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Report on the implementation of Regulation (EU) 2015/2120 and BEREC Net Neutrality Guidelines

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1 Summary and conclusions

Summary

This report gives an overview of the activities of the NRAs[1] under the implementation of the net neutrality provisions of Regulation (EU) 2015/2120 [2] and associated BEREC Net Neutrality Guidelines. This report reflects the first year of application of the Regulation: 30 April 2016 to 30 April 2017. BEREC has gathered information from 30 NRAs via an internal questionnaire. NRAs also published in national reports on the first year of application of the Regulation. To this information, descriptions of publicly known net neutrality cases or investigations have been added. These cases arose between April 2016 and October 2017. Therefore, this report does not constitute an exhaustive account of the current actions in the field of net neutrality, as several ongoing cases and actions cannot be mentioned due to the confidentiality issues.

The information in this report is organized according to the provisions of the Regulation. This report shows that NRAs have demonstrated an active implementation of the Regulation, while it is still early to come to definite conclusions. For example, on zero rating cases, the majority of the NRAs have undertaken some activity in the first year. A handful of formal decisions were reached. More formal decisions are expected to follow during the remainder of 2017.

Concerning Article 3 of the Regulation regarding end-users' rights to open internet access, the analysis of complaints or end-user reports, information requests to ISPs and market surveys without requesting information from ISPs (e.g. checking ISP's offers on their web pages) were the most mentioned activities among NRAs. All NRAs indicated they were monitoring the commercial and technical conditions related to the provision of internet access services, with the majority combining two or more of surveys, analyses of complaints and information request to ISPs. Zero-rating offers were identified by 25 NRAs, with music and social networking the most frequently mentioned types of applications being zero-rated. Traffic management practices were assessed formally only by a small number of NRAs. According to the NRAs, monitoring activities are going on for investigating so-called "specialized services".

Concerning Article 4 on transparency and contractual terms, most of the NRAs have started with different activities including formal and informal requests for information from the ISPs and market surveys without requesting information from ISPs. End-users' reports and complaints are also a very good source for the NRAs when conducting an assessment. 16 NRAs already prepared national specifications in relation to the different types of speeds information required under Article 4 – maximum, normally available and minimum speed. Even though the Regulation has been in place for more than a year now, there are still

[1] NRA is used in this report as reference to the National Regulatory Authority in the meaning of Article 5(1) of Regulation (EU) 2015/2120 as they have been designated by the national legislator. These do not fully correspond to the NRAs that are BEREC members and observers. See Question 1 below.

2 This report refers as "the Regulation" to the net neutrality rules contained in 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.

countries where ISPs have not yet included speed information in the contracts. A great majority of the NRAs monitor end-user complaints about the performance of the IAS. Half of the NRAs offer an IAS quality monitoring mechanism to consumers.

Concerning Article 5 the answers to the questionnaire indicated that a large majority of NRAs is monitoring the availability of high speed IAS, either by market surveillance without requesting ISPs, by requesting information from ISPs, by conducting IAS speed measurements and/or by analyzing complaints and end-user reporting.

Conclusions

This report shows a consistent treatment by NRAs of practices relating to the core principles of net neutrality, such as the ban on blocking of applications and discriminatory treatment of specific traffic.

The Regulation neither allows nor prohibits certain commercial practices per se. The zero-rating cases mentioned in this report illustrate that it is key to analyze the specifics details of the practice concerned and its circumstances. To this end, BEREC Net Neutrality Guidelines set out a number of criteria against which zero rating needs to be assessed.

Striving for a coherent application of the Regulation, BEREC facilitated the exchange of information and knowledge both at the level of Net Neutrality expert working group and in Plenary meetings during 2017. BEREC will continue this work in 2018.

Overall, BEREC concludes that the Regulation has been implemented by NRAs with adequate coherence. During the first year of the entry into force of the Regulation, the first cases were decided upon by NRAs. At the time of writing of this report, also quite a number of cases is being analyzed by NRAs. BEREC concludes that in analyzing cases, NRAs coordinate and exchange information on ongoing cases via the BEREC Expert Working Group. This is contributing to a coherent application of the Regulation.

BEREC concludes so far that the Net Neutrality Guidelines are well suited to assist NRAs in performing their tasks of supervision and enforcement as set out in Article 5 of the Regulation. As noted above, NRAs are in the process of gathering experience with the first cases, and still need to gather further experiences in order to be able to evaluate the Net Neutrality Guidelines. At the same time, no cases have appeared in which the Net Neutrality Guidelines themselves were insufficient.

BEREC notes that the evaluation of the Regulation (EU) 2015/2120 by the Commission will be conducted by 30 April 2019. Therefore, late 2018 BEREC will provide the Commission with an evaluation report on its experience with the application of the Regulation and the Guidelines.

2 General Questions

Question 1. Which authority or authorities are responsible for enforcing the Regulation (EU) 2015/2120? (If there is more than one authority, please identify the aspects of the Regulation for which each is responsible.)

The majority of the NRAs answered that they are fully responsible for enforcing the Regulation (19: AT, BG, HR, CZ, DK, DE, HU, IS, IE, LU, LT, LV, NO, PT, SK, SI, SE, NL and UK) [3], in other cases NRAs share this responsibility with other authorities: Data Protection Authority for implementation of Article 3.4 in 7 (CY, FI, ET, IT, MT, RO and UK) member states; the Competition and/or Consumer Protection Authority for implementation of Articles 4.1. and 3.4 in two member states, FR and PL, Media regulators for implementation of Article 3.2 in 1 member state (BE) and Consumer Protection Authority for implementation of Articles 4.4. in one member state (RO).

In ES, the Ministry of Energy, Tourism and the Digital Agenda is the main body entrusted with the responsibility of enforcing the Regulation. However, CNMC is in charge of dispute resolution on NN issues between operators and other entities that can benefit from access and interconnection obligations (e.g. CAPs). In DK, the Danish Energy Agency is entrusted with enforcing the Regulation.

The term NRA is used in this report as reference to the National Regulatory Authority in the meaning of Article 5(1) of Regulation (EU) 2015/2120 as they have been designated by the national legislator. These do not fully correspond to the NRAs that are BEREC members and observers, as Spain and Denmark have entrusted net neutrality with other bodies.

Question 2. Which types of activities has your NRA engaged in during 2016/17 in order to implement the Regulation (EU) 2015/2120? Please provide a brief account of:
- internal activities (e.g. preparing new internal procedures, dedicating teams / FTE, etc.):
- external activities (e.g. press-release, meetings with stakeholders or ISPs, drafting national guidelines on enforcement policy, stimulating self-assessment or internal compliance by ISPs, adopting administrative orders/decisions or imposing administrative fines etc.):
- any other actions of note:

A majority of member states (19: AT, HR, CY, CZ, ES, FR, DE, HU, IS, IE, LV, LU MT, PL, PT, SE, SO, SK and NL) reported they had established or reinforced the teams or had allocated specific individuals to handle net neutrality issues. Actions identified by member states included:

- Meetings with stakeholders, vendors and ISPs;
- Analysis of ISPs' implementation of the Regulation (EU) 2015/2120 (e.g. reviewing the terms and conditions for internet access services at least with the biggest ISPs against the new obligations);

[3] Annex I includes a country abbreviation list.

- Publication of information for stakeholders and consumers;
- Revisions of systems for electronic management of the complaints;
- Technical and non-technical surveys and monitoring.

16 states (AT, CY, CZ, DK, ES, EL, HR, LU, MT, PL, PT, RO, SI, SK, SE and UK) reported they introduced or adapted their internal procedures for implementation and investigation, some reported intradepartmental cooperation (e.g. IT). Many NRAs (AT, HR, CZ, DE, DK, EE, ES, FR, EL, HU, IT, LU, MT, PL, PT, RO, SI, SK, SE and UK) gathered information from the ISPs about their services, mostly by analyzing their general terms and conditions, sending questionnaires, making technical surveys and by analyzing complaints.

Some NRAs developed their own QoS measurement tools and prepared a methodology for measurements or participated (with other entities) in developing QoS measurement tools or techniques but these activities are dealt with separately under questions 26 and 28.

