



Bundesnetzagentur

Net Neutrality in Germany Annual Report 2016/2017



Net Neutrality in Germany

Annual Report 2016/2017

Report of the Bundesnetzagentur to the European Commission and BEREC
pursuant to Art. 5 (1) Regulation (EU) 2015/2120
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Courtesy translation

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Contents

- I. Introduction..... 6
- II. Supervision and enforcement of Regulation (EU) 2015/2120 on open internet access 7
- III. Activities in order to implement the regulation (EU) 2015/2120 and findings of monitoring..... 8
 - 1. Safeguarding of the open internet – Art. 3 8
 - 1.1. Agreements and commercial practice - Art. 3 (1) and (2) 8
 - 1.2. Traffic management - Art. 3 (3)..... 10
 - 1.3. Data protection and privacy obligations - Art. 3 (4)..... 11
 - 1.4. Services other than internet access services (specialised services) – Art. 3 (5) 12
 - 2. Transparency measures – Art. 4..... 13
 - 2.1 Contractual design - Art. 4 (1) 13
 - 2.2 Complaints procedure - Art. 4 (2) VO (EU) 2015/2120 14
 - 2.3 Monitoring mechanism - Art. 4 (4)..... 15
 - 2.4 Additional legislative measures – Art. 4 (3) 16
 - 3. Supervision and enforcement – Art. 5 17
 - 4. Penalties – Art. 6 21

I. Introduction

1. Regulation (EU) 2015/2120 on open internet access¹ aims to establish common rules to safeguard equal and non-discriminatory treatment of 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. According to Art. 5 (1), national regulatory authorities shall publish reports on an annual basis regarding their monitoring and findings, and provide those reports to the Commission and to BEREC.
3. BEREC published "Guidelines on the Implementation by National Regulators of European Net Neutrality Rules" on 30 August 2016 in accordance with Art. 5 (3).³ These Guidelines are designed to provide guidance on the implementation of the obligations of national regulatory authorities and contribute to the consistent application of the Regulation.
4. According to the BEREC Guidelines (paragraph 182), NRAs should publish their annual reports by 30th June for the periods starting from 1 May to 30 April. The first report is to be provided by 30 June 2017, covering the period from 30 April 2016 to 30 April 2017 (the first 12 months following application of the provisions).
5. By issuing this annual report, the Bundesnetzagentur fulfills its reporting obligation concerning their monitoring and findings covering the first year of the Regulation's application.
6. This report focuses on the following issues: safeguarding open internet access (Art. 3), transparency measures (Art. 4), supervision and enforcement (Art. 5) as well as penalties (Art. 6).
7. The report covers major activities of the Bundesnetzagentur related to the following issues:
 - checking of the general terms and conditions of major providers of internet access services (Art. 3 and Art. 4; see paragraphs 13, 16);
 - consumer complaints particularly with regard to traffic management (Art. 3 (3) ; see paragraphs 23-26) and poor data transmission rates (Art. 4 (1) in conjunction with Art. 4 (4); see paragraphs 33-34) and

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, OJ 2015, L 310/1. All articles without a designation are those of Regulation (EU) 2015/2120.

² Cf. recital 1 of the Regulation.

³ http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules

- adoption of a notice specifying the terms “significant discrepancy, continuous or regulatory recurring” with regard to speed parameters of Art. 4 (4) (see paragraphs 41-45);
- operation of a quality monitoring mechanism (Sec. 43a (3) Telecommunications Act as well as Art. 5 (1) ; see paragraphs 52-64).

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

Competencies

8. In Germany, the Bundesnetzagentur is responsible for enforcing the net neutrality rules of Regulation (EU) 2015/2120.
9. Depending on the specific question, it may consult other authorities (eg. Bundeskartellamt (Federal Cartel Office), Landesmedienanstalten (State Media Authorities), der Bundesbeauftragten für den Datenschutz und die Informationsfreiheit (BfDI - Data Protection Authority). Data protection is a common competence of the Bundesnetzagentur and the BfDI (see section III.3.1.)

