Position Paper

Draft "BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules" (BoR (16) 94)

15 July 2016

Bitkom represents more than 2,300 companies in the digital sector, including 1,500 direct members. With more than 700,000 employees, our members generate a domestic turnover of 140 billion Euros a year, exporting high-tech goods and services worth another 50 billion Euros. Comprising 1,000 small and medium-sized businesses as well as 300 start-ups and nearly all global players, Bitkom' members offer a wide range of software technologies, IT-services, and telecommunications or internet services. They produce hardware and consumer electronics or operate in the sectors of digital media and the network industry. 78 percent of the companies' head-quarters are located in Germany with an additional amount of 9 percent in other countries of the EU and 9 percent in the USA as well as 4 percent in other regions. Bitkom supports an innovative economic policy by focusing the modernization of the education sector and a future-oriented network policy.

Bitkom welcomes the consultation on BEREC's draft "Guidelines on the Implementation by National Regulators of European Net Neutrality Rules". We are supportive of the aims of the Regulation and of an open internet which encourages innovation, competition and choice for end users and guaranties accessibility to the internet for all users. However, we are concerned that in some areas, BEREC has gone beyond its remit which is restricted to providing guidance for NRAs on how to implement the obligations. We are also concerned that the involvement of stakeholders in the process of drafting these Guidelines has been very limited and the consultation period is very short. Our priority is to ensure that the Guidelines do not inadvertently limit customer choice and prevent innovative new business models and services emerging, especially in relation to the development of 5G and the internet of things.

Summary

On the substance of the draft Guidelines, Bitkom's main concerns are as follows:

Scope: BEREC has gone beyond its mandate and the scope of the Regulations in several areas, including the prohibition of "sub-internet offers" and other commercial practices and the wide interpretation of Internet Access Services (IAS) which would appear to

Federal Association
for Information Technology,
Telecommunications and
New Media

Nick Kriegeskotte
Head of Telecommunications Policy
P +49 30 27576-224
n.kriegeskotte@bitkom.org

Albrechtstraße 10
10117 Berlin
Germany

President
Thorsten Dirks

CEO
Dr. Bernhard Rohleder

limit the ability to offer business customers bespoke services. This interpretation could cause serious detriment to the ability of enterprise customers to operate their business and compete globally and will also have a negative impact on customer choice and innovation. The mandate for BEREC is limited to providing guidance rather than making substantive decisions on what may or may not comply with the Regulation.

Customer choice and commercial practices: The Guidelines go too far in prejudging specific practices as ones which will cause a material impact on customer choice. This presumption is incorrect and is likely to cause not only more uncertainty but also reduce competition and customer choice.

Traffic management: Traffic management is essential for the efficient management of networks, which keeps end users costs low and delivers better quality of service. Despite the Regulation permitting "reasonable traffic management" there is an assumption that investment is always the right solution to management of traffic. In practice, investment is constrained, in the mobile networks, by availability of spectrum, planning, interference between equipment and access to fibre. Investment both in mobile and fixed networks must be economically justified and existing and new methods of traffic management should be encouraged in order to deliver the quality that end users expect.

Optimised non IAS: Article 3(5) sets the boundaries for the way in which non-Internet-Access-Services can be optimised. This exception was designed to enable and encourage the development of innovative new services and the internet of things. However, the approach is very cautious and almost suggestive of an ex ante approach, introduces language. Key concerns are around the addition to new requirements, such as the need for "logical separation" and the lack of guidance in relation to charging for prioritisation

Transparency: Sufficient time should be given to NRAs and ISPs to implement the transparency requirements which should also take into account local regulation already in place.

Future proof rules –There are several areas within the BEREC Guidelines which may result in locking in today's technologies and thereby limit network and service innovation, particularly in relation to traffic management, optimisation of non IAS and business services. 5G in particular is intended to create an internet which is far more attentive to user demand and responsiveness, whether the user is human or millions of things. In the future, our networks will utilise cloud, software and "network slicing" solutions, all of which will drive a more flexible, reactive network. The question of what a network is will also be relevant; the lines between hardware, software and cloud will blur as technology develops.