Concerning the external activities (e.g. press-release, meetings with stakeholders or ISPs, drafting national guidelines on enforcement policy, stimulating self-assessment or internal compliance by ISPs, adopting administrative orders/decisions or imposing administrative fines) 22 reported to have had meetings with the ISPs (AT, BE, HR, CY, CZ, DE, DK, EE, FI, FR, EL, IR, IS, IT, LU, LV, LT, MT, PL, PT, RO, SI and SK) and/or stakeholders before and while implementing the Regulation. One third of all NRAs published press releases related to the Regulation. Several NRAs (CY, DE, FR, HR, HU, PT, RO, EL, SK and UK) prepared draft legislation or otherwise participated in the process of issuing relevant legislation, some drafted national guidelines or prepared secondary legislation on enforcement policy also concerning transparency issues (BG, CZ, DE, FI, HU, IL, SK and SI).

A majority of NRAs have performed assessments of ISPs general terms and conditions (e.g. in relation to transparency obligations) and of ISPs agreements on commercial and technical conditions to establish the presence or the absence of a possible violation of Article 3(2) of the Regulation. Some are still in such a process.

Only a small portion of NRAs reported having inter-NRA discussions or having participated in joint projects (three took part in an EC pilot project regarding QoS crowdsourcing: SI, CZ and AT). Three NRAs, CY, PL and SK, cooperated with (other) national authorities or entities on this subject (Department of Consumer Protection, Ministry of digital affairs, national Research Institute of Post and Telecommunications). Some NRAs (e.g. CY, CZ, HR, PT, RO and SI) made a price and/or offers comparison mechanism/tool available to consumers. Six NRAs (SK, FI, HU, LU, SE, and NL) have mentioned the creation or improvement of their web pages regarding net neutrality issues. One NRA (FR) is developing an online complaint mechanism. Two NRAs, DE and PT, approved a Regulation on pre-contractual and contractual information in the context of electronic communications, in order to foster transparency (implemented in DE; in PT currently going through a regulatory procedure in order for it to be amended, which required its temporary suspension).

3 Article 3

3.1 Article 3(1) and 3(2) commercial and technical conditions related to the provision of Internet access services

Question 3. What approach have you taken to monitor the commercial and technical conditions related to the provision of Internet access services:
- market survey without requesting information from ISPs,
- information request from ISPs,
- analysis of complaints and end-user reporting,
- technical monitoring,
- other, please specify: _____

Almost all NRAs used one or more of these techniques to monitor the commercial and technical conditions related to the provision of IAS. A majority of NRAs performed an analysis of complaints and end-user reports (25), made information requests to ISPs (23) and used a market survey (22). The market surveys and information requests typically involved examination of the terms and conditions under which ISPs provide internet access. A smaller number used technical network monitoring tools or said they were in the process of developing technical tools.

Approach	NRAs	Number
Market survey without requesting information from ISPs (e.g. checking ISP's offers on their web pages)	AT, BE, BG, DE, HR, CY, CZ, DK, EE, ES, FI, FR, HU, IT, LV, LT, MT, NO, PT, SI, NL, UK	**22**
Information request from ISPs	AT, BE, BG, HR, CY, CZ, DK, EE, FI, FR, EL, HU, IT, LT, LU, MT, PL, PT, RO, SK, SI, NL, UK	**23**
Analysis of complaints and end-user reporting	AT, BE, BG, HR, CY, CZ, DK, EE, ES, FI, FR, DE, HU IT, LV, LT, LU, MT, PL, PT, RO, SI, SE, NL, UK	**25**
Technical network monitoring	AT, BG, HU, LV, PT	**5**

Table 1. Approach to monitor the commercial and technical conditions

Question 4. Pursuant to Article 3(1) have you completed any formal assessment of ISP restrictions on the use of technically compliant terminal equipment? Y/N

Two NRAs, CY and NL, stated that they had identified and investigated specific ISP restrictions on the use of terminal equipment, and in addition FR, the UK and IT have opened

inquiries in this area. CY found that terminal equipment restrictions were reasonably applied to allow subscribers to access a bundle of services including telephony and television as well as internet access, and also allow providers to offer support for their services.

Restriction of tethering

ACM has intervened in cases where mobile operators were restricting tethering in their Fair Use Policy. This was considered a violation of Article 3(1) of the Regulation because it prevents end-users from using the terminal equipment of their choice. At the request of ACM, T-Mobile and Tele2 have adjusted their Fair Use Policy.

The same scenario played out when Lycamobile adjusted its policy regarding tethering, after the BIPT had intervened following complaints from end-users.

Restriction of the use of a 3G-only-device

ACM looked into a case in which the ISP restricted the type of device that subscribers could use on a 4G network. The ISP concerned possesses only a 4G-network. Therefore, it required subscribers to use a 4G-capable handset, although its subscribers are in some areas using the 3G/2G-network operated by another operator as a fall-back for data and voice. 4G-capable handsets enable them to do so. Technically, also handsets that are only 2G/3G-capable can utilise the fall-back network. However, the ISPs concerned required subscribers to use a 4G-capable handset, and by contract it maintained the right to block access to the internet if a subscriber were to use a handset that is not 4G-capable.

ACM came to the conclusion that this combined commercial/technical practice is allowed because the main element of the contract is a 4G internet access service, for which 4G-compatible technology may be required.

Question 5. Are you aware of any zero rating or other traffic price discrimination practices/offers in your country? Y/N
If yes, what types of 0-rating services exist in your country?
- Music streaming services
- Video streaming
- Social media services
- Voice and short messages
- Other, please specify: _____

There were no zero-rating services identified by four NRAs (EE, FI, SK and SI), while one or more zero-rating services were reported by all other NRAs. Zero-rating of music streaming and social media services were the most often identified. Cloud services were the most frequently mentioned under other zero-rating services.

Type of zero-rating service	NRAs	Number
Music streaming services	AT, HR, CY, CZ, DK, DE, EL, HU, IS, IT, LT, LU, NO, PL, PT, RO, SE, NL, UK	**19**
Video streaming services	AT, BE, DE, HR, FR, EL, HU, IT, LT, MT, LU, PL, PT, RO	**14**
Social media services	BE, BG, CZ, CY, EL, DK, HU, IT, LV, LT, LU, PL, PT, RO, SE,	**15**
Voice and short messages	BE, BG, EL, IT, LV, LT, LU, PL, PT, RO, ES, SE, UK	**13**
Other	AT, BE, CZ, FR, EL, IT, LV, LT, NO, PL, PT, RO, SE	**13**

Table 2. Type of zero-rating services

Question 6. Pursuant to article 3(2) have you performed any formal assessments of agreements on commercial and technical conditions as well as commercial practices such as zero rating or traffic price discrimination practices?

If yes, briefly describe the practice and the conclusions of the assessment (and enforcement action taken where applicable)?

NRAs from 11 countries (AT, BE, DE, HR, CY, HU, IT, LU, MT, NO and NL) said they had undertaken one or more assessments of zero-rating practices. A number of other NRAs including PT and LU are assessing cases of zero-rating.

In the UK, the NRA said it had considered a service zero-rating some messaging applications but concluded a formal investigation was not required; key factors leading to this conclusion included the low data volume associated with use of the messaging applications and the openness of the ISP to adding new messaging applications to the zero-rated package.

Several NRAs found a zero-rating proposition that was in breach of the Regulation because subscribers were able to access the zero-rated content when the subscribers' data cap was exhausted while no other internet applications could be accessed (AT, IT, HR, HU and SE).

In BE, the NRA informally found that a zero-rating proposition, which allowed users to access zero-rated content as long as the subscribers' data cap was not exhausted, did not breach the Regulation.

Zero-rating cases

The following case descriptions serve as examples involving the commercial practice of zero-rating were analyzed and reported by NRAs.

Zero-rating of music streaming without traffic management

In NL, ACM has conducted a formal investigation of a free music streaming offer by T-Mobile, following a request for enforcement by digital rights organization Bits of Freedom. ACM has formally rejected the request and has decided that the Data-free Music service is compatible with Article 3, paragraphs 1, 2 and 3 of the Regulation. The most important reasons underpinning this decision are that T-Mobile's service is offered in a non-discriminatory manner for CAPs, and that the service does not harm the rights of end-users.

The main reason for concluding the service is non-discriminatory is that T-Mobile's zero-rating service is open to all music-streaming services. T-Mobile does not need to be paid in order for a music-streaming service to be admitted to the platform, and the platform is open to any entity. Furthermore, all music-streaming services that join T-Mobile's service get the same contract.

The main reason for concluding that end-user rights are not violated is the wide choice of music-streaming services available on the platform. Moreover end-users themselves are able to submit music-streaming services to T-Mobile. T-Mobile then contacts these services, and asks them whether they wish to take part in the platform. Finally, T-Mobile's service is only available for data plans of 6GB or more. Given the size of such data plans, end-users can also use other services as part of that plan next to the Data-free Music service.

