



Bundesnetzagentur

Net Neutrality in Germany

Annual Report 2019/2020



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Report of the Bundesnetzagentur to the European Commission and BEREC
pursuant to Article 5(1) Regulation (EU) 2015/2120

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Courtesy translation

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1 Introduction

1. Regulation (EU) 2015/2120 laying down measures concerning open internet access¹ aims to establish common rules to safeguard equal and non-discriminatory treatment of data traffic in the provision of internet access services and related end-users' rights. It aims to protect end-users and simultaneously to guarantee the continued functioning of the internet ecosystem as an engine of innovation.²
2. In accordance with Article 5(1), national regulatory authorities (NRAs) must publish reports on an annual basis on their monitoring and findings, and provide these reports to the Commission and BEREC.
3. BEREC published "Guidelines on the Implementation by National Regulators of European Net Neutrality Rules" on 30 August 2016 in accordance with Article 5(3).³ These Guidelines are designed to provide guidance on implementing the obligations of national regulatory authorities and contribute to the consistent application of this Regulation. The Bundesnetzagentur has been actively involved in the process of revising the Guidelines undertaken by BEREC. The revised Guidelines were put out to public consultation prior to their publication on 11 June 2020. The Guidelines that were published on 30 August 2016 remain the basis for this annual report.
4. In accordance with the BEREC Guidelines (paragraph 182), NRAs should publish their reports on an annual basis by 30 June. The reports should cover the period 1 May to 30 April. The present report covers the period from 1 May 2019 to 30 April 2020.
5. By publishing this report, the Bundesnetzagentur fulfils its reporting duty on its monitoring and findings for the fourth year of application of Regulation (EU) 2015/2120. Also by the publication of this report the Bundesnetzagentur simultaneously fulfils its reporting duty under section 43a(3) sentence 3 of the German Telecommunications Act (TKG).
6. The report focuses on the following issues: the safeguarding of open internet access (Article 3), transparency measures (Article 4), supervision and enforcement (Article 5), and penalties (Article 6).
7. The report covers significant activities of the Bundesnetzagentur with respect to the following:

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 amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union, Official Journal 2015, L310/1. Any Article without reference to an Act or to a Regulation shall be understood to refer to Regulation (EU) 2015/2120.

² See recital 1 of the Regulation.

³ Non-authorised translation of the Guidelines: https://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Sachgebiete/Telekommunikation/Unternehmen_Institutionen/Breitband/Netzneutralitaet/LeitlinienDeu.pdf?__blob=publicationFile&v=3.

- the investigation of business models and commercial practices (Article 3(2) in conjunction with Article 3(1)), including zero-rating offers (see paragraphs 15-18);
- the review of traffic management measures by internet access providers (Article 3(3)); specifically on the topic of filters for security and youth protection (see paragraphs 24-27);
- the investigation of transparency measures (Article 4(1); see paragraphs 36-42), including handling of consumer complaints relating to low data transmission rates (Article 4(1) sentence 1 point (d) in conjunction with Article 4(4); see paragraphs 43-55);
- the operation of a quality monitoring mechanism (section 43a(3) TKG, Article 4(4) and Article 5(1); see paragraphs 62-75).

2 Supervision and enforcement of Regulation (EU) 2015/2120 on open internet access

2.1 Competence

8. In Germany, the Bundesnetzagentur is responsible for enforcing the rules on net neutrality under Regulation (EU) 2015/2120.
9. Depending on the matter at issue, the Bundesnetzagentur may consult with other authorities, for example the Bundeskartellamt, the state media authorities and the Federal Commissioner for Data Protection and Freedom of Information (BfDI). Data protection falls under the joint responsibility of the Bundesnetzagentur and the BfDI (see paragraphs 31-34).

2.2 Methods of supervision and enforcement

10. Under Article 5(1), the Bundesnetzagentur must closely monitor and ensure compliance with Articles 3 and 4. The Bundesnetzagentur is responsible *ex officio* for enforcing Regulation (EU) 2015/2120 on open internet access. Its main information sources are complaints, the public media and other sources (eg information from other authorities or from internet access providers who inform the Bundesnetzagentur of a new business model).
11. In many cases the Bundesnetzagentur will take action following a complaint (complaint-based approach). The Bundesnetzagentur will support the complainant if the complainant's concerns are justified. By taking this approach, the Bundesnetzagentur is able to identify the main issues from the end-user's perspective and take appropriate measures vis-à-vis the provider concerned if necessary.
12. In addition, the Bundesnetzagentur takes into account other information about any infringement of Regulation (EU) 2015/2120 (eg information from public media or from the internet).
13. Providers of internet access services are required to carry out a self-assessment of the compatibility of their contracts with the net neutrality rules set out in Regulation (EU) 2015/2120 and, if necessary, must amend their contracts accordingly. There is no obligation to notify the Bundesnetzagentur, but the authority is willing to discuss or answer questions regarding the design of new business models. Notwithstanding the above, it may intervene if it finds any contracts for internet access services are defective.

3 Enforcement activities regarding Regulation (EU) 2015/2120 and the findings of monitoring work

14. The Bundesnetzagentur's activities related to various provisions of the Regulation.

3.1 Safeguarding of open internet access

3.1.1 Agreements and commercial practices – Article 3(1) and (2)

Article 3(1) and (2) Regulation (EU) 2015/2120

(1) End-users shall have the right to access and distribute information and content, use and provide applications and services, and use terminal equipment of their choice, irrespective of the end-user's or provider's location or the location, origin or destination of the information, content, application or service, via their internet access service.

This paragraph is without prejudice to Union law, or national law that complies with Union law, related to the lawfulness of the content, applications or services.