I. Introductory remarks

The consultation with stakeholders has been very limited to date with no opportunities to see or comment on the draft Guidelines other than the very short consultation period between 6th June and 18th July. Given this is the case,

the comments made within this consultation should be fully considered and where needed, changes should be made within the Guidelines, with further input with stakeholders where needed.

Regulation (EU) 2015/2120, Art. 5(3) establishes that "By 30 August 2016, in order to contribute to the consistent application of this Regulation, BEREC shall, after consulting stakeholders and in close cooperation with the Commission, issue guidelines for the implementation of the obligations of national regulatory authorities under this Article". Therefore, this article should be understood as empowering BEREC to give an opinion on the main obligations of NRAs which are supervision and enforcement, not to give an opinion about the obligations that Regulation impose on Internet Service Providers.

The Regulation lays down measures concerning "open internet access" as expressed in its title. Article 1 states that the subject matter and scope of the Regulation is "to safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services." Therefore, the text for which BEREC must adopt guidelines e.g. §§ 116 and 162 in order to ensure a harmonised implementation in Europe should refer to "open internet access " and not to "net neutrality", wording that is deliberately not used in the Regulation.

II. Subject matter and scope, Definitions (Article 1 and 2)

§ 4: *"According to the Framework Directive, "end-user" means a user not providing public communications networks or publicly available electronic communications services. In turn, "user" means a legal entity or natural person using or requesting a publicly available electronic communications service. On that basis, BEREC understands "end-user" to encompass individuals and businesses, including consumers as well as CAPs."*

§ 5: *"CAPs are protected under the Regulation in so far as they use an IAS to reach other end-users. However, some CAPs may also operate their own networks and, as part of that, have interconnection agreements with ISPs; the provision of interconnection is a distinct service from the provision of IAS."*

§ 6: *"NRAs may take into account the interconnection policies and practices of ISPs in so far as they have the effect of limiting the exercise end-user rights under Article 3(1). For example, this may be relevant in some cases, such as if the interconnection is implemented in a way which seeks to circumvent the Regulation."*

The Regulation provides that the definitions set out in Article 2 of the Directive 2002/21/EC apply. These include a definition of "end user" as "a user not providing public communications networks or publicly available electronic communications services". BEREC has interpreted this to mean that this includes the protection of Content and Application Providers (CAPs), which is correct under the definition that these encompass Content and Application Providers using an Internet Access Service to distribute content or applications to end users.

The Regulation defines IAS, and per default the other services, but without other considerations; BEREC should therefore avoid using the terms 'specialised services' or using criteria that were disregarded by the co-legislators. Bitkom therefore urges BEREC not to refer to "specialised services" in its final guidelines but to use the concept of "services other than internet access services" or the acronym SoIAS.

The BEREC Guidelines expressly provide that NRAs may take into account the interconnection policies and practices of ISPs where this seeks to circumvent the Regulation. This extends the concept of "commercial practices" beyond the retail provision of Internet Access Services. The Regulation concerns end users rights on the retail market. Interconnection issues, including between CAP and ISPs, should be addressed through relevant regulatory provisions concerning interconnection.

- Bitkom's recommendation for alternative wording:

§ 4: *"According to the Framework Directive , "end-user" means a user not providing public communications networks or publicly available electronic communications services. In turn, "user" means a legal entity or natural person using or requesting a publicly available electronic communications service. On that basis, BEREC understands "end-user" to encompass individuals and businesses, including consumers as well as CAPs insofar as they use an Internet Access Service to distribute content or applications to end users."*

§ 5: *"~~CAPs are protected under the Regulation in so far as they use an IAS to reach other end-users. However, some CAPs may also operate their own networks and, as part of that, have interconnection agreements with ISPs; t~~The provision of interconnection is a distinct service from the provision of IAS."*

§ 10: *"Electronic communication services or networks that are offered not only to a predetermined group of end-users but in principle to any customer who wants to subscribe to the service or network should be considered to be publicly available. Electronic communication services or networks that are offered only to a predetermined group of end-users could be considered to be not publicly available."*

BEREC has defined "provider of electronic communications to the public" to mean services which are offered to any customer who wants to subscribe to the service or network. The Guidelines also clarify that offering services to a predetermined group of end-users could be considered to be not publicly available. Bitkom would be grateful for more clarity on this point. If services are offered to enterprise customers who are required to fulfil specific conditions (e.g. number of employees, size of business) or where services are provided on a bespoke basis, we would assume that these services are excluded as they are offered to a pre-determined group of customers. This is essential to continue to provide guaranteed quality for enterprise customers who rely on specific service levels to compete on the global stage and also to deliver time critical services.