In NO, Nkom has conducted an investigation of Telenor's mobile IAS subscription offer which includes zero-rating of music streaming services. Nkom conducted an analysis of Telenor's offer, assessing the different criteria listed in BEREC NN Guidelines paragraph 46 in cases that do not include technical traffic management. Nkom did not issue a formal decision in this case, but published a report containing the results of the analysis of the zero-rating practice.

Nkom came to an overall conclusion that it would not be proportionate to intervene at this point in time, considering that Telenor had expressed an intention to open the offer whereby additional CAPs could be included in the offer. Telenor is obliged to facilitate a procedure for simple, prompt and efficient inclusion of additional CAPs than the ones included in the service offer when it was launched. Nkom may reassess the analysis of zero-rating if the market circumstances change.

Zero-rating of music streaming without / of video streaming with traffic management

In DE, the Bundesnetzagentur is assessing Deutsche Telekom's tariff option „StreamOn". The tariff option „StreamOn" is a zero rating offer which can be added for free to certain tariffs. The data consumption for audio and/or video streaming of partner content is not counted towards the respective data cap. 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

bandwidth is throttled to a maximum of 1.7 Mbit/s for video streams, both of partner and non-partner content. For MagentaEins customers, zero rated video traffic is not throttled.

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 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 providers.

In its statement of objections of October, 6, 2017, the Bundesnetzagentur set out in which aspects the zero rating offer violates Article 3(2) and Article 3(3) of the Regulation. In its statement of objections the Bundesnetzagentur reasoned that, on balance, the zero rating offer is considered to be admissible subject to several conditions. These conditions serve to ensure that CAPs may participate on a non-discriminatory basis. With regard to traffic management, see Q8. This is not yet the final formal decision. After a statement of objections, the addressee has time to comment and to remedy the situation. Otherwise, the Bundesnetzagentur may issue a final decision.

Zero rating of certain social media applications

In BE, the NRA found that a zero-rating proposition by Proximus, which allowed users to choose one application out of Facebook, WhatsApp, Snapchat, Instagram, Twitter or Pokémon Go to be zero-rated, as long as the subscribers' data cap was not exhausted, did not breach the Regulation, given the circumstances and information available at the time of the investigation. BIPT did not issue a formal decision in this case.

In SE, PTS initiated a formal review of Telia's offer for "Free surf social media". At this stage, the focus lies on getting a better understanding of how Telia selects service providers included in the zero-rating offer, and how and if the offer affects the end-users' choice and use of services and applications on the internet.

Zero-rating of video streaming with traffic management

In HR, HAKOM also initiated a review on the tariff option "*StreamOn*" of HrvatskiTelekom which is a zero-rating offer. Video streams of CAP partners (Youtube, Netflix, HBO Go, Pickbox) are zero rated and users are allowed to access zero-rated content as long as the subscribers' data cap was not exhausted. CAPs may participate on a non-discriminatory basis (conditions are set out in the general terms and conditions). HAKOM concluded that the bandwidth for video streams is throttled to a maximum of 2 Mbit/s (max. resolution of 480p) represents unequal treatment of data traffic and as such is currently formally assessed under Art. 3 (3) TSM Regulation.

3.2 Article 3(3) traffic management

Question 7. If you started any monitoring of traffic management practices by ISPs what approach have you taken:
- market survey without requesting information from ISPs,

- information request from ISPs,
- analysis of complaints and end-user reporting,
- technical monitoring,
- other, please specify: _____

NRAs often used more than one of these techniques to monitor traffic management practices. 24 NRAs reported that they had made information requests to ISPs while 18 had analyzed complaints and end-user reports. 15 NRAs used both approaches.

Technical monitoring is up and running in five countries (FI, AT, HU, LV, and SI). Other solutions included meetings with ISPs (IT) and the supervision of two specific Article 3.3 cases regarding traffic management (SE).

Approach	**Countries**	**Number**
market survey without requesting information from ISPs	AT, BE, DE, CZ, FR, HU, IT, MT, SI, UK	**10**
information request from ISPs	AT, BE, BG, CY, DK, EE, EL, ES, FI, FR, HR, HU, IE, IT, LT, LU, MT, NO, PL, PT, SE, SI, SK, UK	**24**
analysis of complaints and end-user reporting	AT, BE, BG, DE, DK, EE, FI, FR, IE, IT, LV, LT, LU, MT, PL, RO, SI, UK	**18**
technical network monitoring	AT, FI, HU, LV, SI	**5**

Table 3. Approaches used for monitoring traffic management

Question 8. Pursuant to article 3(3)1 to 3(3)3; have you completed any formal assessments of an ISP's traffic management practices? Y/N

If yes, briefly describe the practice and main conclusions of the assessment (and enforcement action taken where applicable).

Three NRAs (CY, HR and HU) pointed out that they had conducted formal assessments of traffic management practices. Other NRAs (e.g. AT, BE, FR, PL and PT) noted the information collected from ISPs was still under analysis or proceedings initiated due to complaints were not completed by 30 April 2017 (DE).

Commercial traffic management

In HU, in the reporting period, NMHH has initiated three proceedings against mobile internet service providers. The reviewed services and packages in these the proceedings included offers for *unlimited video streaming*, *unlimited access to the most popular social media and messaging applications* and *unlimited music streaming plans.*

During the investigations, NMHH concluded that the data traffic generated by certain applications included in the services and packages was not deducted from the general data quota of the subscriber's tariff. The offers investigated included commercial practices as well as some traffic management measures. NMHH has found that these traffic management measures violated Article 3(3) of the Regulation. The applied traffic management measures were exclusively based on commercial considerations, within the context of which ISPs provide certain special applications with unlimited data use and without any slowing down or degradation of quality to subscribers, whereas access to all other internet content, depending on the specific tariff plan, is limited to max. 32kbit/s download and upload speeds or is completely blocked above a certain data traffic limit.

NMHH has found that these traffic management measures cannot be justified under any of the reasons stipulated in Article 3(3) of the Regulation. Due to the violations uncovered, NMHH prohibited such unlawful behavior and ordered the service providers to discontinue the discrimination between various types of content.

Discriminatory traffic management in a zero-rating case

In IT, AGCOM adopted a resolution to address a Wind-Tre "zero-rating" offer in breach of the Regulation. AGCOM observed a discrimination between the general purpose traffic, which is often blocked or slowed down, compared to the zero-rated traffic, which flows on without locks or slowdowns. AGCOM focused on a combined assessment of art. 3, paragraph 2 and 3 of the TSM Regulation. "Wind Veon" and "Music by 3" offers were thus considered in breach of art. 3, paragraph 3 of Regulation (EU) 2015/2120.

Discriminatory traffic management after a data cap has been reached

In SE, PTS analyzed two mobile offers of Telia where zero-rating is applied: "Free surf on social media" (Social) and "Free surf listening" (Listen).

The subscribers of Social get "free surf" on a number of social media apps/services (Facebook, Instagram, Messenger, Whatsapp, Twitter and Kik). The subscriber may use the specified social media services without the data usage affecting the volume of data included in the subscriptions. Hence, the social media services included in Social are always available, even if the end-user has consumed the amount of data included in the subscription. The offer was later supplemented with the apps/services Pinterest, Viber, LINE and Welcome App.

With Listen the subscribers are able to stream selected services and applications for music, radio and audio books free of extra charge. Listen is an add-on service to two of Telia's mobile subscriptions offered. For 59 SEK per month the subscriber is free to stream up to 100 GB of music, radio or audio books included in Listen, without affecting the volume of data included in the subscription. The services included in Listen are always available, even though the subscriber has consumed the whole amount of data included in the subscription. The applications included in Listen are Spotify, Storytel, Sveriges Radio and Radio Play.

PTS has concluded that Telia conducts traffic management measures in breach of Article 3.3 of the Regulation for both zero-rating offers (Social and Listen). Telia was instructed by PTS to discontinue the traffic management in due course when the end-user is still able to use the specified services and applications included in each of the offers, whilst other data usage is blocked.

Telia appealed PTS' decision to the administrative court and called for the decision to be upheld, i.e. that the decision temporarily should not apply pending the ruling of the court. Telia was granted this request in the administrative court of appeal in March 2017. The administrative court has not settled the case yet. In this supervision case, PTS has not investigated any zero-rating aspects of the business models, nor if and to what extent they are consistent with Article 3.2 of the Regulation.

