved our technology and services in step with the needs of industry and consumers for 28 years.

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