▸ Bitkom's recommendation for alternative wording:

§ 10: "Electronic communication services or networks that are offered not only to a predetermined group of end-users ~~but in principle to any customer who wants to subscribe to the service or network~~ should be considered to be publicly available. Electronic communication services or networks that are offered only to a predetermined group of end-users could be considered to be not publicly available."

§ 11: *"Regarding virtual private networks (VPN) network services, these are typically provided by the ISP to anyone that wishes to enter a contract about the provision of such a service, and these would therefore typically be considered to be publicly available. The term 'private' describes the use of such a service which is usually limited to endpoints of the business entering the contract and is secured for internal communications. In accordance with Recital 17, to the extent that when VPNs provide also access to the internet, they are not a closed user group and should therefore be considered as publicly available ECS and are subject to Articles 3(1)-(4). VPNs are further discussed in paragraph 111."*

VPN services are not typically provided by ISPs, they are offered by many service providers. They could use or not the public internet depending on how networks are connected and the routing tables. The assumption they only use the public internet is a wrong statement.

▸ Bitkom's recommendation for alternative wording:

§ 11*: "Regarding virtual private networks (VPN) network services, ~~these are typically provided by the ISP to anyone that wishes to enter a contract about the provision of such a service, and these would therefore typically be considered to be publicly available. T~~the term 'private' describes the use of such a service which is usually limited to endpoints of the business entering the contract and is secured for internal communications. In accordance with Recital 17, ~~to the extent that~~when VPNs provide also access to the internet, they are not a closed user group and should therefore be considered as publicly available ECS and are subject to Articles 3(1)-(4). VPNs are further discussed in paragraph 111."*

§ 17: *"BEREC understands a sub-internet service to be an IAS which would restrict access to services or applications (e.g. banning the use of VoIP or video streaming) or would enable access to only a pre-defined part of the internet (e.g. access only to particular websites). NRAs should take into account that an ISP could easily circumvent the application of the Regulation by providing such sub-internet offers. These services should therefore be considered to be in the scope of the Regulation and the fact that such offers provide a limited access to the internet should qualify as an infringement of Articles 3(1), 3(2) and 3(3) of the Regulation:"*

BEREC has introduced a new concept of a "sub-internet service", being a service "which restricts access to services or applications (e.g. banning the use of VoIP or video streaming) or enables access to only a pre-defined part of the in-

ternet (e.g. access only to particular websites)." The Guidelines go on to provide that NRAs should take into account the fact that an ISP could easily circumvent the Regulation by providing such sub-internet offers and states that these services should therefore be considered to be in the scope of the Regulation and the fact that they provide a limited access to the internet should constitute an infringement of Articles 3(1), 3(2) and 3(3) of the Regulation.

This is incorrect. Articles 3(1), 3(2) and 3(3) of the Regulation apply only to Internet Access Services. These are defined as services which provide connectivity to virtually all parts of the internet. Services which do not provide connectivity to virtually all parts of internet are therefore not impacted by these Articles.

There are essentially 3 categories of service covered by the Regulation:
a. IAS, which is a service provided to the public and which provides access to virtually all end points of the internet which is regulated by Article 3 and 4;
b. Non IAS, which are either not offered to the public or only provide access to a limited number of end points which are not regulated at all; and
c. Non IAS which are "optimised" and which are regulated under Article 3(5).

Recital 7 give NRAs the ability to intervene where commercial practices circumvent the provisions of Article 3(1) (i.e. the end-users' rights to access and distribute information and content and to use and provide applications and services of their choice) but this is not the case in relation to every "sub-internet" offer and consequently, any such review should take place on a case by case basis. It is for the NRA to show in any particular case that a practice is not in line with the Regulation.

Examples of "sub-internet" offers which would be prohibited include access to a WIFI page to register before using a WIFI connection, access to a limited set of services e.g. a SIM which is offered by a health provider giving access to specific health services, access to top up pages to top up a prepay account and access to free education, government or information services (such as Wikipedia Zero).