Supervision and enforcement methods

10. According to Art. 5 (1) the Bundesnetzagentur shall closely monitor and ensure compliance with Articles 3 and 4. The Bundesnetzagentur is responsible *ex officio* for the enforcement of Regulation (EU) 2015/2120. Main sources of information are complaints, information from public media and other sources (e.g. information from other authorities or from internet service providers which are notifying the Bundesnetzagentur about a specific business model).
11. In many instances, the Bundesnetzagentur acts in reaction to a complaint (complaint-based approach). By doing so, the Bundesnetzagentur supports the complainant if his quest is justified. At the same time, this approach allows identifying major issues from the end-user perspective and adopting adequate measures vis-à-vis the respective provider if an infringement is of larger scale.
12. In addition, the Bundesnetzagentur takes into account other information (e.g. from public media or the internet) regarding possible infringements of the Regulation (EU) 2015/2120.
13. During the reporting period, the Bundesnetzagentur on its own initiative checked whether the general terms and conditions of major internet access service providers available on the internet at this point of time contained obvious violations infringing the provisions of the (EU) 2015/2120. Providers have to make a self-assessment with the compliance of their terms and conditions with the net neutrality rules and have to adapt their contracts if necessary. There is no requirements to notify the terms and conditions to the Bundesnetzagentur. Notwithstanding this, the Agency may intervene if it identifies deficiencies in the contracts regarding internet access service. In order to communicate its

approach concerning compliance with the transparency obligations to the industry, the Bundesnetzagentur held a stakeholder event and several bilateral meetings with major providers of internet access services. With regard to the results of the investigation, reference is made to section 1.1 with regard to infringements of Article 3(1), (2). This investigation by the Bundesnetzagentur does not constitute a comprehensive assessment of the terms and conditions and does not relieve the providers of their duty to adhere to the provision of the Regulation at any time.

III. Activities in order to implement the regulation (EU) 2015/2120 and findings of monitoring

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

1. Safeguarding of the open internet – Art. 3

1.1. Agreements and commercial practice - Art. 3 (1) and (2)

Art. 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.

15. During the reporting period, several of the Bundesnetzagentur's investigations concerned Art. 3 (1) and (2), namely the contractual exclusion of certain applications as well as zero rating offers:

Prohibition of Voice over IP, messaging, peer-to-peer applications

16. As set out above (cf. paragraph 13), the Bundesnetzagentur looked into the general terms and conditions of major internet service providers for obvious violations of the Regulation (EU) 2015/2120. In particular the following infringements were identified (see BEREC Guidelines, paragraph 17):

- Prohibition to use voice over IP (VoIP);
- Prohibition to use instant messaging;
- Prohibition to use peer-to-peer applications.

Following bilateral meetings with the Bundesnetzagentur the respective providers have amended their general terms and conditions accordingly with regard to these issues.

Zero Rating

17. During the reporting period, there were two major zero rating offers on the German market. Both of them were offered by Deutsche Telekom, namely zero rating of Spotify and the tariff option "StreamOn".

Deutsche Telekom: Spotify

18. In the original Spotify zero rating offer Deutsche Telekom throttled all data traffic except Spotify consumption once the data cap was reached. Already on 28 April 2016, Deutsche Telekom had changed the conditions for this offer so that also Spotify consumption was throttled once the data cap was reached. According to Deutsche Telekom's own statement, this step was motivated by the entry into force of Regulation (EU) 2015/2120.⁴ On 2 August 2016, Deutsche Telekom stopped its zero rating of Spotify for new customers. Deutsche Telekom stated in its blog that this decision was motivated by economic considerations.⁵

Deutsche Telekom: "StreamOn"

19. In April 2017, the Bundesnetzagentur started looking into Deutsche Telekom's tariff option „StreamOn“ on the basis of Regulation (EU) 2015/2120. The proceedings were not closed by April 30, 2017.
20. The tariff option „StreamOn“ is a zero rating offer which can be added for free to the tariffs MagentaMobil M, L and MagentaEins. The data consumption for audio and/or video streaming of partner content is not counted towards the respective data cap. The tariff option is offered as of 19 April 2017. For the respective tariffs the following applies:
- In tariff M, StreamOn Music – i.e. zero rating of audio streaming of partner content – can be added.
 - In tariff L, StreamOn Music & Video – i.e. zero rating of audio and video streaming of partner content – can be added. In tariff L, the available bandwidth is reduced: For video streams both of partner and non-partner content, the bandwidth is throttled to a maximum of 1.7 Mbit/s. This leads to a resolution of 480p which means that videos cannot be displayed in HD quality. StreamOn customers have the possibility to turn off the bandwidth reduction for up to 24 hours at any time if they want to watch a video in HD quality. In this case, the data consumption is counted towards the data cap, i.e. there is no zero rating.
 - In tariff MagentaEins, the customer can add StreamOn Music & Video Max – i.e. zero rating of audio and video streaming of partner content. Videos can be streamed in HD quality; the bandwidth reduction is not implemented in this tariff.
21. Only the audio and video streams of content partners are zero rated. In principle, the participation in "StreamOn" is open to any audio and video content provider. However, the

