



Net Neutrality

Annual Monitoring Report

Report

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Introduction

Net neutrality, sometimes also referred to as the ‘open internet’, is the principle of ensuring that users of the internet can control what they see and do online – not the internet service provider (ISP) that connects them to the internet.

Rules aimed at protecting the principle of the open internet (the ‘Regulation’,¹ also referred to as the ‘net neutrality rules’) were agreed by the EU in 2015 when the UK was still a member and came into force at the end of April 2016. The UK left the EU on 31 January 2020, with a transition period until 31 December 2020. Following the end of this period, the EU rules on net neutrality became part of domestic UK law, with minor amendments.²

The net neutrality rules aim to “safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and related end-users’ rights” and to “guarantee the continued functioning of the internet ecosystem as an engine of innovation”.

Ofcom is responsible for monitoring and ensuring compliance with the rules in the UK and is required to publish an annual report of its findings. This document constitutes our seventh annual report.

Last year, we published a statement on our 2023 review of net neutrality in the UK.³ This set out our conclusions on how net neutrality is working in the UK. In addition, we provided revised guidance on how we expect ISPs to comply with the net neutrality rules. Our statement and guidance included the approach to monitoring we would take based on the conclusions of our review, which we will implement in future monitoring reports from 2025 onwards.

This report sets out an update since the last monitoring report in October 2022 on the following:

- the quality of internet access services;
- safeguarding the open internet;
- transparency measures; and
- complaints and remedies.

¹ Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and retail charges for regulated intra-EU communications and amending Directive 2002/22/EC and Regulation (EU) No 531/2012, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02015R2120-20201221> [accessed 6 Oct 2023].

² By virtue of section 5 of The Retained EU Law (Revocation and Reform) Act 2023 the net neutrality rules have now become assimilated law.

³ Ofcom, 2023. [Statement: Net Neutrality Review.](#)

The quality of internet access services

As part of our duties under the Regulation, in addition to monitoring compliance with the rules, Article 5 requires us to “promote the continued availability of non-discriminatory internet access services at levels of quality that reflect advances in technology” and to “publish reports on an annual basis regarding their monitoring and findings”.

In this section, we report on the current status of coverage, speeds and quality of service of fixed and mobile internet access services. This reflects the approach we have taken in previous annual monitoring reports. Overall, we continue to see improvements in the coverage and take-up of broadband and mobile services with higher speeds.

In addition, we summarise relevant findings from our 2023 Net Neutrality Review statement. While traffic volumes have been growing, reflecting advances in the content, applications and services being used, ISPs have been able to manage this and so we have not seen services being impacted by network congestion.

In the statement, we said that going forward we will gather data on network performance and utilisation to monitor the general quality of internet access services offered by ISPs. We expect to focus this data gathering on measures of network utilisation, including the proportion of network elements experiencing a measure of congestion. For future annual monitoring reports, we will consider the specific measures we need to gather and will agree these with the ISPs. We will report on our updated approach in the next annual monitoring report.

Fixed broadband internet access services quality

To report on fixed broadband quality, we consider the coverage data reported in our latest Connected Nations report.⁴ We also use data from our UK Home Broadband report.⁵ Below we outline the latest figures on the coverage, speed and quality of fixed broadband.

Coverage

The number of premises able to get gigabit-capable broadband is now 23.2 million (78%), and full-fibre coverage has passed the halfway threshold with 17.1 million (57%) of UK households being able to benefit from full fibre – a 15% increase in full fibre availability from the same time last year.⁶ Superfast broadband is available at 97% of UK homes.⁷

The increase in full fibre coverage continues to be driven both by the major deployments of the larger network operators and new build from many smaller operators across the UK, some of which focus on previously underserved communities and regions. Some of these deployments benefit from

⁴ Ofcom, 2023. [Connected Nations 2023](#).

⁵ Ofcom, 2023. [UK Home Broadband Performance report](#).