"Sub-internet" offers are permitted where the offer is limited by nature of the terminal equipment, such as e-book readers and machine-to-machine devices (e.g smart meters, heart monitors, connected cars, etc.). However, as highlighted within the Guidelines, according to general principles of Union law and settled case-law, comparable situations should not be treated differently and different situations should not be treated in the same way unless such treatment is objectively justified.

Therefore the Guidelines should clarify that sub-internet offers fall outside the scope of Articles 3(1)-(3) of the Regulation, whether limited via the network or the terminal equipment used, unless they circumvent the purpose of Article 3(1).

- Bitkom's recommendation for alternative wording:

§ 17: *"BEREC understands ~~a sub-internet service to be an IAS which would restrict access to services or applications (e.g.~~*

~~banning the use of VoIP or video streaming) or would enable access to only a pre-defined part of the internet (e.g. access only to particular websites). NRAs should take into account that an ISP could easily circumvent the application of the Regulation by providing such sub-internet offers. These services should therefore be considered to be in the scope of the Regulation and the fact that such offers provide a limited access to the internet should qualify as an infringement of Articles 3(1), 3(2) and 3(3) of the Regulation.~~ that sub-internet offers fall outside the scope of Articles 3(1)-(3) of the Regulation, whether limited via the network or the terminal equipment used, unless they circumvent the purpose of Article 3(1).”

III. Safeguarding of open internet access (Article 3)

III.1 End-users rights, Costumer choice

§ 32: *“With regard to characteristics of IAS, agreeing on tariffs for specific data volumes and speeds of the IAS would not represent a limitation of the exercise of the end-users’ rights (ref. Recital 7). Moreover, BEREC considers that, as long as the data volume and speed characteristics are applied in an application-agnostic way (applying equally to all applications), end-users’ rights are likely to be unaffected by these characteristics and conditions.”*

§ 33: *“An ISP may bundle the provision of the IAS with an application. For instance, a mobile operator may offer free access to a music streaming application for a period of time to all new subscribers (as opposed to zero-rating, which is explained in paragraphs. […]”*

Under Article 3(2), end users have the right to agree the commercial and technical conditions and characteristics of their internet access service of their choice. Choice is a key concept throughout the Regulation; end users have the right in Article 3(1) to use the content/applications/services of their choice, choose their terminal equipment and negotiate the conditions of their service. The only limitation is that such agreement should not limit their ability to choose what services they can access pursuant to Article 3(1). Any restrictions are also limited by recital 7, in the event that commercial agreements materially restrict end users choice.

Consequently, it is incorrect for the Guidelines to provide that data volume and speed characteristics must be applied in an application agnostic way. For example, an end user may agree to an IAS where there is a specific data cap but customer care and top up websites are offered for free. Similarly, customers may want to implement parental or SPAM controls on their IAS, which allows them to choose which sites they want to be able to access.

More generally, if an IAS provider provides an option to the end-users by which end-users may choose for whatever reason to ban types of applications or specific content, e.g. web-based child protection measures, it should not be considered as an impairment of freedom of choice of end users. On the contrary, it is an enhancement of end-users choices and freedom, including when end-users voluntarily ask for the blocking of advertising content. BEREC should in such cases not prevent end-users to make personal choices.

The Guidelines give an example for the commercial practice of bundling the provision of the IAS with an application in § 33. This practice is deemed not to limit the exercise of the end-users' rights granted under article 3(1). From the text it seems unclear if BEREC is of the opinion that the described practice shall be allowed only for a limited period of time. Bitkom thinks it should not be time limited.