⁴ <https://telekomhilft.telekom.de/t5/Blog/Anderungen-bei-quot-Music-Streaming-quot/ba-p/1792545>

⁵ <https://telekomhilft.telekom.de/t5/Blog/Wichtige-Information-zur-Option-Music-Streaming-fuer-Neukunden/ba-p/2034561>

content provider has to conclude a contract with Deutsche Telekom and to fulfill the conditions set out in the general terms and conditions for content providers⁶.

22. Upon conclusion of the assessment, the Bundesnetzagentur will decide whether the offer complies with Regulation (EU) 2015/2120 and if not, which measures need to be taken. The Bundesnetzagentur has given opportunity to Deutsche Telekom but also to various market players, associations and institutions to comment, i.a. state media authorities, federal cartel office, the Federation of German consumer associations as well as content providers and internet service providers.

1.2. Traffic management - Art. 3 (3)

Art. 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.

23. During the reporting period the Bundesnetzagentur has initiated various investigations regarding possible violations of Art. 3 (3). These procedures are mainly initiated by complaints from end-users, in some instances also by media requests.

⁶ Available in German: <https://www.telekom.de/hilfe/mobilfunk-mobiles-internet/mobiles-internet-e-mail/streamon/allgemeine-geschaeftsbedingungen.pdf?samChecked=true>.

24. Some requests or complaints related to the blocking of certain web-pages. After intervention of the Bundesnetzagentur informing the providers of internet access services that blocking of web-pages is forbidden under the Art. 3 (3) of the Regulation, this issue did not occur anymore according to the Bundesnetzagentur's knowledge. The Bundesnetzagentur did not receive further complaints in that regard from the parties concerned.
25. In one instance, the Bundesnetzagentur assessed an provider's port-blocking practice. This provider blocked ports udp 67/DHCP; udp 69/TFTP; udp/tcp 135-139 und tcp 445 in order to preserve the security of the network and of terminal equipment of end-users. The proceedings were not formally closed by April 30, 2017. The Bundesnetzagentur considers the described port blocking to be compatible with Art. 3 (3) subparagraph 3 lit. b. However, it intends to request the Internet service providers to clearly communicate their practice in their general terms and conditions and amend them accordingly in order to comply with the transparency obligation according to Art. 4 (1) lit. a. At the same time the Bundesnetzagentur communicated its view on port blocking and the required information in the general terms and conditions (provided that the respective port blocking is lawful) to the industry. The assessment was not yet terminated by April 30, 2017.
26. After a media request, the Bundesnetzagentur looked into the traffic management regime of a provider of internet access services and found that one traffic category unlawfully discriminates certain applications and services. Following intervention by the Bundesnetzagentur, the provider intends to introduce reasonable traffic management, comprising different categories of traffic with different levels of prioritization and to amend its general terms and conditions accordingly. The traffic management measure is applied during periods of high traffic load at the affected networks nodes and network segments only. The exact design is not finally determined yet. The assessment was not yet terminated on 30 April 2017.
27. Telekom's offer "StreamOn" (cf. paragraph 19-22) also involves traffic management measures (the bandwidth reduction to a maximum of 1.7 Mbit/s). These measures will be assessed under Art. 3 (3).

1.3.Data protection and privacy obligations - Art. 3 (4)

Art. 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 (10). Traffic management measures shall also comply with Directive 2002/58/EC of the European Parliament and of the Council.

28. In Germany both, the Data Protection Authority (BfDi) and the Bundesnetzagentur are responsible for monitoring the data protection obligations for telecommunications services. These two authorities share the supervisory competence.