⁶ Ofcom, 2023. [Connected Nations 2023](#). Gigabit-capable networks include full fibre and cable networks where the cable network has been upgraded to be able to provide gigabit speeds.

⁷ Ofcom, 2023. [Connected Nations 2023](#). Superfast broadband refers to broadband services with speeds over 30Mb/s downstream.

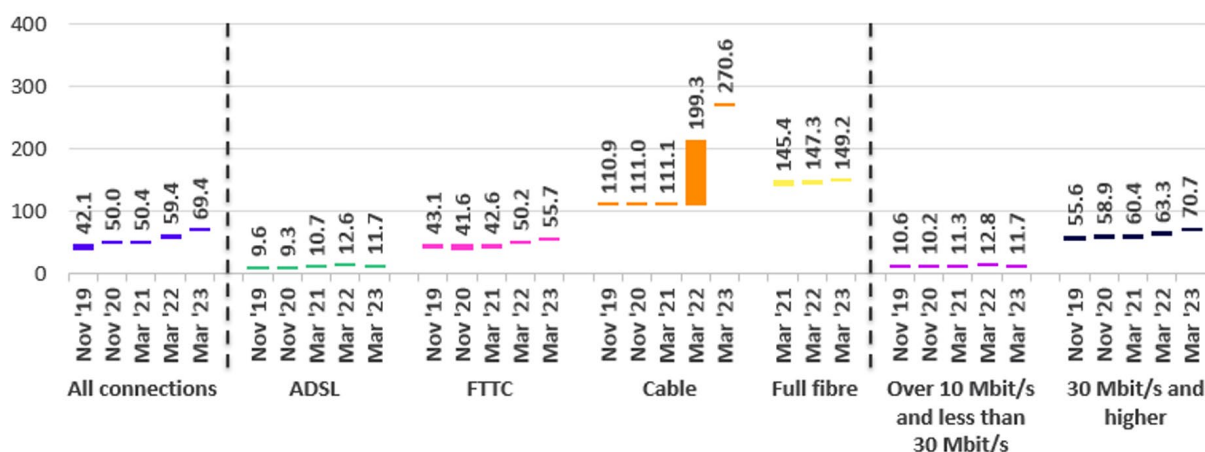
a range of public sector funding schemes such as Project Gigabit, the Gigabit Voucher Scheme, R.100 in Scotland, Superfast Cymru in Wales and Project Stratum in Northern Ireland.

The vast majority of UK properties can access decent broadband, which is defined as at least 10 Mbit/s download and 1 Mbit/s upload speed.⁸ We estimate that, at present, there remain around 61,000 premises that do not have access to a decent broadband service from a fixed network or Fixed Wireless Access (FWA) network. Of these, we estimate around 11,000 will be covered by public rollout schemes in the next year.

Speeds

Our UK Home Broadband report shows that average residential speeds continue to improve. The median download speed of UK home broadband connections has increased from 59.3Mbit/s to 69.4Mbit/s, an increase of 17% since March 2022.⁹ The median average upload speed has increased from 10.6 Mbit/s to 18.4 Mbit/s in March 2023, a year-on-year increase of 73%.¹⁰ These improvements were mainly driven by people upgrading to higher speed packages rather than improvements in the performance of individual broadband packages.

Figure 1: Median average actual broadband download speeds: 2019 to 2023 (Mbit/s)



Source: Ofcom, using data provided by SamKnows; see note [A] in the [Sources Annex](#).

Notes: The chart bars show that there is a 95% probability that the median average actual speed for all customers (i.e. not just the customer panellists within our sample) falls within the ranges shown; data labels show the median average values; ADSL comprises ADSL1 and ADSL2+.

Additionally, there has been a significant narrowing of the gap between urban and rural areas in average download speeds. In March 2023 there was a 14.3 Mbit/s (26%) difference between the median average peak-time download speed in urban (70.3 Mbit/s) and rural (56.0 Mbit/s) areas of the UK. This was less than the 22.7 Mbit/s (58% difference) in March 2022.¹¹ This is likely to be a result of full fibre rollout extending further, resulting in more coverage in rural areas, as explained above.