(2) Agreements between providers of internet access services and end-users on commercial and technical conditions and the characteristics of internet access services such as price, data volumes or speed, and any commercial practices conducted by providers of internet access services, shall not limit the exercise of the rights of end-users laid down in paragraph 1.

Zero-rating

15. StreamOn Social&Chat is an additional add-on option Telekom Deutschland GmbH has been offering in its zero-rating products since June 2019. Using the social media and messaging applications of participating partners does not count towards the contractually agreed data volume. In its investigation of this matter, the Bundesnetzagentur made enquiries of Telekom. The Bundesnetzagentur came to the conclusion that there is no significant restriction of the end-users' rights pursuant to Article 3(1) and (2). The principle of treating all traffic equally in accordance with Article 3(3) is upheld. No throttling takes place. There is no charge for acting as partner. The terms and conditions for the participation of providers of these types of applications are designed in an open, transparent and non-discriminatory manner.
16. In the previous reporting period, both Telekom Deutschland GmbH and Vodafone GmbH had added gaming applications to their zero-rating products. In these cases as well, there was no indication of a significant restriction of the end-users' rights pursuant to Article 3(1) and (2). No throttling took place, and the terms and conditions for providers' participation were open, transparent and non-discriminatory, therefore the Bundesnetzagentur did not consider it necessary to intervene.
17. After both the Cologne Administrative Court (VG Köln) and the Higher Administrative Court of North-Rhine Westphalia (OVG NRW) had confirmed upon conclusion of a summary examination of its lawful-

ness that the Bundesnetzagentur's order from December 2017 regarding the StreamOn option was immediately enforceable, Telekom was obliged to implement the Bundesnetzagentur's order promptly. Deactivation of the reduction of bandwidth took place on 9 August 2019.

18. No judgement has been delivered to date in the principal proceedings, which may be contested in three courts. The Cologne Administrative Court stayed the principal proceedings on the StreamOn option in the first instance and referred to the European Court of Justice the question of whether the video throttling agreed upon with the customers must comply with the requirements of Article 3(3) and the principle of equality set forth therein. With further questions the court would like to clarify whether video throttling can be regarded as a permissible traffic management measure. Finally, the court asked the European Court of Justice if the regulation is to be taken to mean that the product restricts the end-users' rights pursuant to Article 3(1).

Mobile flat rates

19. There were individual enquiries about the design of internet access providers' mobile flat rates. Of particular interest was the prohibition of the use of fixed LTE routers. Furthermore, the Bundesnetzagentur requested a response from a mobile communications reseller where a tariff also contained such a prohibition of usage. The Bundesnetzagentur is still examining the matter.

"Vodafone Pass"

20. In the civil law proceedings between Vodafone GmbH and the Federation of German Consumer Organisations (Verbraucherzentrale Bundesverband e.V.) concerning various clauses in the "Vodafone Pass" general terms and conditions, the Higher Regional Court of Düsseldorf has referred the question of tethering to the European Court of Justice. The court seeks clarification as to whether an infringement of the end-user rights pursuant to Article 3(1) exists when the applications of the partners participating in "Vodafone Pass" are only zero-rated (ie do not count towards the data volume) when a mobile device is used. If the mobile device, in contrast, is coupled with other terminal equipment (tethering), data traffic resulting from the usage of the other terminal equipment is counted towards the data volume. This was cited by the Federation of German Consumer Organisations as a violation of the end-users' right to use terminal equipment of their choice.

Inapplicability of the Regulation

21. Investigations showed that Regulation (EU) 2015/2120 did not apply to a few consumer complaints. For example, the problems experienced by end-users when using certain services occurred outside the scope of internet access services, either at the level of IP connection, applications ("over the top" services") or terminal equipment. The Bundesnetzagentur's activities in these contexts related to various provisions of the Regulation.
22. A number of end-users complained that speeds were insufficient when using certain applications or that accessibility to several servers in Telekom Deutschland GmbH's network was poor. Net neutrality infringements were suspected on the grounds of inadequate peering agreements. The Bundesnetzagentur pointed out that interconnections in the internet generally do not lie within the scope of the net neutrality Regulation.
23. In several cases end-users could not receive incoming emails. They believed that internet access providers were blocking emails of certain email providers. The blocking, however, was carried out by involved email service providers. For this reason the net neutrality Regulation did not apply. In another instance an end-user complained that he was unable to use his internet service provider's VoIP telephony with his own cable modem. According to the end-user, the chosen VoIP implementation was supported only by the internet access provider's own cable modems. Thus the end-user believed that there had been a violation of Article 3(1). The Bundesnetzagentur rejected the complaint on the grounds that, firstly, an interface specification in accordance with section 41c TKG had been submitted by the internet access provider so that essentially any manufacturer could place compatible terminal equipment on the market. Secondly, internet access providers can freely choose the technical implementation of their telephone services and this does not constitute a violation of Article 3(1).

3.1.2 Traffic management - Article 3(3)

Article 3(3) Regulation (EU) 2015/2120

Providers of internet access services shall treat all traffic equally, when providing internet access services, without discrimination, restriction or interference, and irrespective of the sender and receiver, the content accessed or distributed, the applications or services used or provided, or the terminal equipment used.

The first subparagraph shall not prevent providers of internet access services from implementing reasonable traffic management measures. In order to be deemed to be reasonable, such measures shall be transparent, non-discriminatory and proportionate, and shall not be based on commercial considerations but on objectively different technical quality of service requirements of specific categories of traffic. Such measures shall not monitor the specific content and shall not be maintained for longer than necessary.