29. The Bundesnetzagentur supervises the confidentiality of electronic communication. The BfDI takes care of general data protection issues. Although each authority works independently, only the Bundesnetzagentur is an authority which is able to enforce data protection obligations for providers of internet access services.
30. Whenever the BfDI notices any breach of data protection rules, it can inform the Bundesnetzagentur which in turn can enforce the data protection obligations by an administrative procedure. Also with regard to the obligations of data breach notifications regarding Art. 4 (3) ePrivacy directive⁷ a formal cooperation process has been implemented between the Bundesnetzagentur und the BfDI, i.e. the two authorities inform each other whenever they receive a data breach notification of a provider of internet access services. It has to be mentioned that the rules of the General Data Protection Regulation and the future E-Privacy Regulation will likely cause changes for the data protection supervision in Germany.
31. In cases terminated during the reporting period, no breaches of data protection were brought to the attention of Bundesnetzagentur.

1.4.Services other than internet access services (specialised services) – Art. 3 (5)

Art. 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.

32. No complaints regarding specialised services were addressed to the Bundesnetzagentur.

⁷ Directive on privacy and electronic communications Directive 2002/58/EC as amended by Directives 2006/24/EC and 2009/136/EC, see for a consolidated version <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2002L0058:20091219:EN:PDF>

2. Transparency measures – Art. 4

2.1 Contractual design - Art. 4 (1)

Art. 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.

33. With regard to the transparency measures according to Art. 4 (1), complaints addressed to the Bundesnetzagentur particularly concerned the discrepancy between the actual performance and the contractually agreed download speed as set out in Art. 4 (1) lit. d . Whereas the vast majority of these complaints concerned fixed networks only a few of them related to mobile networks. Cases involving transparency measures relating to traffic management are addressed in paragraphs 25 and 26. Concerning the transparency requirements of Art. 4 (1) lit. b, lit. c and lit. e no complaints were addressed to Bundesnetzagentur during the reporting period.
34. The Bundesnetzagentur dealt with these complaints following the complaints procedure (see 2.2) and taking into account the Bundesnetzagentur's draft administrative notice specifying the undefined legal terms found in Article 4 (4) ("significant discrepancy,

continuous or regularly recurring, [...] regarding speed") since April 2017 and, by July 2017, the final notice (see section 2.3).

2.2 Complaints procedure - Art. 4 (2) VO (EU) 2015/2120

Art. 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.

35. The consumer service of the Bundesnetzagentur has developed a standard for a complaint procedure and explained the process to the industry. This applies in particular to the formal requirements for a complaint in case the contractually agreed speeds are not achieved. Internet access service providers were asked to name a contact person so that Bundesnetzagentur is able to deal with consumers complaints related to Art. 4 of the Regulation 2015/2120 in particular with regard to the speed of the IAS as well as questions and complaints concerning contractual transparency. Most internet access service providers have established such a contact person.
36. The Bundesnetzagentur directs end-user complaints where no solution can be found between the end-user and the provider to the provider. In order to only transfer substantiated complaints, the Bundesnetzagentur asks the consumers to measure the speed of his internet access service using the measurement tool 'Breitbandmessung' provided by the NRA and to measure at least twenty times. So far only few consumers have fulfilled these requirements. Furthermore, it is possible to request a dispute settlement procedure at the NRA. The Bundesnetzagentur cannot force the provider to terminate the contract early or to compensate the consumer, but it monitors carefully every solution offered by the provider.
37. Remedies regarding consumer claims for compensation are laid down in general civil law. No specific additional remedies for consumer redress have been introduced with regard to net neutrality.

Number of complaints

38. The Bundesnetzagentur is monitoring the number of end-user complaints concerning the speed of the IAS. In the years 2015 and 2016 the Bundesnetzagentur received between 150 and 300 complaints per year. It is however difficult to assess the complaints statistically since in most of the consumer complaints problems are mixed up or several problems are addressed at the same time.
39. Since the Bundesnetzagentur started its public consultation on the draft administrative notice specifying the undefined legal terms "significant discrepancy, continuous or regularly

recurring” in Article 4 (4) (see section 2.3) the number of complaints and requests has increased substantially.

2.3 Monitoring mechanism - Art. 4 (4)

Art. 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.

40. In its Guidelines BEREC clarified that a monitoring mechanism provided by a national regulatory authority and implemented for the purpose of Art. 4 (4) should be considered a certified monitoring mechanism (cf. BEREC Guidelines, paragraph 161). Thus, the Bundesnetzagentur considers its monitoring mechanism ‘Breitbandmessung’ to be such a certified monitoring mechanism. More information on the Bundesnetzagentur’s monitoring mechanism can be found in paragraphs 52-64.