⁸ Ofcom, 2023. [Connected Nations 2023](#). Decent broadband is defined in legislation by [The Electronic Communications \(Universal Service\) \(Broadband\) Order 2018](#).

⁹ Ofcom, 2023. [UK Home Broadband Performance: Technical Annex](#).

¹⁰ Ofcom, 2023. [UK Home Broadband Performance: Technical Annex](#).

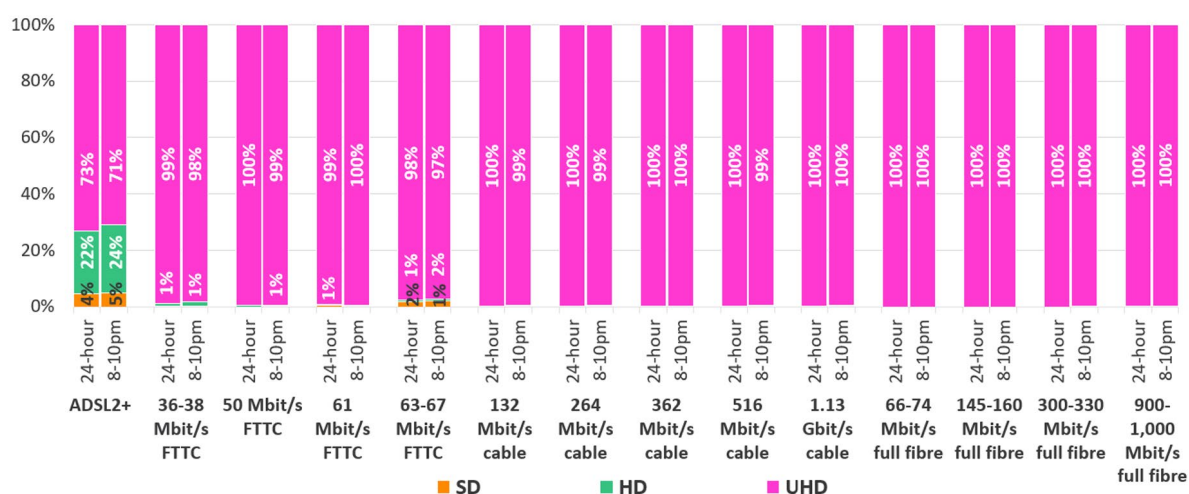
¹¹ Ofcom, 2023. [UK Home Broadband Performance: Technical Annex](#).

Quality

The UK Home Broadband Performance report shows that broadband performance can vary by the technology over which it is delivered, and the specific package to which the customer subscribes. Consumers can achieve improved performance through switching to updated technologies or a higher speed tier.

The UK Home Broadband report measures the performance of broadband connections when Netflix content is streamed. Given the popularity of Netflix and that streaming video content is sensitive to the quality of connection, this monitoring provides an indication of broadband quality. This activity was carried out over a 24-hour period in March 2023. During this period, 73% of Netflix videos streamed on standard broadband using the legacy copper network (utilising ADSL2+ technology) were reliably delivered at Ultra High Definition (UHD) resolution, up from 69% in March 2022.¹² This suggests that households that are not able to access superfast broadband (or faster) may still be able to watch high quality streaming, although they would be limited in how many such services they could use simultaneously. Netflix content was reliably streamed in UHD on nearly all superfast fibre to the cabinet (FTTC) and cable connections (those with an advertised speed of at least 30 Mbit/s up to 300Mbit/s), both over the peak-time and 24-hour period. Netflix was streamed reliably in UHD all the time on ultrafast broadband services (those with an advertised speed over 300Mbit/s) offered over cable and full fibre.¹³

Figure 2: Proportion of Netflix videos reliably delivered at the given video quality, over 24 hours and at peak times, by technology: March 2023



Source: Ofcom, using data provided by SamKnows; see note [H] in the [Sources Annex](#).