Providers of internet access services shall not engage in traffic management measures going beyond those set out in the second subparagraph, and in particular shall not block, slow down, alter, restrict, interfere with, degrade or discriminate between specific content, applications or services, or specific categories thereof, except as necessary, and only for as long as necessary, in order to:

(a) comply with Union legislative acts, or national legislation that complies with Union law, to which the provider of internet access services is subject, or with measures that comply with Union law giving effect to

such Union legislative acts or national legislation, including with orders by courts or public authorities vested with relevant powers;

(b) preserve the integrity and security of the network, of services provided via that network, and of the terminal equipment of end-users;

(c) prevent impending network congestion and mitigate the effects of exceptional or temporary network congestion, provided that equivalent categories of traffic are treated equally.

24. In the reporting period the topic of filters for security and youth protection became more important as an additional internet access service offering. The offering of one internet access provider encompasses both the protection of mobile devices in the mobile network from viruses, malicious software and attacks on the one hand, and a youth protection filter. A DNS filter is used to block domains that have been classified as dangerous or not age-appropriate. In one case an internet access provider was planning to participate in calls for tenders for school WLAN with a youth protection filter.
25. The Bundesnetzagentur regards security filters as justified in accordance with Article 3(3) subparagraph 3 point (b) because they preserve the integrity and security of the network, of the services provided via that network, and of the terminal equipment of end-users. In accordance with the BEREC Guidelines, security filters are also proportionate when they are continually activated in the background and trigger a specific traffic management measure only in certain instances.
26. In Germany there is no national law that allows internet access providers to implement youth protection filters in the network. Blocking during the provision of internet access services would, however, be permissible in accordance with the exception from Article 3(3) subparagraph 3 point (a) if there were a corresponding court ruling that ordered the blocking of a specific domain.
27. The Bundesnetzagentur generally considers providing these sorts of security and youth protection filters to be permissible as long as certain conditions are met: The underlying internet access service is application-agnostic and unrestricted, ie no blocking or other traffic management measures occur. The end-users must also have control of the specific filter functions, ie they must be able to activate and deactivate them. Moreover, the price and other terms of the underlying internet access service may not be influenced by whether the end-user has activated or deactivated the blocking. This does not rule out, however, that a separate price may be charged for a filter function as a supplementary service. Nevertheless, the Bundesnetzagentur may revisit these cases, for example if there are end-user complaints.
28. In another case a VoIP service provider complained that several of its customers who had internet access through the LTE network of a mobile provider were unable to receive incoming VoIP calls. It was determined that certain header information sent from the provider's SIP server to the client was deleted by the mobile provider's Application Layer Gateway. The mobile network operator traced the problem to an error in the Carrier Grade Network Address Translation (CGNAT). The problem was ultimately resolved, so the end-users could receive incoming calls again.

DNS blocking

29. Due to a court ruling, an internet access provider had to arrange a DNS block for certain domains in order to block certain domains from use by customers. The background of this ruling was copyright infringement by third parties. Thus the internet access provider's measure was justified under the exception in accordance with Article 3(3) subparagraph 3 sentence 3 point (a) of Regulation (EU) 2015/2120.

Inapplicability of the Regulation

30. In another case end-users who had entered a non-existent domain name were redirected from the internet access provider's DNS server to other websites. One end-user filed a criminal complaint against the internet access provider. The end-users' browser did not receive the entered domain name information from the internet access provider's DNS server. However, from the perspective of net neutrality pursuant to Regulation (EU) 2015/2120, this was not objectionable since the DNS service is a separate service from the internet access service. There was therefore no violation of the principle of treating all traffic equally in accordance with Article 3(3) of this Regulation. There was also no traffic management in the internet access provider's network, therefore there was no violation of the transparency measures required by Article 4.

3.1.3 Data protection and obligations for the protection of privacy - Article 3(4)

Article 3(4) Regulation (EU) 2015/2120

Any traffic management measure may entail processing of personal data only if such processing is necessary and proportionate to achieve the objectives set out in paragraph 3. Such processing shall be carried out in accordance with Directive 95/46/EC of the European Parliament and of the Council. Traffic management measures shall also comply with Directive 2002/58/EC of the European Parliament and of the Council.

31. In Germany, both the BfDI and the Bundesnetzagentur were responsible for monitoring the data protection obligations in line with telecommunications law during the reporting period. The two authorities share supervisory responsibility (section 115(4) TKG).
32. If the BfDI becomes aware of any violation of data protection provisions, it can inform the Bundesnetzagentur. The Bundesnetzagentur can then enforce the data protection obligations by way of an administrative procedure and/or can punish any offences by administrative fines. Moreover, there is a formal cooperation process between the Bundesnetzagentur and the BfDI for the obligatory filing of personal data breaches pursuant to section 109a TKG, thus the two authorities inform one another as soon as they receive notification of breaches of data privacy by a provider of internet access services.
33. Article 3(4) refers to Regulation (EU) 2016/679 (European General Data Protection Regulation, GDPR), since it replaced Directive 95/46/EC (see Article 94 GDPR). As the GDPR is directly applicable, the BfDI is solely responsible for monitoring data protection in telecommunication services insofar as it is not a matter of supervision with regard to the obligations laid down in Directive 2002/58/EC (see Article 95 GDPR). The obligations laid down there concern in particular the traffic data of interest within the framework of

Article 3(4) Regulation (EU) 2015/2120, ie data that is collected, processed or used in the provision of a telecommunications service, section 3 para 30 TKG. To this extent the joint responsibility of the BfDI and the Bundesnetzagentur continues in principle unchanged.

34. The E-Privacy Regulation, which is currently being discussed at a European level, is likely to replace the E-Privacy Directive. The E-Privacy Regulation will probably also lead to changes in data protection supervision in Germany. It is not yet clear when the E-Privacy Regulation is expected to enter into force.

3.1.4 Services other than internet access services (specialised services) - Article 3(5)

Article 3(5) Regulation (EU) 2015/2120

Providers of electronic communications to the public, including providers of internet access services, and providers of content, applications and services shall be free to offer services other than internet access services which are optimised for specific content, applications or services, or a combination thereof, where the optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality.