In SE, PTS has also analyzed a mobile offer launched by Tre on August 31, 2015, "Free surf music streaming". In Free surf music streaming the subscribers, regardless of subscription type (pre-paid excluded), can stream selected music applications up to 70 GB per month without it affecting the data volume according to the subscription. Since February 2017, the offer includes Tre's existing customers, consumers and business users, regardless whether the subscriber has a bundled offer or a standalone mobile broadband subscription. Currently, Spotify, Deezer, Tidal, Google Music, SoundCloud and Apple Music are the services included in the offer. The selected music applications included in the offer are always available, even though the subscriber has consumed the whole amount of data included in the subscription.

Tre has informed PTS that the company intends to adjust its offer to comply with PTS's interpretation of the Regulation. Tre was instructed by PTS to discontinue the traffic management in due course when the end-user is still able to use the selected music applications included in the offer, whilst other data usage is blocked.

Therefore, PTS has not notified a decision regarding Tre's traffic management measures within the offer "Free surf music streaming". Tre has presented PTS with a timetable, outlining when their adjustments will be completed, and PTS is continuously monitoring the process.

In HR, HAKOM initiated a formal investigation of Vipnet's zero rated *VIP NOW* streaming offer. VIP NOW is zero rated streaming service which allows users to watch TV and movie content and to listen radio stations without spending data traffic included in the mobile tariff. Once the user's monthly data cap was reached the service was still zero-rated (unlike the other services). HAKOM concluded that this offer was not in line with Regulation (EU) 2015/2120 because service can freely be accessed after the exhaustion of the user's data cap, while all other internet traffic is charged. After warning by HAKOM, VIP adjusted its offer to comply with HAKOM's interpretation of the Regulation.

Zero rating of video streaming with traffic management

In DE, Deutsche Telekom's tariff MagentaMobile L allows to add the tariff option StreamOn Music & Video where audio and video streaming of partner content is zero-rated. In tariff L, the bandwidth is throttled to a maximum of 1.7 Mbit/s for video streams. In its statement of objections (see Q6 above) the Bundesnetzagentur considered that the bandwidth reduction to a maximum of 1.7 Mbit/s for video streaming (both of partner and non-partner content) is a violation of Article 3 (3) of the Regulation. Bundesnetzagentur concluded that the bandwidth reduction for video traffic represents unequal treatment of data traffic. Whereas video traffic is throttled, all other traffic is not.

Question 9. Did you conduct any research or survey on port blocking practices by ISPs? Y/N

If yes, please briefly describe significant findings.

14 NRAs (AT, BE, BG, DE, FI, FR, EL, HR, HU, LT, MT, PL, SI and SK) surveyed port blocking practices by ISPs. NRAs have reported that ISPs claim to perform port blocking for security reasons and to prevent spam. Therefore, ports such as 23, 25, 53, 135, 445 are sometimes blocked by some operators.

Port blocking cases

In DE, BNetzA assessed several IAS-providers' port-blocking practice during the reporting period. These providers blocked certain ports in order to preserve the integrity and security of the network and/or of the terminal equipment of end-users. BNetzA considers the described port blocking as compatible with Article 3(3) sub-para. 3 lit. b of the Regulation. BNetzA requested the ISP providers to clearly communicate their practice in the general terms and conditions and amend them accordingly in order to comply with the transparency obligation according to Article 4(1) of the Regulation. The proceedings are not yet formally terminated.

In FI, Ficora held the informal view that the blocking of all of these ports is not necessary for security reasons. Blocking policies may have preceded the Regulation and it might be appropriate for undertakings to revisit their policies in light of the new legislation.

In LT RRT has investigated an end-user complaint that an ISP is blocking port 25. Therefore, the end-user could not use the SMTP server on his device to send e-mails. The device of end-user's choice could only send e-mails via port 25, and this setting was not customizable. The ISP claimed that blocking port 25 is necessary to preserve the integrity and security of the network. RRT concluded that blocking port 25 permanently infringes on end-user's right to access and distribute information and content, use and provide applications and services, and use terminal equipment of their choice as stated in Article 3(1) of the Regulation. The ISP did not provide sufficient evidence that unblocking port 25 would compromise security of its network, thus granting the exception for port blocking traffic management practice as stated in Article 3(3)b of the Regulation. RRT ordered the ISP to unblock port 25.

3.3 Article 3(4) data protection in traffic management

Question 10. Which authority is responsible for enforcing the data protection obligations referred to in Article 3(4) ("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)

a) The national Data Protection Authority (DPA)

b) The NRA

c) Other

If it is the DPA or other Authority, is there a formal cooperation process in place to deal with complaints about ISPs between the data protection authority and the NRA? Y/N

In 10 countries (BE, DE, DK, HU, NL, NO, PL, SE, SI and SK) the NRA is – either alone or together with the Data Protection Authority – responsible for enforcing the data protection obligations referred to in Article 3(4). Formal co-operation agreements between the NRA and the DPA are in place in a number of countries (CY, DE, ES, FR, HR, IE, PL and NL). Whenever the DPA notices any data protection breach the DPA can inform the NRA, which then can enforce the data protection obligations by an administrative procedure. In AT and IT an informal cooperation is in place between the NRA and the DPA.

Question 11. If the NRA is responsible, have you identified any breaches of data protection and privacy obligations? Y/N

If yes, briefly describe the practice and any investigation and enforcement activity which followed.

Other than in SE it would appear that data protection has not become a concrete issue even for those NRAs that do have data protection responsibilities. SE reports that there is an ongoing investigation concerning the identification of specific traffic related to zero-rated services and the extent to which consumers' consent has been sought for this according to applicable rules. As yet a final decision has not been made on this matter.

PT noted that although the DPA is the authority responsible for enforcing the data protection obligations, the NRA also requested information from ISPs regarding the treatment of confidential information in the framework of traffic management practices. It concluded that breaches of data protection and privacy obligations were not apparent.

3.4 Article 3(5) – specialised services

Question 12. What approach have you taken to monitoring services other than IAS: (called specialised services below)

- market survey without requesting information from ISPs (e.g. checking ISP's offers on their web pages),
- information request from ISPs,
- analysis of complaints and end-user reporting,
- technical network monitoring,
- other, please specify _____

The approaches used by NRAs for monitoring services other than internet access services offered by ISPs (referred to as "specialised services" in the BEREC Guidelines) during the reporting period are shown in Table 4.

Two NRAs (SE and SI) explicitly mentioned that they have not yet monitored the provision of specialised services during the reporting period.

The analysis of complaints and end-user reporting could be considered as a commonly used approach at European level. However, three NRAs (DE, FR and NL) opting for such an approach reported that no end-user complaint with regard to specialised services has been filed during the reporting period. 18 NRAs requested information from ISPs and 13 NRAs applied a market survey for monitoring the provision of specialised services, as outlined in Table 4.

Approach	NRAs	Number
market survey without requesting information from ISPs (e.g. checking ISP's offers on their web pages)	BE, HR, CY, CZ, EE, FR, HU, IE, IT, LT, MT, PT, ES	13
information request from ISPs	AT, BG, HR, CY, CZ, DK, EE, FI, FR, EL, HU, IT, LU, MT, NO, PL, PT, SK	18
analysis of complaints and end-user reporting	AT, BE, BG, CY, DE, FI, FR, HR, IT, LV, MT, PT, RO, ES, NL, UK	16
technical network monitoring	AT, HU	2
stakeholder meetings / engagement	CZ, UK	2
no monitoring yet	SI, SE	2

Table 4. Approaches used for monitoring specialised services

Question 13. Is there an NRA or national interpretation of or guidance on "services other than internet access services"? Y/N

If yes, please provide any information and examples other than the once mentioned in BEREC Guidelines

Two NRAs (CY and EL) have published a national interpretation or guidance on specialised services, whereas most (26: AT, BE, BG, HR, CZ, DK, EE, FI, FR, DE, HU, IE, IT, LV, LU, MT, NO, PL, PT, RO, SK, SI, ES, SE, NL and UK) had not done so. Some NRAs refer to the BEREC Guidelines (e.g. HR, CY, FI and PT). In CY specialised services are defined in national secondary legislation[4], and in EL a definition based on the interpretation of the BEREC Guidelines (paragraph 101)[5] is suggested. In AT, the decision on whether to consider prioritized Video on Demand (VoD) on top of linear TV-services as a specialised service is still pending.