Mobile internet access services quality

Ofcom publishes information on mobile coverage in our Connected Nations reports. Our annual Mobile Matters report describes how people are using their mobile services, and the experience they receive. Below, we pick out some key findings from these publications related to the coverage, speed and quality of mobile services in the UK.

¹² Ofcom, 2023. [UK Home Broadband Performance: Technical Annex](#).

¹³ Ofcom, 2023. [UK Home Broadband Performance: Technical Annex](#).

Coverage

5G coverage continues to increase with 85-93% of premises now able to get a 5G signal outdoors from at least one mobile network operator, compared to between 67-78% a year ago.¹⁴ 4G coverage has remained stable, with around 93% of the UK landmass predicted to have good outdoor 4G coverage from at least one operator, and this area includes nearly all of the premises in the UK.¹⁵

Speed

Our Mobile Matters report for 2023¹⁶ used crowd-sourced data to measure the service actually experienced by users. This analysis shows that download speeds were more than four times higher on 5G than on 4G, with 5G speeds averaging 129.9 Mbit/s in the six-month period we looked at. This compared to averages of 29.5 Mbit/s over 4G and 5.9 Mbit/s on 3G.

For upload speeds, 5G speeds averaged 14.7Mbit/s compared to 4G which averaged 7.6Mbit/s.

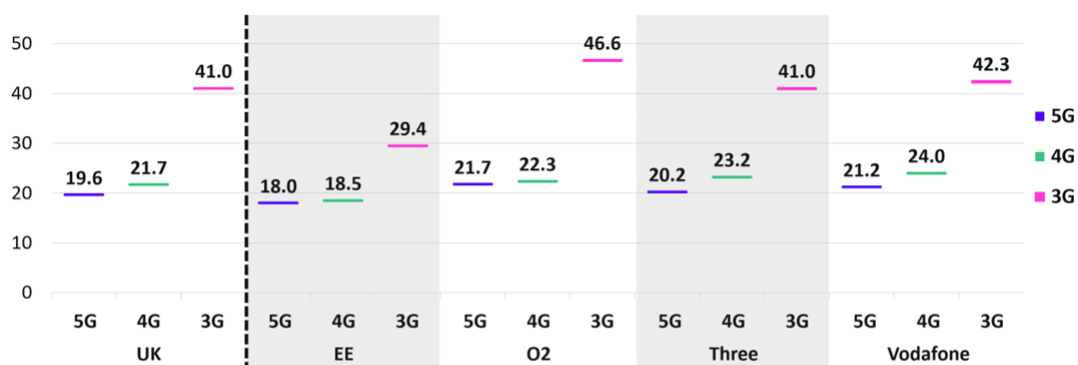
The benefit of 5G over 4G was more apparent with larger file downloads. A 5MB download over 5G took, on average, 56% less time to download than over 4G.

Quality

We analysed connection success rates when someone was actively using their phone in a coverage area and found that 5G data connections succeeded 98.4% of the time, compared to 97.8% for 4G and 91.3% for 3G.¹⁷

We also measured response times (the time it takes the network to respond to a data request), as this can have a noticeable impact on user experience. Across all networks, response times on 3G were much slower than those on 5G or 4G, with the differences between 5G and 4G being much smaller.¹⁸

Figure 3: Average (median) response time by cellular technology and MNO



Source: Ofcom, using crowdsourced data provided by Opensignal; October 2022 to March 2023 data.

Note: Lower values indicate better performance; the chart bars/lines show that there is a 95% probability that the actual average performance for all consumers (i.e. not just the consumer panellists within our sample) falls within the ranges shown.

¹⁴ Ofcom, 2023. [Connected Nations 2023](#).

¹⁵ Ofcom, 2023. [Connected Nations 2023](#).

¹⁶ Ofcom, 2023. [Mobile Matters](#).