Providers of electronic communications to the public, including providers of internet access services, may offer or facilitate such services only if the network capacity is sufficient to provide them in addition to any internet access services provided. Such services shall not be usable or offered as a replacement for internet access services, and shall not be to the detriment of the availability or general quality of internet access services for end-users.

35. No complaints about specialised services were addressed to the Bundesnetzagentur. There were also no enquiries from providers of internet access services about business models that contain specialised services.

3.2 Transparency measures – Article 4

3.2.1 Contractual arrangements – Article 4(1)

Article 4(1) Regulation (EU) 2015/2120

Providers of internet access services shall ensure that any contract which includes internet access services specifies at least the following:

- (a) information on how traffic management measures applied by that provider could impact on the quality of the internet access services, on the privacy of end-users and on the protection of their personal data;

(b) a clear and comprehensible explanation as to how any volume limitation, speed and other quality of service parameters may in practice have an impact on internet access services, and in particular on the use of content, applications and services;

(c) a clear and comprehensible explanation of how any services referred to in Article 3(5) to which the end-user subscribes might in practice have an impact on the internet access services provided to that end-user;

(d) a clear and comprehensible explanation of the minimum, normally available, maximum and advertised download and upload speed of the internet access services in the case of fixed networks, or of the estimated maximum and advertised download and upload speed of the internet access services in the case of mobile networks, and how significant deviations from the respective advertised download and upload speeds could impact the exercise of the end-users' rights laid down in Article 3(1);

(e) a clear and comprehensible explanation of the remedies available to the consumer in accordance with national law in the event of any continuous or regularly recurring discrepancy between the actual performance of the internet access service regarding speed or other quality of service parameters and the performance indicated in accordance with points (a) to (d);

Providers of internet access services shall publish the information referred to in the first subparagraph.

36. With respect to transparency measures under Article 4(1), the complaints addressed to the Bundesnetzagentur particularly concerned the discrepancy between the actual performance and the contractually agreed download speeds pursuant to Article 4(1) sentence 1 point (d). The majority of complaints involved fixed networks and only a few related to mobile radio networks.
37. The Bundesnetzagentur deals with these complaints on broadband speed discrepancies following the complaints procedure (see section 2.2) and taking into account, since April 2017, the Bundesnetzagentur's draft administrative notice specifying the undefined legal terms used in Article 4(4) ("significant discrepancy, continuous or regularly recurring [...] regarding speed") and, since July 2017, its final administrative notice on this (see paragraphs 50-55).
38. Where providers applied admissible traffic management measures, the Bundesnetzagentur endeavoured to ensure appropriate transparency in the contractual information. An example of this is the lower priority given when assigning resources to mobile-based fixed-line substitute products. If congestion occurs, users of this tariff are assigned fewer resources than other mobile users in the same cell. Traffic within each tariff is treated equally.
39. No complaints about the transparency requirements under Article 4(1) sentence 1 points (b), (c) and (e) were addressed to the Bundesnetzagentur during the reporting period.

Report in accordance with section 43a(3) sentence 3 para 1 TKG

40. In accordance with section 43a(3) sentence 3 para 1 TKG, the Bundesnetzagentur publishes an annual report on its surveys and findings that presents, in particular, the extent to which providers of publicly accessible telecommunication services provide the information required under section 43a(2) TKG and Article 4(1) of the Regulation.
41. The Bundesnetzagentur takes action, in particular in response to complaints (complaint-based approach). Moreover, the Bundesnetzagentur makes spot checks of the corresponding wording of the providers in their general terms and conditions and service descriptions, for instance when it examines new tariffs or following media reports.
42. Based on these checks, the following picture has emerged for the Bundesnetzagentur: during the reporting period, fixed network providers increasingly provided information on the speeds as referred to in Article 4(1) point (d) in their general terms and conditions. The providers typically refer to specific figures for the respective speeds or express them as a percentage of the maximum speed. Advertised speeds typically correspond to maximum speeds. During the reporting period, mobile providers also increasingly provided information on the corresponding speeds in their general terms and conditions. The providers also increasingly describe the impact of traffic management measures (where they are applied and have been deemed admissible by the Bundesnetzagentur) on the internet access service.

3.2.2 Complaints procedure – Article 4(2)

Article 4(2) Regulation (EU) 2015/2120

Providers of internet access services shall put in place transparent, simple and efficient procedures to address complaints of end-users relating to the rights and obligations laid down in Article 3 and paragraph 1 of this Article.

43. The Bundesnetzagentur consumer advice service has designed a standard complaints procedure, which it has presented to the industry. In particular, this procedure governs the formal requirements of a complaint in the event that the contractually agreed speeds are not achieved. Internet access providers were asked to provide the Bundesnetzagentur with the name of a contact person so that the Bundesnetzagentur can deal with consumer complaints relating to Article 4, especially those concerning the speed of internet access, as well as issues and complaints on contractual transparency. Most providers of internet access services have designated a contact person.

Number of complaints

44. The Bundesnetzagentur forwards complaints from end-users, for which no solution has been reached between the end-user and the internet access provider, to the provider. To ensure that only substantiated complaints are forwarded, the Bundesnetzagentur asks the consumer to measure the speed of their inter-

net access service in advance, at least 20 times, using the Bundesnetzagentur's "Breitbandmessung" broadband speed checker (see paragraph 55). In the relevant reporting period, around 300 substantiated complaints under the terms of Article 4(4) were submitted. In the previous reporting period, there had been about 200.