Administrative notice specifying undefined terms of Art. 4 (4)

41. During the reporting period, the Bundesnetzagentur started a consultation regarding an administrative notice specifying the undefined legal terms set out in Article 4 (4) ("significant discrepancy, continuous or regularly recurring, [...] regarding speed"). The final notice was adopted on 4 July 2017 following the reporting period.

42. The notice applies to download rates of fixed broadband lines and is intended to make these above mentioned legal terms more manageable for end-users vis-à-vis their providers. The overall aim is to hold providers accountable for the speeds indicated in their contracts as well as for the advertised speed.

43. The notice firstly relates to the substance of the undefined legal terms used in Article 4(4), and, secondly, lays down requirements for the verification process using the Bundesnetzagentur’s monitoring mechanism ‘Breitbandmessung’.

44. In the Bundesnetzagentur's view, a significant discrepancy, continuous or regularly recurring, in download speeds of fixed broadband lines within the meaning of Article 4(4) is deemed to exist if

1. 90% of the contractually agreed maximum speed is not achieved at least once at each of at least two measurement days, or
 2. the normally available speed is not achieved in 90% of the measurements, or
 3. the speed falls below the contractually agreed minimum speed at each of the two measurement days.
45. 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-conformity of performance.
46. The Bundesnetzagentur deems necessary the following requirements regarding the scope and type of measurements for the verification process using the broadband monitoring mechanism (see paragraph 40):
1. At least 20 measurements must be carried out.
 2. The measurements must be carried out on at least two separate days.
 3. The number of measurements should be spread equally over the two days, so that at least 10 measurements are carried out on a specific day.
 4. The measurements must be carried out using a LAN connection.
 5. The measurements are to be carried out using the installable version of Bundesnetzagentur's broadband monitoring mechanism 'Breitbandmessung'.

In addition, the Bundesnetzagentur's recommendations for the performance of measurements are to be observed.

47. In July 2017 the Bundesnetzagentur will hold a stakeholder-workshop on the installable version foreseen. In particular, the requirements for such an installable version as well as the parameters to be included shall be discussed. Besides this, the recommendations envisaged by the Bundesnetzagentur will be addressed.

2.4 Additional legislative measures – Art. 4 (3)

Art. 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.

48. At national level, additional transparency requirements were adopted. They are set out in the ordinance on the promotion of transparency in the telecommunications market ("transparency ordinance"). It stipulates publication of information and additional facilities for cost monitoring on the telecommunications market.

49. The transparency ordinance has entered into force on 1 June 2017. It obliges fixed and mobile providers to provide more transparency when offering internet access services.
50. Internet access service providers are obliged to provide product information sheets, allowing the consumer to see the essential contractual provisions in a quick and easy manner before concluding the contract. The product information sheet contains details of the data transmission rates available, the duration of the contract as well as the monthly costs. Customers are also informed about the contractually agreed data volume where applicable.⁸
51. Furthermore, consumers are entitled to reliable measurement results with regard to the quality of their internet access service, in particular with regard to the data transmission rate achievable as well as the percentage of the achieved speed in relation to the contractually agreed maximum speed in a format specified in an Annex to the ordinance. The Internet access service provider must therefore inform consumers about possible ways to test the speed, for instance by referring them to the measuring tool offered by the Bundesnetzagentur at <https://breitbandmessung.de>.