¹⁷ Ofcom, 2023. [Mobile Matters](#).

¹⁸ Ofcom, 2023. [Mobile Matters](#).

Relevant information from our Net Neutrality Review statement

In Annex A3 of our Net Neutrality Review statement, we considered recent trends in traffic volumes and peaks, evidence on network costs and information on mobile customers' data usage.¹⁹ This data demonstrates that traffic volumes continue to grow (at 38% per annum for the average fixed broadband customer in the period 2013 to 2022, and 25% per annum for the average mobile data customer in the period 2017 to 2022). We also examined very large traffic peaks, generally caused by live sports and gaming updates, which often occur in the peak hours in the evening.

ISPs have been able to manage this growth in traffic including these peaks, with only a small number of cases where these led to networks being close to full utilisation. The data we collected shows that growth in traffic has not generally resulted in congestion impacting on the quality of service experienced by consumers. ISPs indicated that this is because they have dimensioned their networks to handle these peaks and their data indicated that they have done this with levels of investment staying at broadly similar levels over the past few years and into the future, though some ISPs did forecast increased investment.

Managing increasing traffic and high traffic peaks has been aided by ISPs, content providers and other parties in the internet ecosystem upgrading their approaches, including through using advanced encoding techniques and the deployment of more efficient traffic delivery solutions, such as Content Delivery Networks (CDNs).

¹⁹ Ofcom, 2023. [Statement: Net Neutrality Review](#). See Annex A3.

Safeguarding open internet access

Article 3 of the Regulation sets out the rights of end-users (consumers and content providers) to access and distribute content of their choice using devices of their choosing, and ISPs' obligations in relation to the equal treatment of internet access traffic, subject to certain exceptions. Article 4 of the Regulation sets out ISPs' obligations relating to transparency. To ensure compliance with these rules, we have continued to monitor complaints and publicly available information on the use of terminal equipment, zero-rating, traffic management policies of ISPs, the deployment and use of optimised services (specialised services) and the transparency ISPs are providing.²⁰

Compliance with Article 3

Article 3 concerns the use of terminal equipment, agreements between ISPs and end-users, traffic management practices and the provision of specialised services.

We considered the current approach to these practices taken by ISPs as part of our 2023 net neutrality review, and clarified our approach to assessing whether ISPs are meeting their obligations in each of these areas in the statement to our review and the associated guidance.

We did not identify concerns about their services, or receive complaints, that has led us to take any enforcement action under the Regulation.

Compliance with Article 4 (Transparency measures)

Transparency refers to the information that ISPs need to provide for end-users (consumers and content providers) to understand their services. This needs to meet the obligations in Article 4 of the Regulation, and the General Conditions.²¹

Article 4(1) requires ISPs to provide clear, accessible and comprehensive information on factors that could impact the quality of internet access services or potentially infringe on end-users' rights.

We have continued to monitor the information included in consumer contracts by ISPs and related consumer complaints received through our Consumer Contact Team. To date, we have not received complaints that have generated a significant cause for concern.

As part of the implementation of the end-user rights protections in the European Electronic Communications Code²², we have set out a requirement in our General Conditions for ISPs to include

²⁰ Specialised services are services which require optimisation that cannot be reliably supported via internet access services. Article 3(5) sets out the obligations ISPs must meet when providing specialised services.

²¹ Ofcom. [General Conditions of Entitlement](#). The General Conditions of Entitlement are the regulatory conditions that all providers of electronic communications networks and services must comply with if they want to provide services in the UK.

²² Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (Recast), as implemented by the Electronic Communications and Wireless Telegraphy (Amendment) (European Electronic Communications Code and EU Exit) Regulations 2020.

the information set out in Article 4(1) in consumer contracts.²³ We have published guidance on how we expect this contract information to be provided to customers in order to comply with these rules.²⁴

The provisions set out in our “Voluntary Codes of Practice on Better Broadband Speeds” (the ‘Codes’) are consistent with the requirements set out in the Regulation.²⁵ Currently, the Codes require signatories to, among other things, provide consumers with clear and comprehensible explanations of the minimum, normally available, maximum and advertised download and upload speed to give them a minimum guaranteed download speed before signing up to a deal.