45. Moreover, it is possible to submit a request for a dispute settlement procedure to the Bundesnetzagentur.
46. The Bundesnetzagentur is not able to force providers to terminate a contract prematurely or to compensate consumers, but it carefully monitors the solutions offered to end-users by providers.
47. Legal remedies for consumer claims for damages are governed by civil law. No specific, additional remedies for consumer redress have been introduced for net neutrality.
48. At the same time, there has been a rise in general queries and complaints concerning this issue. The Bundesnetzagentur is monitoring the number of end-user complaints on the speed of internet access services. While in 2017 and 2018, the Bundesnetzagentur received round 1500 complaints each year, during this reporting period about 1790 queries and complaints were received about this issue. However, these figures must be seen in relation to the total number of queries and complaints received each year. An exact statistical assessment of the complaints or a direct comparison of the statistics is difficult because in many of the consumer complaints different types of problems are mixed or several matters are addressed at once. Generally, it cannot be ruled out that the increased interest is due, among other things, to the publication of the administrative notice specifying the undefined legal terms "significant discrepancy, continuous or regularly recurring" used in Article 4(4) (see paragraphs 50-57) and to the increased use of the broadband speed checker.

3.2.3 Monitoring mechanism – Article 4(4)

Article 4(4) Regulation (EU) 2015/2120

Any significant discrepancy, continuous or regularly recurring, between the actual performance of the internet access service regarding speed or other quality of service parameters and the performance indicated by the provider of internet access services in accordance with points (a) to (d) of paragraph 1 shall, where the relevant facts are established by a monitoring mechanism certified by the national regulatory authority, be deemed to constitute non-conformity of performance for the purposes of triggering the remedies available to the consumer in accordance with national law.

This paragraph shall apply only to contracts concluded or renewed from 29 November 2015.

49. In its Guidelines BEREC clearly set out that a monitoring mechanism provided by a national regulatory authority and implemented for the purpose of Article 4(4) should be considered a certified monitoring mechanism (see BEREC Guidelines, paragraph 161). The Bundesnetzagentur thus considers its "Breitbandmessung" broadband speed checker to be such a certified monitoring mechanism. Additional information on the Bundesnetzagentur's broadband speed checker is given in paragraphs 62-75.

Administrative notice clarifying the undefined legal terms

50. The Bundesnetzagentur held a consultation on a draft administrative notice clarifying the undefined legal terms in Article 4(4) ("significant discrepancy, continuous or regularly recurring [...] regarding speed"). The final administrative notice was published on 4 July 2017.
51. The notice applies to download speeds of fixed broadband connections and makes the legal terms more manageable for end-users in asserting their rights vis-à-vis their internet access providers. The intention is to hold internet access providers accountable for the speeds that are stated in the contract and advertised.
52. The notice firstly addresses the substance of the undefined legal terms in Article 4(4) and, secondly, lays down guidelines for the verification process using the Bundesnetzagentur's monitoring mechanism ("Breitbandmessung" broadband speed checker).
53. In the Bundesnetzagentur's view, a significant discrepancy, continuous or regularly recurring, in download speeds of fixed broadband connections within the meaning of Article 4(4) is deemed to exist if:
 - 90% of the contractually agreed maximum speed is not achieved at least once on at least two measurement days;
 - the normally available speed is not achieved in 90% of the measurements; or
 - the speed falls below the contractually agreed minimum on at least two measurement days.
54. The occurrence of such a discrepancy in one of these cases suffices for the finding of a significant discrepancy, continuous or regularly recurring, in the download speed and thus non-compliance with the contractually agreed performance.
55. The Bundesnetzagentur deems the following requirements necessary regarding the scope and type of measurements when using the broadband speed checker in the verification process (see paragraph 49):
 - At least 20 measurements must be made.
 - The measurements must be made on at least two separate days.
 - The number of measurements is to be spread equally over the two days, so that at least 10 measurements are made on each day.
 - The measurements must be made using a LAN connection.
 - The measurements are to be carried out using the installable version of the broadband speed checker ("desktop app").

In addition, the Bundesnetzagentur's recommendations for carrying out measurements are to be observed.

56. In accordance with section 43a(3) sentence 3 para 2 TKG, the Bundesnetzagentur publishes an annual report on its surveys and findings that presents, in particular, the extent to which significant discrepancies, continuous or regularly recurring, were determined between the quality of service measured in accordance with section 43a(3) sentence 2 TKG and the information given in the contract as required under Article 4(1) subparagraph 1 point (d) of the Regulation.
57. In the period from the beginning of May 2019 to the end of April 2020, around 12,400 users carried out one or more sets of measurements using the desktop app that meet the Bundesnetzagentur's requirements regarding the scope and type of measurements (see paragraph 77), compared to about 8,800 users in 2018/19. 74.7% of the users (2018/19: 75.9%) recorded at least one of the discrepancies described above (see paragraph 75). However, as in the previous year, the great majority of the sets of measurements were not completed. Many consumers stopped taking measurements part-way through a set if the results were good.

3.2.4 Additional legislative measures – Article 4(3)

Article 4(3) Regulation (EU) 2015/2120

The requirements laid down in paragraphs 1 and 2 are in addition to those provided for in Directive 2002/22/EC and shall not prevent Member States from maintaining or introducing additional monitoring, information and transparency requirements, including those concerning the content, form and manner of the information to be published. Those requirements shall comply with this Regulation and the relevant provisions of Directives 2002/21/EC and 2002/22/EC.