▸ Bitkom's recommendation for alternative wording:

§ 32: *"With regard to characteristics of IAS, agreeing on tariffs for specific data volumes and speeds of the IAS would not represent a limitation of the exercise of the end-users' rights (ref. Recital 7).* ~~*Moreover, BEREC considers that, as long as the data volume and speed characteristics are applied in an application-agnostic way (applying equally to all applications), end-users' rights are likely to be unaffected by these characteristics and conditions.*~~*"*

§ 33: *"An ISP may bundle the provision of the IAS with an application. For instance, a mobile operator may offer free access to a music streaming application* ~~*for a period of time*~~ *to all new subscribers (as opposed to zero-rating, which is explained in paragraphs. […]"*

III.2 Commercial differentiation

§ 37: *"A specific commercial practice is called zero-rating. This is where an ISP applies a price of zero to the data traffic associated with a particular application or category of applications (and the data does not count towards any data cap in place on the IAS).There are different types of zero-rating practices which could have different effects on end-users and the open internet, and hence on the end-user rights protected under the Regulation."*

§ 38: *"A zero-rating offer where all applications are blocked (or slowed down) once the data cap is reached except for the zero-rated application(s) would infringe Article 3(3) first (and third) subparagraph (see paragraph In case of agreements or practices involving technical discrimination, this would constitute unequal treatment which would not be compatible with Article 3(3). This holds in particular for the following examples:)."*

§ 39: *"The ISP could either apply or offer zero-rating to an entire category of applications (e.g. all video or all music streaming applications) or only to certain applications thereof (e.g. its own services; the one specific social media applications; the most popular video or music applications). In the latter case, an end-user is not prevented from using other music applications. However, the zero price applied to the data traffic of the zero-rated music application (and the fact that the data traffic of the zero-rated music application does not count towards any data cap in place on the IAS) creates an economic incentive to use that music application instead of competing ones. The effects of such a practice applied to a specific application are more likely to "undermine the essence of the end-users' rights" or lead to circumstances where "end-users' choice is materially reduced in practice" (Recital 7) than when it is applied to an entire category of applications."*

§ 40: *"When assessing such agreements or commercial practices like zero-rating in relation to Article 3(2), NRAs and other competent authorities should take into account the aim of the Regulation to "safeguard equal and non-discriminatory treatment of traffic" (Article 1) and to "guarantee the continued functioning of the internet ecosystem as an engine of innovation" (Recital 1) as well as Recital 7, which directs NRAs and other competent authorities to intervene against agreements or commercial practices which, "by reason of their scale, lead to situations where end-users' choice is materially reduced in practice", or which would result in "the undermining of the essence of the end-users' rights"."*

§ 41: *"Recital 7 also indicates NRAs and other competent authorities should take into account the "respective market positions of those providers of internet access services, and of the providers of content, applications and services, that are involved"."*

§ 50: *"NRAs should take into account that equal treatment does not necessarily imply that all end-users will experience the same network performance or QoS. Thus, even though packets can experience varying transmission performance (e.g. on parameters such as latency or jitter), packets can normally be considered to be treated equally as long as all packets are processed agnostic to sender and receiver, to the content accessed or distributed, and to the application or service used or provided."*

The impact of the restrictions, above, if not amended, will be to stifle the range of new and innovative services that we are currently seeing in the market. These include:

- 'Pure zero-rating' - where an operator zero rates a site for all of its customers, irrespective of their particular tariff plans with no data usage restrictions. Examples include services such as apps, providing customer support and enabling customers to check their balance and top up, and Net Perform, an app which enables customers to measure the speed of their IAS service. This type of pricing is particularly well suited for education, health and e-government services, such as Wikipedia Zero, and is similar to the current practice of offering freephone numbers for customer care and charitable services. While it could be possible in some cases that such discriminatory practices might in theory be harmful to certain sites not benefitting from such a practice, an assessment based on the specific facts would need to be done. This would need to take into account the market positions of the ISP and/or the preferred site, the impact on competitors and whether foreclosure actually occurs and the impact on customer choice. This is why the Regulation has not prohibited zero-rating expressly, given that is a form of discriminatory pricing that will most often produce real benefits to consumers, while on a worst-case scenario raising the foreclosure concerns that one associates with predatory pricing. This model would be prohibited under the BEREC Guidelines, irrespective of the effects on consumer choice or the benefits to those consumers.

- 'Sponsored data' – this is where customers can earn extra free data by responding to marketing surveys and/or shopping online with various brands. These types of business models are not obviously discriminatory on their face, and are most likely to enhance competition as between mobile operators. Again, these would be prohibited or severely limited under the BEREC Guidelines as operators would be required to throttle or block data usage once a consumer reached their purchased data cap, meaning that they could not access the data they have

earned. In addition, such sponsored data models can help smaller content providers, who cannot compete in terms of building complex content delivery networks to optimise their traffic.