3. Supervision and enforcement – Art. 5

Art. 5 (1)1st subparagraph Regulation (EU) 2015/2120

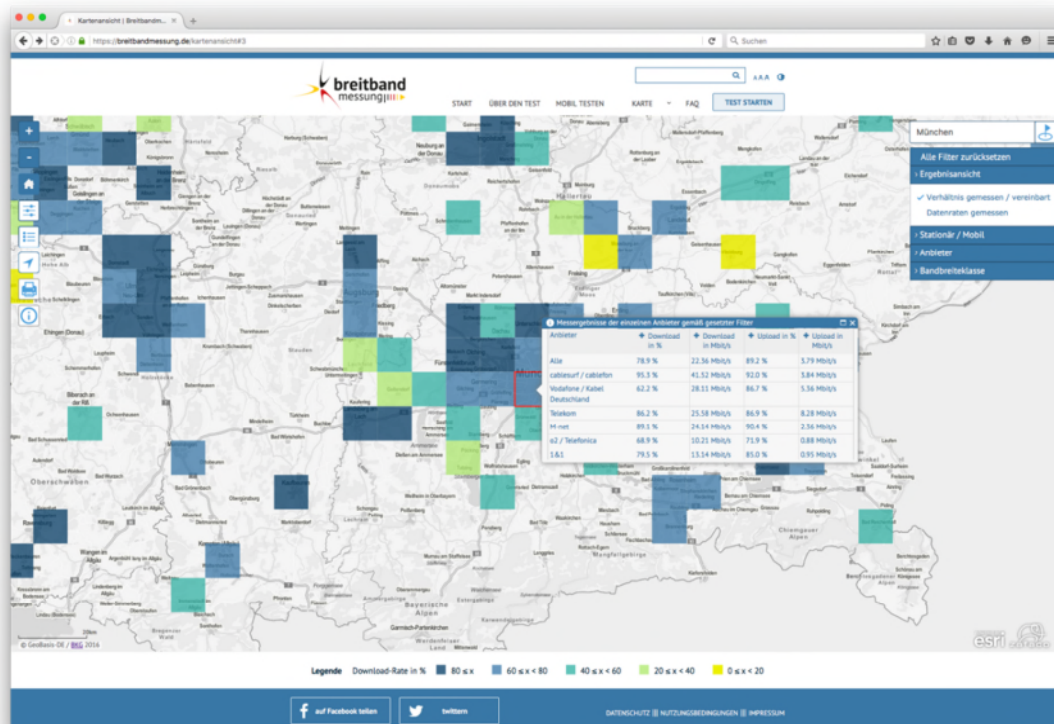
National regulatory authorities shall closely monitor and ensure compliance with Articles 3 and 4, and shall promote the continued availability of non-discriminatory internet access services at levels of quality that reflect advances in technology. For those purposes, national regulatory authorities 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.

Quality monitoring mechanism

52. The Bundesnetzagentur provides a monitoring mechanism called ‘Breitbandmessung’ allowing consumers to monitor the quality and performance of their broadband internet access service. For fixed broadband lines it is a browser-based test and for mobile lines an app (Android and iOS) is used. The technical measurement process used in the actual testing (measuring procedure) is identical for both fixed and mobile lines. The test measures the data transmission rate both in download and upload direction. The measurement result is presented as an absolute value as well as a relative value referring to the contractually agreed maximum speed. Thus, the monitoring mechanism allows to compare the data transmission rate of the respective broadband access as actually measured with the contractually agreed maximum data transmission rate. Additionally the parameters delay and packet loss are measured. However, only the delay value is presented to the end-user.

⁸ Template of the information sheet: www.bundesnetzagentur.de/tk-transparenzverordnung

53. The monitoring mechanism is used to gather measurement samples via crowdsourcing. The results are presented in annual reports. The first annual report was published on 27 March 2017.
54. Besides this, a map view, displaying measurement results using NUTS-3-Clusters and grid cells, allows the end-user to get an impression of the data transmission rates measured in specific regions. While the annual report covers fixed time periods the maps are updated daily and display results for the last 6 and 12 months as well as for an overall time period since the beginning of the broadband measurement.