58. At the national level, additional transparency requirements were adopted during the previous reporting period by way of the Ordinance concerning the promotion of transparency in the telecommunications market ("Transparency Ordinance"). This ordinance regulates the publication of information and additional measures for cost control on the telecommunications market.
59. The transparency ordinance entered into force on 1 June 2017. It requires fixed network and mobile providers to provide more transparency when offering internet access services.
60. Providers of internet access services must provide product information sheets where the consumer can quickly see the essential contractual provisions in a simple way before concluding the contract. The product information sheet contains details of the available data transmission rates, the term of the contract and the monthly costs. Consumers are also informed of the contractually agreed data allowance (if relevant).
61. Moreover, consumers have the right to inform themselves of the quality of their internet access service using reliable measurement results, in particular regarding the available data transmission rates and how the rates achieved compare to the contractually agreed maximum speed. The annex to the ordinance sets out the format for this information. The provider of the internet access service must therefore inform the consumer of possible means of measuring the speed, for example by referring to the Bundesnetzagentur's broadband speed checker (see <https://breitbandmessung.de>).

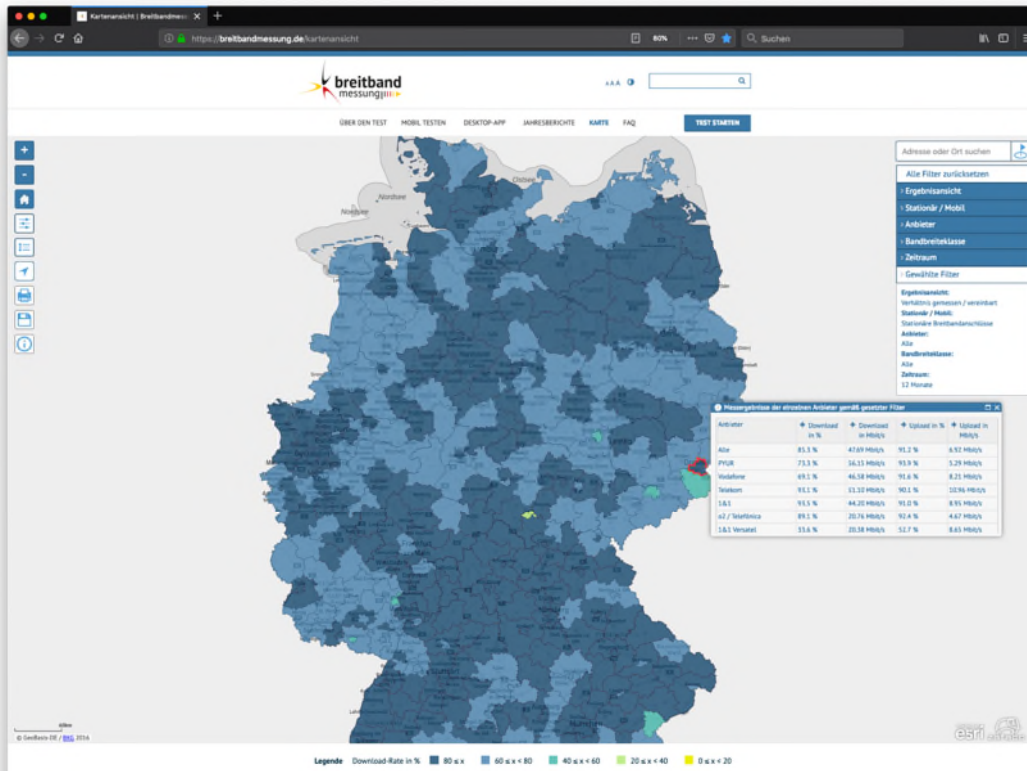
3.3 Supervision and enforcement – Article 5

Article 5(1) subpara 1 Regulation (EU) 2015/2120

National regulatory authorities shall closely monitor and ensure compliance with Articles 3 and 4, and shall promote the continued availability of non-discriminatory internet access services at levels of quality that reflect advances in technology. For those purposes, national regulatory authorities may impose requirements concerning technical characteristics, minimum quality of service requirements and other appropriate and necessary measures on one or more providers of electronic communications to the public, including providers of internet access services.

Broadband speed checker

62. The Bundesnetzagentur provides a monitoring mechanism, the "Breitbandmessung" broadband speed checker, which allows consumers to monitor the quality and performance of their broadband internet access. A browser-based test or an installable version (desktop app) can be used for fixed-line broadband and an app-based one (Android and iOS) for mobile connections. The measurement process used in the actual testing is technically identical for both fixed and mobile connections. The test measures the data transmission rate in both the download and upload directions. The measurement result is presented as an absolute value and as a relative value for the contractually agreed speed. Thus, the broadband speed checker allows the data transmission rate actually measured of a broadband connection to be compared with the maximum data transmission rate contractually agreed. In addition, the delay and packet loss parameters are measured. However, only the time delay is presented to the end-user.
63. The broadband speed checker is used to collect test samples via crowdsourcing. The results are presented in an annual broadband speed test report. The fourth annual report was published on 8 April 2020.
64. Furthermore, the end-user can see in a map view the data transmission rates measured in specific regions; these are displayed as NUTS-3 clusters and as grid cells. Whereas the annual report on the broadband speed tests is for a fixed time period, the maps are updated daily and show the results of the previous 6, 12 and 24 months, as well as for the entire period from the start of the tests.