- "Bundled data and content" - A new model emerging is one where the content and data is bundled within one overall price. Mobile operators might, for example, combine the price of the data and content with a music offer, in return for specific tariffs or as an add-on option. This provides a worry free option to customers who have purchased video or music services with their tariff. While again there may be specific circumstances where both the operator and the content provider have market power and where customer's choice is severely restricted, there may also be many examples where this type of service provides real benefits to both consumers, who can access the service they want without worrying and competition, helping smaller providers compete more effectively.

- "Content categories" – this is where a category of content (social, music, video) is priced differently, either within a tariff or as a separate bundle. As recognised by the BEREC Guidelines, these are unlikely to affect customer choice. However, the Guidelines still prevent such differential pricing from applying when a data cap is reached – which causes confusion and reduces the value for both the end user and the content provider.

In relation to differential pricing, we agree with BEREC that such practices may influence end users exercise of their rights without necessarily limiting them. Differential pricing can create more choice for customers, allowing them to purchase the services that best meet their needs. It can also help make available services which are beneficial to society, whether e-government, education, health or other services. Finally differential pricing can help smaller content providers compete more effectively, whether via differential pricing for a less well known service or within a content category, such as video, which is priced differently.

The Guidelines specify that differential pricing is not prohibited per se, but will be reviewed on a case by case basis. However, they go on to prohibit or restrict specific practices, including:

- a zero-rating offer where all applications are blocked (or slowed down) once the data cap is reached except for the zero-rated application(s) – however as set out below, prohibiting such offers is both likely to prevent zero rating itself and have a negative impact on both customers and CAPs.

- commercial practices which apply a higher price to the data associated with a specific application or class of applications which are deemed to be more likely to limit the exercise of end-users' rights because of the potentially strong disincentive created to the use of the application(s) affected, and consequent restriction of choice. Again, this is an assumption which may or may not be correct depending on the characteristics of the relevant service. For example, a provider of a music app may prefer to charge a higher data rate (and collect a percentage of the revenue from the operator) than to charge for the content itself. This makes the collection of revenue much easier for both the content provider and the customer and is similar to the structure already in place for premium rate services. Rather than reducing the development of new applications it is likely to stimulate the development of smaller services by providers who do not have the funds to invest in complex revenue collection.

- There is an assumption that the lower the data cap, the higher the impact on customer choice will be. This again will very much depend on circumstances – if a customer care app is provided for free, it will make very little difference to customer choice but will have a significant benefit to the customer in controlling their data usage and spending.

- There is an assumption that price differentiation for categories is less likely to have a negative impact on customer choice than price differentiation for specific services. Again, it will depend on the service; if a service is small and not well known and is zero rated, it could encourage competition in a market where another service is dominant.

The Guidelines also acknowledge recommend consideration of the guidance provided in relation to "commercial practices" in Article 2(d) the Unfair Commercial Practices Directive (UCPD). It is worth noting that the draft Guidance published on 25 May provides that price discrimination (where a trader applies different prices to different groups of consumers for the same goods or services) is permitted if the consumer is informed in a transparent manner and provided it is not based on nationality and place of residence.

BEREC guidelines should not prevent or hamper the emergence of network evolutions based on 5G or SDN/NFV solutions and/or adopt a too static approach on business VPNs. The driving vision of 5G is to create an internet which is far more attentive to user demand and responsiveness, whether the users are human or (millions of) things. 5G networks will utilise cloud, software and "network slicing" solutions, all of which will drive a more flexible, reactive and efficient overall network. Any Guidelines must not lock in today's technologies and thereby limit network and service innovation, which is currently the case in the draft. The Regulation provides that reasonable traffic management is permitted and also recognises that it contributes to the efficient use of network resources and optimisation of overall quality. While the Regulation focuses on the technical needs of the traffic, the draft guidelines go further and provide that "packets can normally be considered to be treated equally as long as all packets are processed agnostic to sender and receiver, to the content accessed or distributed, and to the application or service used or provided" (§ 50). Traffic today and even more so in a 5G world will have different needs and cannot be processed in a way that is "agnostic to sender and receiver, to the content accessed or distributed, and to the application or service used or provided". This wording should be deleted.