In this context, HU reported that there could probably be some net neutrality issues related to IP TV. The assessment is ongoing, so no conclusion could yet be provided.

Question 14. Have you completed any formal assessments of the provision of specialised services by ISP? Y/N

If yes, briefly describe the practice and the conclusions of the assessment (and enforcement action where applicable)?

NRAs also provided information about whether they had carried out a formal assessment of specialised services as well as about the corresponding findings. As a result, 24 NRAs (AT, BE, BG, DK, EE, FI, DE, EL, IE, IT, LV, LT, LU, MT, NO, PL, PT, RO, SK, SI, SE, ES, NL and UK) did not assess formally the provision of specialised services during the reporting period.

Four NRAs (HR, CY, CZ, and HU) said that they have completed such a formal assessment. Indeed, three NRAs (HR, CY and CZ) concluded that the specialised services are neither offered as a substitute to the internet access service nor at the expense of the availability and the quality of internet access services. Based on a market survey or on information requests from ISPs, one NRA (MT) came to the same conclusion. In AT, FR and IT, the formal assessment has not yet been completed.

[4] « services beyond broadband internet access, which include content or applications or a combination thereof, for the provision of which is necessary for the provider to secure certain operating characteristics in order to achieve a certain level of quality »

[5] "A specialized service was defined as a service that possesses the following characteristics of Article 3(5): it does not constitute an internet access service or surrogate thereof; it is optimized for specific content, application or service, or combination thereof; this optimization is objectively necessary to meet requirements for a specific level of quality"

4 Article 4(1)

4.1 Approach to monitoring and enforcing compliance

Question 15. What approach have you taken to monitoring and enforcing ISPs' compliance with their transparency obligations set out in Article 4:

- market survey without requesting information from ISPs (e.g. checking the applicable "terms and conditions"),
- (formal or informal) information request from ISPs,
- analysis of complaints and end-user reporting,
- other_____

In order to monitor and enforce compliance with the transparency obligations set out in Article 4, most NRAs (22) indicated they had requested information from the ISPs themselves, either formally or informally, while 19 NRAs had undertaken market surveys. The analysis of user complaints was mentioned by 14 NRAs.

An interesting note is that the large majority of NRAs which concluded market surveys (16 out of 19) also requested information from ISPs. Six NRAs (AT, FR, IT, RO, SI and SE) also mentioned other approaches, such as surveys by 3rd parties, the publication of statistics (as a measure to motivate compliance), and meetings with ISPs (where ISP obligations were discussed). In AT the (ex-ante) assessment by the NRA of terms and conditions is specified in §25 of the Austrian Telecommunications Act 2003.

Approach	Countries	Total number
market survey without requesting information from ISPs (e.g. checking the applicable "terms and conditions", checking the information on the ISP´s websites)	BE, BG, HR, CY, CZ, FI, DE, EE, EL, HU, IE, IT, LV, LT, MT, PL, PT, SI, UK	19
(formal or informal) information request from ISPs	BG, HR, CY, CZ, DK, EE, FI, DE, EL, HU, IE, IT, LU, MT, PL, PT, RO, SK, SI, ES, NL, UK	22
analysis of complaints and end-user reporting	AT, HR, CZ, DE, IE, HU, IT, LV, LU, PL, PT, RO, SI, UK	14
Other	AT, FR, IT, RO, SI, SE	6

Table 5. Approach to monitoring and enforcing ISPs' compliance with their transparency obligations set out in Article 4

4.2 Formal assessments of contract conditions

Question 16. Have you completed any formal assessments of the ISPs' contract conditions and their compliance with requirements set out in Article 4(1) a-e?

11 NRAs have completed such assessment (AT, CY, CZ, ES, FR, HR, HU, IT, LT, MT, and NL). Out of these, only in CY and MT the NRAs asserted that, at the time of the assessment, ISPs were fully compliant with the requirements set out in Article 4(1) a) to e). In other cases, NRAs cited problems with the definition of speeds (CZ and HR). In the remaining cases were an assessment was made (FR, HU, IT, LT, ES and NL), the NRAs did not qualify the level of compliance. In specific cases it was reported that ISPs have already amended or are amending their contracts at the request of NRAs.

4.3 Specifications on speeds

Question 17. Have national specifications been set in relation to the different types of speeds laid down in Article 4(1)d?

Question 18. Are these requirements legally binding or the NRA's opinion/recommendation?

In the majority of cases (14 out of 28 answers), national specifications in relation to the different types of speeds exist (BE, HR, CY, CZ, DK, FI, HU, IT, LV, MT, PT, SK, SI and UK). Based on the received answers, it turns out that in some of the cases specifications were only set partially (at least in BE, HR, DE, HU, IT, LV, MT and UK) for example because they covered only a subset of the parameters laid out in Article 4(1)d such as the minimum or maximum speed. Some specifications referred to national regulation, in which similar parameters were defined prior to Regulation (EU) 2015/2120.

Out of the 16 countries where specifications exist, in exactly half (BE, HR, CY, HU, IT, LV, MT and PT[6]) there are legally binding specifications via NRA ordinance, decree, decision or national regulation. In the other half (AT, CZ, DK, FI, SK, SI and UK) the specifications were defined by NRA recommendations, opinions, non-binding communications, voluntary codes of practice, or documents in the process of public consultation which are not (yet) legally binding.

In most cases where specifications were legally binding, the specifications were imposed by the NRA or another competent authority. Only in IT the NRA mentioned a co-regulation framework, where specifications were initially decided in a technical working group involving several stakeholders, and then included in an NRA decision. Many non-legally binding specifications were also issued by the NRA, without necessarily a prior agreement by market players.

Regarding the approach taken to specify speeds, some NRAs (HR, CY, FI, LV, SK and SI) use some form of percentages. The percentages usually define the minimum or normally available speeds based on the maximum speed. We describe these specifications in more detail in Table 6.

[6] In PT the Regulation where this specification occurs is going through a regulatory procedure in order for it to be amended, which required its temporary suspension.

Country	Specification of speeds by the use of percentages
HR	Min speed >= 70% of max speed
FI	Min speed >= 70% of max speed Normally available speed: 90% of max speed (both apply only for fixed connections with max speed <=100 Mbps)
LV	Min speed >= 20% of max speed
SK	Min speed >= 40% of max speed Normally available speed >= 90% of max speed
SI	Normally available speed >= 80% of max speed

Table 6. Specification of speeds by the use of percentages

In IT, the NRA mentioned the use of a statistical approach, where minimum and maximum speeds were defined respectively as the 95th and 5th quantile of speeds measured in a time interval. This interval is 6 months for statistical comparative values (also a yearly aggregation is provided) and 24 hours for single users' lines.

In two other countries (BE and UK) modem sync speeds are being provided, based on regulations or practices that were established prior to the entry into force of Regulation (EU) 2015/2120.

Another matter of importance is the achievability of speeds, i.e. whether or not they can be achieved under realistic conditions (particularly of the maximum advertised speeds, since other speeds are lower). Out of the 16 countries where specifications exist, 6 reported specific provisions with regard to the achievability of speeds. The findings are mentioned in Table 7.[7]

No details were given for the approach taken to specify speeds by the remaining 7 (out of 16) NRAs.

Country	Achievability of maximum and advertised speeds
CY	ISPs are required to set the time periods within the day in which maximum speed is achieved, the periods expected to reach normally available speed, and the periods when speed may be limited to the minimum.
FI	The maximum speed of a fixed connection must be such that the user can expect to receive it at least some of the time. The estimated maximum speed of mobile broadband must be possible to be realistically achieved in actual usage conditions. The maximum speed may not be lower than the advertised speed of the connection.
DE	90% of the contractually agreed maximum speed should be achieved at least once at each of at least two measurement days (download speed of

[7] These provisions sometimes include conditions for the detection of significant discrepancies between defined and actual speeds, a related issue which is treated in Question 23.

	fixed broadband lines).
IT	The maximum is defined based on actual measurements, therefore it is achievable.
SI	Maximum speed should be achievable at least once per day. Advertised speed should be comparable to maximum speed.
UK	Current guidance on advertising speeds recommends that advertisers only use maximum speed claims that are achievable by at least 10% of customers and are preceded with the words "up to", and qualified where appropriate. This guidance will be updated. Alternatives proposals include: • a median download speed (available to at least 50% of consumers) measured at peak-time or over 24 hours; or • a range of download speeds available to the 20th to 80th percentile of users measured at peak time or over 24 hours.