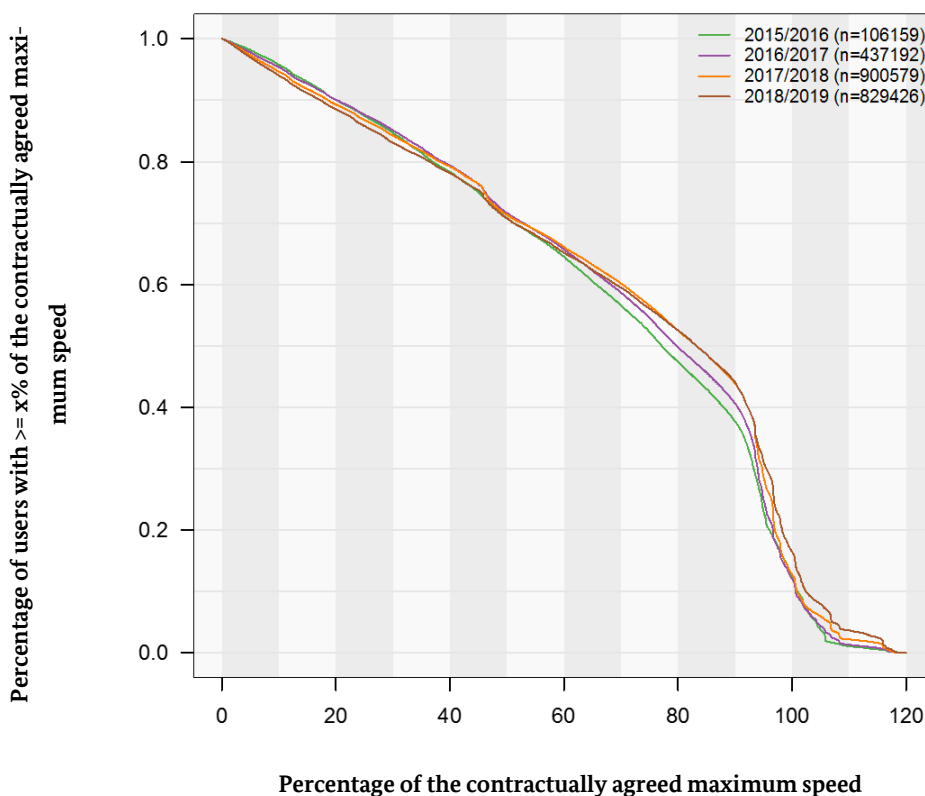


Example of map displaying aggregate results for the NUTS-3 level

65. It is important to note that the results obtained using the broadband speed checker depend on the end-user that is performing the test and the tariff that they have agreed with their provider. It is therefore not possible to draw conclusions from the results about broadband coverage or the availability of broadband internet access.
66. For the purposes of the speed tests, a drop-down list of providers' tariffs is drawn up using the tariff data reported by the telecommunications companies. The users then select their individual tariff from the drop-down list before carrying out their tests.
67. The test sample is validated in an extensive process. In particular, any possible cause of measurement errors due to the end-user's environment is excluded as far as possible by using both technical information and information provided by the end-user. More precisely, where end-users state that tests have been carried out in a suboptimal environment (in particular via WLAN or with parallel data traffic), these tests are excluded. Tests using the app also include technical data that allow the identification of tests carried out via WLAN; these tests are also excluded.
68. Furthermore, multiple tests carried out on any fixed broadband connection are excluded for statistical reasons. Only one test per line and quarter is used for the report. Multiple tests on mobile broadband connections are kept in the sample due to the fact that even a minimal change in location may produce a completely different result.

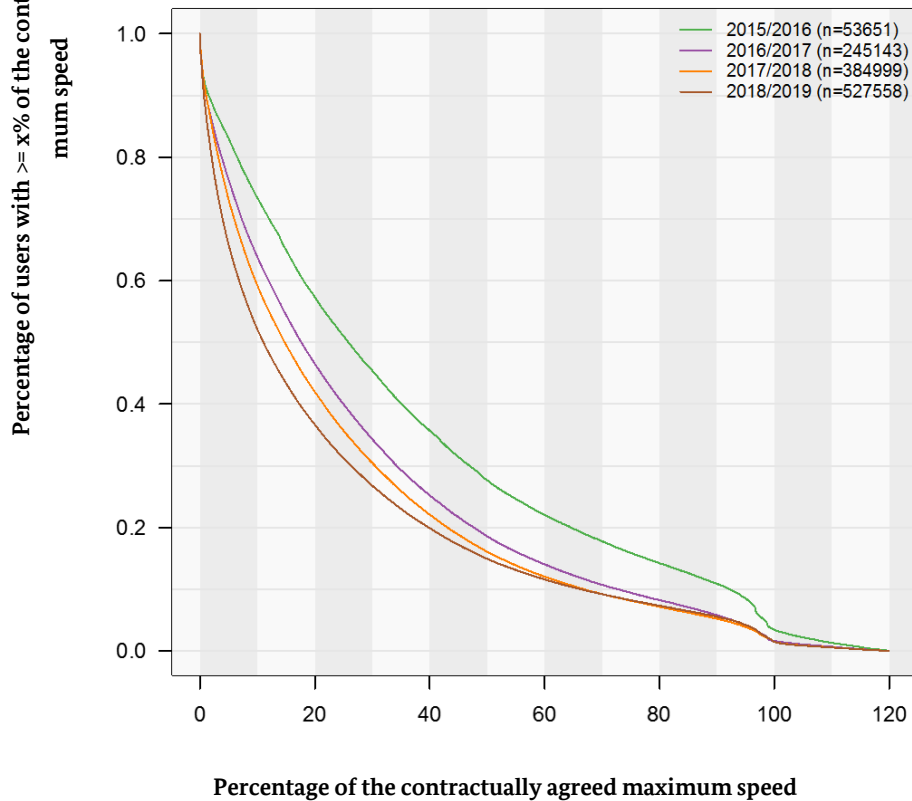
Main findings

- 69. The tests covered in the fourth annual report were carried out in the period from 1 October 2018 to 30 September 2019. The report covers a total of 829,426 valid tests on fixed broadband connections and 527,558 valid tests on mobile broadband connections.
- 70. Fixed broadband lines: The proportion of users across all bandwidth categories and providers whose fixed broadband connection had a download speed at least half their contractually agreed maximum speed was 70.1% (2017/2018: 71.3%); the proportion of users whose connection had a speed equivalent to or higher than their contractually agreed maximum speed was 16.4% (2017/2018: 12.0%).
- 71. The results were again mixed as regards bandwidth categories, providers and the time of day. Based on the speeds measured as a percentage of the contractually agreed speeds, upload performance was again generally better than download performance, although the results were poorer than in previous years. There was another improvement in providers' latency times. Lower latency times were again recorded in higher bandwidth categories.