In May 2022, we published a compliance report which assessed how providers have implemented the latest version of the Codes.²⁶ This highlighted the benefits the codes were bringing to consumers, but also identified three areas where improvements could be made, related to the accuracy of speed information on some networks, timeliness of reporting issues for new connections and in data reporting to help provide transparency to ISPs’ internal reporting and to us.

We will continue to review the codes of practice, and how ISPs are complying with them, to ensure the protections they provide remain relevant and effective by:

- a) working with signatories to implement the improvements identified in the 2022 compliance report;
- b) continuing to monitor compliance and resolve issues as they arise to ensure the continued effectiveness of the Codes, to the benefit of both broadband customers and signatories; and
- c) seeking to expand the number of broadband providers who are signatories, including supporting the onboarding of potential new signatories to the Codes.

In December 2023, we also published a statement providing guidance to ISPs about how they should provide clear information to consumers in relation to the underlying technology of their services.²⁷

Complaints and remedies

Article 4(2) of the Regulation requires ISPs to have procedures to manage complaints about consumers’ core rights under the Regulation.

Under our complaints handling rules, ISPs are required to inform customers how their complaints will be handled, how long it will take, and that they have the right to use alternative dispute resolution if, for instance, their complaint is not resolved to their satisfaction.²⁸

Article 4(4) of the Regulation gives end-users the right to invoke remedies through national law (e.g. consumer or contract law) if there are significant continuous or regularly recurring problems with ISPs’ performance relating to speed or other quality of service measures. Additionally, our Broadband Speeds Codes of Practice grants customers of signatories the right to cancel their

²³ See [General Condition C2, Ofcom, 2022. Revised General Conditions of Entitlement](#) (Unofficial Consolidated Version). Has been in effect since: 17 June 2022.

²⁴ Ofcom, 2022. [Ofcom’s guidance under General Condition C1 – contract requirements](#) (June 2022).

²⁵ Ofcom, 2022. [Updating and clarifying customers’ right to exit contracts for broadband services.](#)

²⁶ Ofcom, 2022. [Voluntary Codes of Practice on Better Broadband Speeds: Report on the 2018 Residential and Business Codes.](#)

²⁷ Ofcom, 2023. [Statement: Improving broadband information for consumers](#)

²⁸ See [Annex to General Condition C4.](#)

contract without penalty if their speeds fall below the minimum guaranteed level for a sustained period of time.

Under our voluntary automatic compensation scheme participating ISPs must pay residential landline and broadband customers automatic compensation for delayed installations, delayed repairs following a total loss of service and for missed appointments. In June 2023 we increased the amount of compensation that participating ISPs pay customers, to keep up with recent inflation increases.²⁹ As set out in our comparing customer service report, in 2022 signatories to the automatic compensation scheme paid £60m to consumers when things went wrong with their broadband and/or landline, £1.5m more than in 2021.³⁰

In our Net Neutrality Review statement, we also said ISPs should have processes in place to let consumers and content providers flag where they considered ISPs were inappropriately blocking content (for example through their in-network content filters or when seeking to block access to scam or fraudulent content).³¹ We will monitor whether ISPs have implemented these processes going forwards.

²⁹ Ofcom, 2023. [Automatic compensation: What you need to know](#). Compensation payments amounts increase annually in line with inflation. Customers of signatories are now entitled to £9.33 each calendar day for delayed repairs following a loss of broadband if not resolved within two working days; £29.15 per missed appointment and £5.83 each calendar day if there is a delay to the start of a new service.

³⁰ Ofcom, 2022. [Comparing customer service: mobile, home broadband and landline](#), p.4.

³¹ Ofcom, 2023. [Statement: Net Neutrality Review](#).