▸ Bitkom's recommendation for alternative wording:

§ 37: *"A specific commercial practice is called zero-rating. This is where an ISP applies a price of zero to the data traffic associated with a particular application or category of applications (and the data does not count towards any data cap in place on the IAS).There are different types of zero-rating practices which ~~could have different effects on end-users and the open internet, and hence on the end-user rights protected under~~ are not part of the Regulation."*

§ 38: *"A zero-rating offer where all applications are blocked (or slowed down) once the data cap is reached except for the zero-rated application(s) wouldn't infringe Article 3(3) first (and third) subparagraph (see paragraph In case of agreements or practices involving technical discrimination, this would constitute unequal treatment which would not*

be compatible with Article 3(3). This holds in particular for the following examples:)."

§ 39: *"The ISP could either apply or offer zero-rating to an entire category of applications (e.g. all video or all music streaming applications) or only to certain applications thereof (e.g. its own services; the one specific social media applications; the most popular video or music applications). In these ~~latter~~ cases, an end-user is not prevented from using other music applications. However, the zero price applied to the data traffic of the zero-rated music application (and the fact that the data traffic of the zero-rated music application does not count towards any data cap in place on the IAS) creates an economic incentive to use that music application instead of competing ones. ~~The effects of such a practice applied to a specific application are more likely to "undermine the essence of the end-users' rights" or lead to circumstances where "end-users' choice is materially reduced in practice" (Recital 7) than when it is applied to an entire category of applications.~~"*

§ 40: *~~"When assessing such agreements or commercial practices like zero rating in relation to Article 3(2), NRAs and other competent authorities should take into account the aim of the Regulation to "safeguard equal and non-discriminatory treatment of traffic" (Article 1) and to "guarantee the continued functioning of the internet ecosystem as an engine of innovation" (Recital 1) as well as Recital 7, which directs NRAs and other competent authorities to intervene against agreements or commercial practices which, "by reason of their scale, lead to situations where end-users' choice is materially reduced in practice", or which would result in "the undermining of the essence of the end-users' rights".~~"*

§ 41: *"Recital 7 also indicates NRAs and other competent authorities should take into account the "respective market positions of those providers of internet access services, and of the providers of content, applications and services, that are involved"."*

§ 50: *"NRAs should take into account that equal treatment does not necessarily imply that all end-users will experience the same network performance or QoS. Thus, even though packets can experience varying transmission performance (e.g. on parameters such as latency or jitter), packets can normally be considered to be treated equally ~~as long as all packets are processed agnostic to sender and receiver, to the content accessed or distributed, and to the application or service used or provided.~~"*

III.3 Reasonable traffic management

§ 65: *"In the event that traffic management measures are based on commercial grounds, the traffic management measure is not reasonable. An obvious example of this could be where an ISP charges for usage of different traffic categories. However, NRAs do not need to prove that a traffic management measure is based on commercial grounds; it is sufficient to establish that the traffic management measure is not based on objectively different technical QoS requirements."*

According to BEREC´s guidelines traffic management measures shall not be based on commercial considerations. This requirement is hard to fulfil because all decisions and measures made by a telecommunication operator participating in competition are in a way commercially based. Regarding this requirement traffic management measures are not allowed at all.

A traffic management measure may have commercial reasons but may also be technical necessary. It would be wrong calling this measure unreasonable.

If the traffic management measure is implemented for wholesale internet access products it must also be possible to charge the implementation and current costs to the wholesale customer's account.

▸ Bitkom's recommendation for alternative wording:

§ 65: *"In the event that traffic management measures are primarily based on commercial grounds, the traffic management measure is not reasonable. An obvious example of this could be where an ISP charges for usage of different traffic categories. However, NRAs do not need to prove that a traffic management measure is based primarily on commercial grounds; it is sufficient to establish that the traffic management measure is not based on objectively different technical QoS requirements."*

§ 70: *"This does not prevent, per se, a trigger function to be implemented and in place (but with the traffic management measure not yet effective) on an ongoing basis inasmuch as the traffic management measure only becomes effective in times of necessity. Necessity can materialise several times, or even regularly, over a given period of time. However, where traffic management measures are permanent or recurring, their necessity might be questionable and NRAs should, in such scenarios, consider whether the traffic management measures can still be qualified as reasonable within the meaning of Article 3(3) second subparagraph."*

This wording introduces a new limitation on reasonable traffic management not based on the Regulation or technical realities of how networks are managed. The Regulation does not in any provision or recital state that reasonable traffic management cannot be implemented on a permanent and recurring basis.