- 72. In the 2018/2019 period, most end-users were again satisfied with the performance of their providers (rating of 1 to 3 on a scale of 1 to 6, with 1 being the highest), although the percentage of satisfied users decreased slightly again to 61.4% (2017/2018: 62.0%). Users were asked to rate their satisfaction before carrying out the speed tests. As in the previous twelve-month period, it emerged that the actual speeds measured by satisfied users were closer to their contractually agreed maximum speeds.

73. Mobile broadband connections: As in the previous twelve-month period, mobile broadband performance was considerably lower than fixed-line broadband. The proportion of users across all bandwidth categories and providers whose connection had a download speed at least half their contractually agreed estimated maximum speed was 14.9% (2017/2018: 16.1%); the proportion of users whose connection had a speed equivalent to or higher than their contractually agreed estimated maximum speed was 1.5%, the same as in the previous period.



74. Again, the results differ with respect to bandwidth categories and providers. Based on the speeds measured as a percentage of the contractually agreed estimated maximum speeds, upload performance was similar to download performance. The latency measured on mobile broadband connections was noticeably higher than on fixed broadband connections, although the positive trend of previous years of lower latency times continued.

75. The large majority of end-users (74.3%) once again gave their providers a rating of 1 to 3. This is virtually the same as in the previous 12-month period (2017/2018: 74.7%). Users were asked to rate their satisfaction before carrying out the speed tests. The mobile broadband speeds measured as a percentage of the contractually agreed speeds were again low. This suggests that mobile broadband users still tend to rate mobility and performance rather than whether or not they actually receive their advertised speeds.

Enforcement measures

76. It was not necessary to issue a decision to enforce Article 3 or Article 4 during the reporting period. In many cases, providers of internet access services have voluntarily ceased infringements of the net neutrality provisions whereas in others no infringement was detected. Some processes that were instigated in the reporting period are still pending.

Report in accordance with section 43a(3) sentence 3 para 3 TKG

77. With respect to discrepancies in service quality, especially regarding broadband speeds, the Bundesnetzagentur publishes an annual report in accordance with section 43a(3) sentence 3 para 3 TKG on its monitoring and findings that presents, in particular, the extent to which the requirements and measures under Article 5(1) subparagraph 1 sentence 2 of the Regulation are necessary and effective.

78. The Bundesnetzagentur did not implement any measures with respect to Article 4(1) during the reporting period.

4 Penalties – Article 6

Article 6 Regulation (EU) 2015/2120

Member States shall lay down the rules on penalties applicable to infringements of Articles 3, 4 and 5 and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive. Member States shall notify the Commission of those rules and measures by 30 April 2016 and shall notify the Commission without delay of any subsequent amendment affecting them.

79. Infringements of Article 3 or Article 4 can be penalised by a fine in the following cases:

- traffic management measures that are not permitted under Article 3(3) subparagraph 3 sentence 1: fines of up to €500,000;
- infringements of transparency measures pursuant to Article 4(1) sentence 1: fines of up to € 100,000;
- infringement of an enforceable order of the Bundesnetzagentur: fines of up to €500,000. This may be imposed for any case of infringement of the net neutrality provisions of the Regulation (for example unlawful zero-rating offers or traffic management measures, or insufficient contractual information);
- failure to comply with information required under Article 5(2): fines of up to €10,000.

80. Moreover, fines of up to €500,000 can be imposed if a provider of internet access services does not comply with an official order (see section 126 TKG).
81. A fine imposed in regulatory offence proceedings serves as a penalty, whereas a fine imposed in administrative proceedings serves to encourage the addressee to comply with an official order.

5 Activities of the Bundesnetzagentur in response to the Covid-19 crisis

82. School closures and home working due to the Covid-19 pandemic led to an increased use of the telecommunications networks in Germany for telephone calls, video conferences and, above all, for data-intensive streaming services. The Bundesnetzagentur has therefore been working closely with representatives from across the telecoms industry (network operators and associations) to identify any impending network congestion at an early stage and to find constructive solutions to avert it.
83. In its report on the utilisation of the telecommunications networks⁴ of 25 March 2020, the Bundesnetzagentur found that there had not been any indication of the networks in Germany becoming overloaded as a result of the Covid-19 pandemic at that time. Technical problems experienced by internet users were frequently due primarily to causes outside the network (eg insufficient server capacity for working from home internet access capabilities).
84. Nevertheless, as preparation for any potential overload, the Bundesnetzagentur drew up guidelines for the telecoms sector with solutions and measures for permissible traffic management ("Guidelines on traffic management measures/other measures in the event of networks being overloaded"⁵ on 25 March 2020). The guidelines indicate that it is allowed, for example, to throttle data-intensive services in a data traffic category, such as streaming services, if needed. It is also possible and permissible under the EU net neutrality Regulation to reduce the bandwidth of tariffs, provided that this is done for all services equally within the tariff. However, such measures have not been necessary.

⁴ https://www.bmwi.de/Redaktion/DE/Downloads/B/bericht-zur-auslastung-der-telekommunikationsnetze.pdf?__blob=publicationFile&v=8

⁵ https://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Sachgebiete/Telekommunikation/Unternehmen_Institutionen/Netzneutralitaet/Corona/LeitfadenVerkehrsmanagementmassnahmen.pdf;jsessionid=F0993ABA5038B120C69137E59DB28630?__blob=publicationFile&v=3

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