Table 7. Provisions regarding the achievability of the maximum and advertised speeds

4.4 Definition of speeds in contract terms and conditions

Question 19. To the extent your NRA has reviewed the terms and conditions in ISP contracts, did ISPs define in their contracts minimum, maximum, advertised and normally available upload and download speeds of the IAS in the fixed network?

This question was answered by 27 NRAs (AT, BE, BG, HR, CY, CZ, DE; DK, EE, FI, FR, EL, HU, IE, IT, LV, LT, LU, MT, PL, PT, RO, SK, SI, ES, NL and UK).

Concerning fixed network IAS, speed information has already been included in the contracts in 14 countries (AT, BG, HR, CY, CZ, FI, DE, EE, IT, LT, MT, PL, PT and SK), or partially in some cases (e.g. in HR, HU, IT, LT, PT and SK).[8] On the other hand, in 6 out of 27 countries (FR, EL, IE, LV, RO and ES) speed information has yet not been included.

In cases where only partial information was included, some of the NRAs pinpointed what the missing parameters actually were:

- missing information about the normally available speed (HR),
- missing information about both the normally available and maximum speed (IT),
- missing information about the minimum speed (PT).

Further, four NRAs (HR, CZ, DE and PL) mentioned that the advertised speed was not defined separately, but equaled the maximum speed.

[8] Information was deemed to be partial when not all speed parameters (minimum, maximum, normally available and advertised speed in fixed, maximum and advertised speed in mobile) were described in the contract terms, or they were not defined by all ISPs.

Question 20. To the extent your NRA has reviewed contracts of mobile ISPs, did they define in their contracts advertised and estimated maximum upload and download speeds of the IAS in the mobile network?

Concerning the mobile network IAS, the situation is similar to the one in fixed networks: speed information has fully been included in ISP contracts in 14 out of 27 responding countries (AT, BG, HR, CZ, FI, DE, EE, IT, LV, LT, PL, PT, SK and UK) and partially in other cases (e.g. HU, IT, LV, LT, SK and UK). No speed information has been included in mobile ISP contracts in 8 out of 27 countries (CY, FR, EL, ES, IE, MT, RO and SI).

In the mobile network, it was often indicated that speed information was provided by part of the ISPs in the country. In three countries (CZ, FI and PL), advertised speed was equal to maximum speed. Finally, in two countries (CY and MT) the ISPs did not advertise speeds in the mobile network, and no speed information was included in the contracts.

For both the fixed and mobile networks a substantial portion of the answers were inconclusive as to whether speeds were included in the contracts or not; in these cases, either the NRAs had not performed any review of contract terms yet, or the review process was ongoing.

5 Article 4(2) – procedures for end-user complaints

Question 21. Have ISPs established "*transparent, simple and efficient procedures to address end-user complaints…*" according to Article 4(2)? Y/N

If yes: What kind of procedures has been established by ISPs (e.g. hotlines, complaint templates)?

Is there an industry wide approach in relation to these procedures? Y/N

If yes, was this approach:

- imposed or facilitated by the NRA,
- prescribed by national legislation,
- voluntarily agreed upon by the market players,
- other _____

In most countries (27: AT, BE, BG, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HR, HU, IT, LV, LT, LU, MT, NL, PL, PT, RO, SE, SK, SI and UK), ISPs have already established procedures for addressing end-user complaints in case of non-conformance of the provided services with the contractual terms.

In general, such procedures were already in place before the Regulation 2015/2120 entered into force, as providers of IAS are required to do so as part of existing telecoms legislation based on the Universal Service Directive[9]. No additional/specific complaint procedures have therefore been introduced in the majority of the countries (27). However, the CNMC issued, for public consultation, a draft regulation defining the respective rules. In the UK, the existing rules are under review and may be strengthened.

Five NRAs reported that market players voluntarily agreed upon the approach to handle end-user complaints, and six NRAs said that the corresponding rules have been imposed or facilitated by the NRA, as outlined in Table 8.

Industry wide approach	Member State	Number
imposed or facilitated by the NRA	CY, DE, IT, PT, RO, UK	6
prescribed by national legislation	HR, CY, CZ, EL, HU, LV, SK, SI, SE	9
voluntarily agreed upon by the market players	FR, MT, PL, PT, SE	5
establishing a Telecommunications Complaint Board	DK	1
forcing ISPs to adjust their procedures according to article 4(2)	SK	1
consumer advisors	SE	1

Table 8. Industry wide approach regarding procedures for end-user complaints

[9] Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services

Generally, different channels are made available by ISPs facilitating the filing of complaints by end-users. The most common channels are telephone lines, web forms, letters and customer service points.

6 Article 4(3) – additional transparency requirements

Question 22. Did you nationally (e.g. NRA, Ministry) provide guidance or impose **additional** transparency or information requirements on ISPs following the coming into force of the Regulation? Y/N

If yes, please provide details of the requirements.

According to Article 4(3), member states could introduce additional monitoring, information and transparency requirements. 23 NRAs (BE, BG, CZ, DK, EE, EL, ES, FI, FR, HR, HU, IE, LV, LT, LU, MT, NL, NO, PL, RO, SE, SK and UK) neither provided guidance nor introduced such requirements. Three NRAs (HR, HU and IE) mentioned that national and/or secondary legislation already prescribed transparency and information requirements.

Five NRAs (CY, DE, IT, PT and SI) have reported that in their member state additional transparency requirements are implemented. In AT the NRA provided guidance regarding the Regulation. Further details can be found hereafter.

In CY, ISPs have to report to NRA information regarding IAS speed and other quality parameters, commercial agreements and practices, traffic management practices, specialised services, processing of personal data, information provided to end-users at customer service points and websites as well as details of complaints. In BE, ISPs also have to report to NRA the values they measure on an annual basis, and they have to submit draft communications on the effect of traffic management on the end-user experience need prior to publication.

In AT, the NRA provided guidance to ISPs in several meetings, published a checklist for minimum requirements under Article 4(1) and provided a product information sheet ISPs can use to inform their customers about speed and volume limitations.

In DE, the ordinance for framework provisions on the promotion of transparency, publication of information and additional facilities for cost monitoring on the telecommunications market of 1st of June 2017 obliges fixed and mobile providers to provide more transparency when offering internet access services. IAS providers are obliged to provide product information sheets where the consumer can quickly and easily see the essential contractual provisions before concluding the contract (data transmission rates available, contract duration, monthly costs). Also, consumers obtained the right to information on reliable measurement results for their internet connection and specifically on the actual data transmission rate.

In IT, general transparency rules have been reformed since 2016 and are now applied also to business contracts (and in general to all standard contracts). A renewed tariff comparison website has been launched by the NRA.

In PT, electronic communication operators are obliged to provide more transparency when offering their services (the decision has been suspended and a new consultation process is underway). They are also prohibited from using the term “unlimited” to refer to voice call/SMS or internet offers which are in fact subject to restrictions or limits.

In SI, the regulator advised the ISPs to publish on their websites all relevant information related to the Regulation 2015/2120. In the same context, the NRA also recommended the ISPs to publish the NRA’s underlying Recommendation on their website as well as in retail distribution points.

Question 23. Is there an NRA or national interpretation of "*significant discrepancy, continuous or regularly recurring*"? Y/N

If yes,

- How are these terms interpreted?
- Was the definition:
  - imposed by the NRA (e.g. using Article 5 (1)),
  - voluntarily agreed upon by the market players
  - other_____

With regard to Article 4(4) of the Regulation, the competent authorities of 6 NRAs (CY, CZ, DE, HR, IT and UK) provided a national interpretation of "*significant discrepancy*, *continuous or regularly recurring*" regarding the actual performance. The different approaches used are outlined in Table 9.

However, 23 NRAs (AT, BE, BG, DK, EE, EL, ES, FI, FR, HU, IE, LV, LT, LU, MT, NL, NO, PL, PT, RO, SE, SI and SK) mentioned that they do not provide any additional guidance or national interpretation. Indeed, some of them refer to the interpretation in the BEREC Guidelines (13 NRAs). Two NRAs are preparing an approach (SK and SI). Four NRAs not only reported on the form of the interpretation, but also gave a material interpretation of the terms, which can be found in Table 10.