Example of the map displaying aggregate results

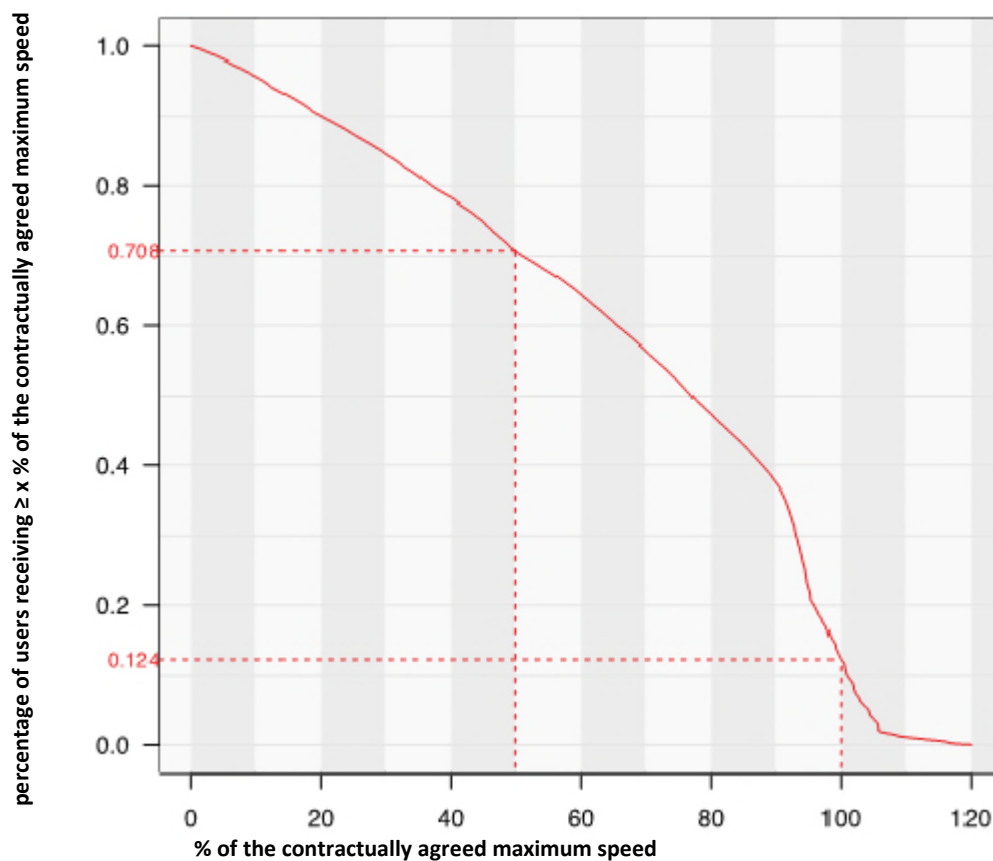
55. It is important to note that the measurement sample depends on who performs the speed test as well as on the tariff agreed between him and his provider. As such, the broadband measurement test does not provide a basis for making statements regarding the level of coverage or availability of broadband Internet access services.
56. The measurement sample is validated in an extensive process. In particular, possible sources of errors stemming from the end-users' environment are excluded as far as possible by using both technical information and information provided by end-users. More precisely, where end-users state that measurements of fixed broadband lines are taken in a suboptimal testing environment (in particular WLAN measurements and measurements with parallel data traffic), these measurements are excluded. Measurements carried out using the app include technical data that allow the identification of measurements taken over WLAN; these are also excluded.

57. Furthermore, multiple measurements taken on any fixed broadband line are excluded for statistical reasons. Only the last measurement per line and quarter is used for the report. Multiple measurements of mobile broadband connections are kept in the sample due to the fact that even a minimal change in location may generate a completely different result.

Main findings

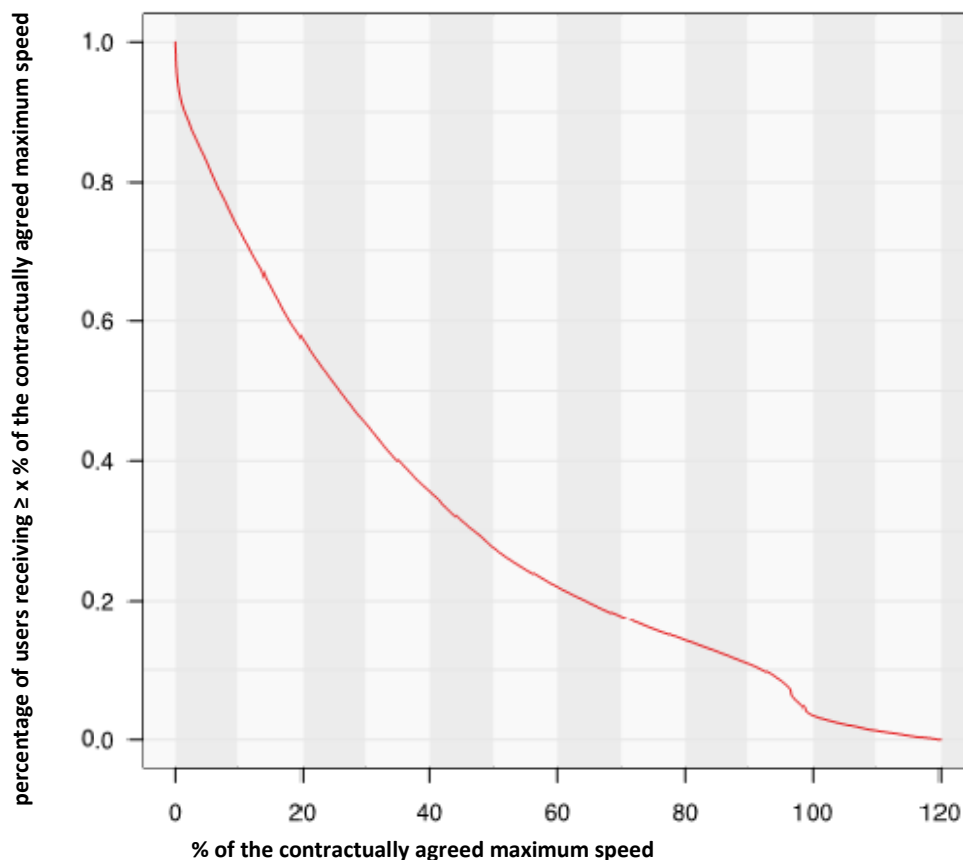
58. The measurements covered in the first annual report were taken between 25 September 2015 and 25 September 2016. For fixed broadband lines a total of 106,159 valid measurements were used while 53,651 were used for mobile broadband connections.