Approach	**NRA**
Definition imposed by the NRA	HR, CY
Definition voluntarily agreed upon by the market players	-
Interpretation published in a non-legally binding document	CZ
Administrative notice by NRA	DE
Interpretation for minimum speeds	HR
The NRA considers this interpretation as the requirements needed to end the contract without costs, that were discussed within a technical committee with operators, consumers' associations and the Ministry's technical staff and approved in 2008[10]	IT
Judicial interpretation by the courts	UK

Table 9. Different approaches of interpretation used by the NRAs

NRA	**Interpretation**
CY	non-compliance if results of measurements over 3 consecutive days show that the speed received by the end-user is less than or equal to 80% of the minimum or normally available speed specified by the ISP

[10] Resolution n. 244/08/CSP in 2008

HR	non-compliance regarding fixed download speed if the results of at least three (3) tests conducted in a period of five (5) consecutive days (at least one test must be carried out every 24 hours) shows that speeds is below 70% of maximum/advertised speed. Tests are carried out by means of a certified tool HAKOMetar for broadband speed tests prepared by HAKOM.
DE	fixed download speed: (i) 90% of the contractually agreed maximum speed is not achieved at least once at each of at least two measurement days; (ii) the normally available speed is not achieved in 90% of the measurements; (iii) the speed falls below the contractually agreed minimum speed at each of the two measurement days.
IT	end-users could terminate their contract without additional costs if minimum contractual speed is not achieved twice in 45 days / minimum speed is calculated as the 95-quantile of measurement in the interval
MT	"significant discrepant": speeds lower than the 20th percentile / "regularly recurring": no interpretation published

Table 10: Interpretation of the terms

6.1 Monitoring end - user complaints

Question 24. Is your NRA monitoring the number of end-user complaints? Y/N

If yes, what was the level of end-users' complaints about the performance of the IAS, relative to contracted parameters (speeds or other QoS parameters)

23 NRAs (AT, BG, CY, CZ, DK, DE, EL, ES, FR, HR, IE, HU, IT, LV, LT, LU, MT, NL, PT, RO, SE, SI and UK) have reported that they are monitoring end-user complaints, whereas seven NRAs (BE, EE, FI, FR, NO, PL and SK) indicated not to do so.

Based on the data collected, end-user complaints are usually related to discrepancies between actual and contractual speed as well as other quality of service parameters, as set out in Table 11. Some NRAs (e.g. DK, ES, IE, LV, RO and SI) reported that the number of end-user complaints related to net neutrality issues are less than 5% of total ECS complaints. However, the number of end-user complaints related to internet access services reported by the CTU is significant (about 30% of total ECS end-user complaints).

NRA	**Information related to NN complaints**
AT	138 cases dealt with NN issues Total number of conciliation proceedings (not specifically related to NN issues): 1944
BG	mobile IAS related to service quality, poor network coverage
HR	130 complaints related to minimum speed (out of 10.000 measurements performed)
CY	18 complaints related to QoS, mainly fixed IAS

CZ	103 ECS complaints, thereof 30% related to IAS (different reasons)
DE	between 150 and 300 complaints per year. It is nevertheless difficult to assess the complaints statistically since most of the consumers mix problems or do address several problems at once
DK	0 complaints
EL	General service quality: 89 Quality of particular services/applications: 7 Complaints for contract terms: 10
IE	427 NN issues (reporting period: 3% of total ECS complaints, more than 75% of these related to speed)
FR	Very few complaints on NN so far, but the online signaling platform jalerte.arcep.fr was recently launched, which should lead to more complaints and more precise figures on the problems encountered by end-users.
HU	0 complaints
IT	operators have to communicate periodically the number of complaints received against agreed performance, mostly related to minimum speed
LV	3 complaints related to provision of services, internet speed or other QoS parameters (corresponding to 4% of total ECS complaints)
LT	no significant increase of the number of complaints regarding NN issues
MT	01.05.2016-31.05.2017: 8 complaints related to speed, fixed IAS
PT	some complaints regarding discrepancies between actual and contractual speed, also others but no detailed information available
RO	40 complaints related to performance of IAS (corresponding to 1.5% of total ECS complaints)
SI	01.01.2017-30.04.2017: 8 of 190 complaints (corresponding to 4.2% of total ECS complaints) 01.04.2016-31.12.2016: 1.5% of total ECS complaints
ES	0.91% of total complaints (2016)
SE	very few complaints
NL	< 5 complaints related to transparency regarding speed parameters

Table 11. Level of end-user complaints about the performance of IAS

6.2 Remedies for consumers

Question 25. Have specific additional remedies been introduced for consumer redress in relation to non-conformance of IAS with the contract terms (e.g. legal action before courts and/or NRA, right to early termination, compensation)? Y/N

As general national legislation already covers non-conformance with the contract terms, 26 of the NRAs (AT, BE, BG, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HU, IE, LT, LU, MT, NL, NO, PL, PT, RO, SE, SI, SK and UK) did not introduce any specific remedy.

However, in order to foster end-user rights, three NRAs (HR, IT and LV) have introduced additional remedies for end-user complaints in case of non-conformance of IAS with the contract terms. The corresponding remedies are outlined in Table 12.

Remedies applicable in case of non-conformance of IAS (minimum speed)	**NRA**
end-user can change to a package which is more appropriate for the delivered broadband speed	HR, IT
end-user can be offered a kind of a monthly discount	HR
end-user can exit the contract without additional costs	HR, IT
end-user can withdraw the contract without additional costs and/or receive a compensation	LV

Table 12. Applicable remedies

6.3 IAS quality monitoring mechanism for consumers

Question 26. Pursuant to Article 4(4) have you introduced an IAS quality monitoring mechanism for consumers to use? Y/N

If yes, briefly explain this mechanism, and say whether you have certified it.

If not, please outline any plans you may have for setting up such a mechanism.

For monitoring the performance of their internet access services, end-users could use measurement mechanisms made available by the respective NRAs. Indeed, 15 NRAs (AT, CY, CZ, DE, DK, EL, HR, HU, IT, LV, LT, NO, PT, RO and SI) have introduced such a monitoring mechanism during the reporting period or had already one in place before, whereas 14 NRAs (BE, BG, EE, ES, FI, FR, IE, LU, MT, NL, PL, SE, SK and UK) have not such a monitoring mechanism in place.

All of the reported monitoring mechanisms measure the speed of end-user's individual IAS in fixed and/or mobile networks. The monitoring mechanisms also allow to measure quality of service parameters (generally: latency, delay, jitter, packet loss).

Four NRAs (CY, DE, HR and IT) consider their monitoring mechanism as a certified monitoring mechanism according to Art. 4 (4) Regulation (EU) 2015/2120 and BEREC Guidelines (paragraph 161).

With regard to NRAs not currently having a national measurement system, their plans in order to monitor IAS quality are outlined in Table 13.

Approaches/Projects	**NRAs**	**Number**
contribution in the BEREC EWG NN QoS / waiting for the BEREC tool	BE, BG, EE, FI, FR, IE, LU, MT, SK, NL	10

development of an own QoS monitoring system for fixed internet services	BG, LU	2
set up of a measurement mechanism for mobile users	EL, LU	2
review of the existing tool / set up of a new tool	HU, UK	2
operation of a broadband measurement tool	DK	1
dialogue with measurement providers	FR	1
preliminary design	IE	1
ongoing conceptual work concerning the introduction of a certified IAS monitoring mechanism	PL	1
looking into existing tools and platforms	MT	1
development of open data in the field of users' measurement of high-speed internet	CZ, SK, SI	3

Table 13. NRAs' plans regarding IAS quality monitoring

Based on the information received, it could be concluded that some NRAs not having set up a national system are supporting and/or contributing to the BEREC project regarding the BEREC QoS measurement tool. Beside this pan-European project, some NRAs have ongoing projects to set up an own monitoring mechanism.

7 Article 5(1) QoS requirements

Question 27. Did you impose any QoS requirements on any ISP under the Regulation (EU) 2015/2120 (other than definition of contractual speeds)? Y/No

If yes, which requirements were imposed?

No NRA reported that it had imposed QoS obligations on an ISP under the Regulation.

7.1 Measurements of IAS quality

Question 28. What approach have you taken to measure the availability of high quality IAS:

- market survey without requesting information from ISPs,
- information request from ISPs,
- analysis of complaints and end-user reporting
- technical network monitoring
- other, please specify _____
- technical monitoring,
- other, please specify: _____

25 NRAs used one or more of these techniques to monitor the quality of IAS. The majority (19) made information requests to ISPs; 11 used technical monitoring, 13 performed analysis of complaints and end-user reports, and six used a market survey. A smaller number of NRAs said they were in the process of developing technical tools.

Approach	Member States	Number of MS
market survey without requesting information from ISPs (e.g. checking ISP's offers on their web pages)	AT, CY, HU, IT, PT, SE, UK	7
information request from ISPs	AT, BE, BG, HR, CY, DK, FI, FR, EL, HU, IE, IT, LT, MT, PT, SK, ES, NL, UK	19
analysis of complaints and end-user reporting	BG, HR, CY, DK, FI, EL, HU, IT, PT, RO, SL, NL, UK	13
technical network monitoring	AT, BE, EL, HU, IE, IT, LV, LT, PL, PT, UK	11
other (broadband measurement mechanism)	DE	1
Other (mobile coverage maps and RF measurements)	BE, IE	2

Table 14. NRAs' approach to measure the availability of high quality IAS

Question 29. If you performed measurements of IAS quality please report the main findings in relation to the provisions of the Regulation?

In case an NRA indicated it was measuring IAS quality, it did not always provide details on what these measurements demonstrated. In some cases the NRA confirmed that broadband speeds have been increasing over time but did not provide information on other aspects of IAS quality.

More detailed information was provided by HR, DE, EL, HU, IT, PT, RO and UK.

HR reported that the vast majority of the users who performed the measurements are achieving at least minimum speeds stipulated by the Ordinance (70% of maximum speed in three measurements during 5 consecutive days). On average those users achieved around 90% of maximum/advertised speed.

DE reported that for fixed line services, 70.8% of users across all bandwidth classes and providers recorded at least half of the maximum download data transfer rates agreed in their contracts, while for 12.4% of users, the maximum download rates were met in full or exceeded. About 80% of users across all bandwidth classes and providers recorded latencies of 40 ms or lower. While just over 70% of users recorded download speeds via their fixed broadband lines of 50% or higher of the contractually agreed data transfer rates, less than 30% of users achieved the same level via mobile broadband connections. Latencies over mobile broadband connections were generally higher than over fixed broadband lines. Latencies of 40 ms or lower were recorded for only a single-digit percentage of mobile broadband users.

EL reported that for fixed networks the percentage of nominal speed achieved is 39.26% (DL) and 62.60% (UL). This was calculated based on the mean values of users for each

nominal speed category, and averaging over all categories. On average, speeds for peak hours (7 pm – 11 pm) are 2-3 Mbps lower than off-peak. Meanwhile for mobile networks measurement have been performed in 9 major Greek cities, in national highways, as well as suburban and rural areas and results are expected to be published on the website of EETT at the end of 2017.

HU reported that the contractual quality indicators based on the speed concepts used in the national legislation in force are not always met by a large percentage of the assessed service providers; that based on the time of the day and network load, there is considerable fluctuation in speeds provided; and that many of the services provided by the ISPs would not meet 70% of the offered (promoted) upload and download speeds in 70% of the cases even under normal conditions.

In IT, IAS quality is measured in each Italian region with probes measuring the two most common profiles for each operator. Data are aggregated and published regularly.

PT reported that the overall average download speed registered in the whole period was 35.6 Mbps, and half of the tests registered speeds superior to 21.8 Mbps; that the average overall upload speed registered was 16.8 Mbps, while half the tests registered a value above 7.7 Mbps; that half of the tests measured a latency inferior or equal to 21 ms while the average latency in the whole period was 46 ms. PT noted its measurements are based on a self-selected set of users and may not be representative for the country.

RO reported that the average download speed for fixed internet registered in 2016 was 94.95 Mbps, while the average download speed for mobile internet reached 25.90 Mbps. ANCOM concluded that, in 2016, RO end-users experienced increasing fixed and mobile download speeds.

Finally, the UK reported that for fixed broadband networks average download speed of all active connections in the UK was 37 Mbit/s in 2016 with the average speed of residential fixed broadband services being 36.2 Mbit/s in 2016. However, actual download speeds vary significantly across the day with average download speed recorded during peak-time (8pm-10pm) being 33.6 Mbit/s in 2016. Upload speed of all broadband services was 4 Mbit/s in 2016.

For mobile broadband networks in the UK it was found that the average mobile download speeds achieved across the seven cities measured ranged from 13 Mbit/s (on the O2 network) to 32 Mbit/s (on the EE network). On average 94% of download tests achieved speeds of over 2 Mbit/s.

Question 30. Have you taken any other steps to ensure compliance with Articles 3 and 4 according to Article 5(1) not mentioned elsewhere in this questionnaire? Y/N

If yes, which?

All NRAs confirmed that they had not taken steps to ensure compliance with Articles 3 and 4 in a manner not mentioned elsewhere in the questionnaire.

8 Article 6 Penalties applicable to infringements

Question 31. Has your Member State laid down rules on penalties applicable to infringements of Articles 3, 4, and 5 pursuing to Article 6 of Regulation (EU) 2015/2120? Y/N If yes, please describe them.

If no, please outline the plans in your Member State to establish such penalties.

Only four respondents have not laid down rules on penalties for infringement of the Regulation yet (AT, HR[11], NO and PT). In AT the Telecommunications Act 2003 is currently under review and will be amended to comply with the Regulation. In HR the Electronic Communication Act (sanctioning regime part) was in final phase of amendment in order to comply with the Regulation. In PT the Portuguese Government has received a proposal from the NRA for establishing the sanctioning regime regarding the Regulation. Other NRAs foresee administrative fines in absolute amounts from 250 EUR (the lowest possible fine in BG) up to 3 million EUR (the highest possible fine in EL) or in relative amounts up to 10% of the annual turnover (UK in case of a repeated infringement also BE and NL). The majority of the member states reported also their competences to enforce administrative orders. In case of recurrence, in some member states higher fines can be imposed (e.g. double amount).

[11] In July 2017 the new Electronic communications act of HR came into force. This law does include penalties for infringements of the Regulation.

9 Conclusions

NRAs have been entrusted with the responsibility to apply and enforce the Regulation (EU) 2015/2120. In this work, NRAs have to account of their national environment, including national market circumstances, stakeholders and national administrative law.

This report shows a consistent treatment by NRAs of practices relating to the core principles of net neutrality, such as the ban on blocking of applications and discriminatory treatment of specific traffic.

The Regulation neither allows nor prohibits certain commercial practices per se. The zero-rating cases mentioned in this report illustrate that it is key to analyze the specifics details of the practice concerned and its circumstances. To this end, BEREC Net Neutrality Guidelines set out a number of criteria against which zero rating needs to be assessed.

Striving for a coherent application of the Regulation, BEREC facilitated the exchange of information and knowledge both at the level of Net Neutrality expert working group and in Plenary meetings during 2017. BEREC will continue this work in 2018.

Overall, BEREC concludes that the Regulation has been implemented by NRAs with adequate coherence. During the first year of the entry into force of the Regulation, the first cases were decided upon by NRAs. At the time of writing of this report, also quite a number of cases is being analyzed by NRAs. BEREC concludes that in analyzing cases, NRAs coordinate and exchange information on ongoing cases via the BEREC Expert Working Group. This is contributing to a coherent application of the Regulation.

BEREC concludes that the Net Neutrality Guidelines are well suited to assist NRAs in performing their tasks of supervision and enforcement as set out in Article 5 of the Regulation. As noted above, NRAs are in the process of gathering experience with the first cases, and still need to gather further experiences in order to be able to evaluate the Net Neutrality Guidelines. At the same time, no cases have appeared in which the Net Neutrality Guidelines themselves were insufficient.

BEREC notes that the evaluation of the Regulation (EU) 2015/2120 by the Commission will be conducted by 30 April 2019. Therefore, late 2018 BEREC will provide the Commission with an evaluation report on its experience with the application of the Regulation and the Guidelines.

Annex I: Abbreviations for countries

Throughout the report we have used Eurostat country codes as abbreviations for the country names (http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Country_codes). The country codes for the NRAs to the questionnaire are shown in the following table.

Austria	AT	Italy	IT
Belgium	BE	Latvia	LV
Bulgaria	BG	Lithuania	LT
Croatia	HR	Luxembourg	LU
Cyprus	CY	Malta	MT
Czech Republic	CZ	Norway	NO
Denmark	DK	Poland	PL
Estonia	EE	Portugal	PT
Finland	FI	Romania	RO
France	FR	Slovakia	SK
Germany	DE	Slovenia	SI
Greece	EL	Spain	ES
Hungary	HU	Sweden	SE
Iceland	IS	The Netherlands	NL
Ireland	IE	UK	UK