59. Fixed broadband lines: 70.8% of users across all bandwidth classes and providers received measured at least half of the maximum download data transmission rates agreed in their contracts, while for 12.4% of users, the maximum download rates were fully achieved or exceeded.



60. Thus, end customers often did not receive the contractually agreed maximum data transmission rates. The results differ with respect to bandwidth classes, providers and daytime. The general level of the percentage ratio between the measured upload data transmission rates and the contractually agreed rates was higher than the corresponding level attained for downloads. Across all bandwidth classes and providers about 80% of users reached latencies of 40ms or less than 40ms. The lowest latencies were measured in the top two bandwidth classes.

61. Most customers were satisfied with the performance of their provider (rating of 1 to 3 out of 6). This share accounted for 65.4%. Customers were asked to rate their satisfaction prior to taking the measurement. It turned out that end customers who are satisfied with their provider attained a better ratio of data transmission rates measured to contractually agreed maximum data transmission rates.
62. Mobile broadband connections: For download, the overall level of measurement results for mobile broadband connections was much below the results for fixed broadband lines. While just over 70% of users reached download speeds of 50% or higher of the contractually agreed data transmission rates on their fixed broadband lines, less than 30% of users achieved the same level using mobile broadband connections.



63. Again, results differ in particular with respect to bandwidth classes, providers and daytime. The level of the ratio between the measured upload data transmission rates and the contractually agreed rates was similar to the level of the ratio reached for download rates. Latencies for mobile broadband connections were generally higher than over fixed broadband lines. Latencies of 40ms or lower were reached for a single-digit percentage of mobile broadband users only.
64. The large majority of end customers (82.8%) rated their providers between 1 and 3 (out of 6). Customers were asked to rate their satisfaction prior to taking the measurement. The percentage ratio between the measured data transmission rates and the contractually agreed maximum data transmission rates was low for mobile broadband connections in the

broadband measurement 'Breitbandmessung'. This suggests that in case of mobile broadband access, users consider mobility and available performance to be more important than delivery of advertised data transmission rates.

Enforcement measures

65. During the reporting period, no binding decision enforcing Art. 3 and/or Art. 4 was taken. Some proceedings initiated during the reporting period are still pending. In other cases providers of internet access services stopped infringements of the net neutrality rules of Regulation (EU) 2015/2120 on a voluntary basis. In yet other cases no violation was identified. Concerning the assessment of general terms and conditions reference is made to paragraphs 13 and 16.

4. Penalties – Art. 6

Art. 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.

66. The third amending act to the Telecommunications Act – which entered into force on 4 July 2017 – lays down the administrative fines in order to sanction infringements of Art. 3 and Art. 4 in case of
- traffic management measures which are not permissible according to Art. 3 (3) subparagraph 3, 1. sentence: Administrative fines of up to 500,000 €;
 - violation of the transparency measures according to Art. 4 (1) 1. sentence: Administrative fines of up to 100,000 €;
 - violation of an enforceable order of the Bundesnetzagentur: Administrative fines of up to 500,000 €. Possible in case of any violation of the Regulation's net neutrality provisions (this could be e.g. unlawful zero-rating offers or traffic management measures, insufficient contractual information).
 - failure to comply with information requests pursuant to Art. 5 (2): Administrative fine of up to 10,000 €
67. Moreover, the third amending act to the Telecommunications Act provides for effective penalty payments if an internet service provider does not comply with administrative orders regarding the net neutrality rules.