Reasonable traffic management is clearly defined in recital 9: It is transparent, proportionate, not based on commercial considerations but based on the objective technical requirements of different kinds of traffic. Stating that permanent traffic management cannot be considered reasonable has no legal basis in the Regulation and it seems to be based on the assumption that traffic management is only in place to deal with congestion that happens due to lack of capacity. Reasonable traffic management is about how networks are configured to enable the most efficient use of network resources and to increase overall transmission and throughput rates for the different kinds of traffic. It is not something, which is "switched on and off". This is only increasing as networks are becoming more and more automated. Machines will define when network hits levels of congestion that require automated traffic management

techniques to be deployed. In mobile networks for example, while developments move to 5G, service differentiation, automation and increased flexibility, new advanced network technologies like multi antenna and device to device communications will only increase the continuous need for network management, independent of network capacity.

For that reason, the Regulation does not contain any duration, timing or congestion-based conditions on when reasonable traffic management measures can be put in place. The guidelines should remain within the scope of the Regulation and not create new conditions which risks undermining the sound language in Art. 3(3) second subparagraph and recital 9. There is no trade-off between capacity and traffic management. Investments in more capacity will not reduce traffic management policies in place, nor will it address latency, throughput and jitter needs for services and applications.

▸ Bitkom's recommendation for alternative wording:

§ 70: "This does not prevent, per se, a trigger function to be implemented and in place (but with the traffic management measure not yet effective) on an ongoing basis inasmuch as the traffic management measure only becomes effective in times of necessity. Necessity can materialise several times, or even regularly, over a given period of time. ~~However, where traffic management measures are permanent or recurring, their necessity might be questionable and NRAs should, in such scenarios, consider whether the traffic management measures can still be qualified as reasonable within the meaning of Article 3(3) second subparagraph~~."

III.4 Logical separation and strict admission control

§ 106: *"If assurance of a specific level of quality is objectively necessary this cannot be provided by simply granting general priority over comparable content. It is understood that specialised services are offered through a connection that is logically separated from the IAS to assure these levels of quality. The connection is characterised by an extensive use of traffic management in order to ensure adequate service characteristics and strict admission control."*

In Bitkom's point of view this creates technology mandates without a legal basis in the Regulation. The current language of the draft guideline goes above and beyond the legal text in the Regulation. This language was included in the European Parliament's definition of a specialised service. However, during negotiations between the European Parliament and the Council of Ministers, a political decision was taken not to include this definition precisely on the basis that there are several ways in which these services can be delivered, thereby avoiding limiting the kind of services that can be delivered as SoIAS. There is consequently no legal basis in the Regulation for introducing such technology mandates in the BEREC guidelines. The BEREC guidelines should implement what was politically agreed and should not introduce further obligations above and beyond that.

This would limit SoIAS to video and real time. A logical separation and strict admission control are methods used to deliver some SoIASbut they are not the only ways. Logically separate connections implies a level of demarcation of

network resources that may not always be true nor necessary in order to deliver a specialised service without it having a negative impact on IAS. Some services will be delivered through mechanisms that would arguably be "logically separate" connections, e.g. IPTV through multicast. However, other in particular future services may be delivered on shared interfaces where it is not clear whether that would qualify as logically separate. For instance, it could be imagined in the future emergency services are delivered as SoIASbut, as rarely used, there will be no need to implement logically separate connections. In the event the service will be used it will be set up to automatically get priority. Another example could be online gaming through P2P set up to automatically download resources overnight when there is available capacity.

Additionally, there is already a trend in current deployments towards "single-IP", using a single IP address per user and a single VLAN construct for the plurality of its services, using Ethernet, IP and TCP/UDP parameters for traffic class differentiation, but not using logical separation. Admission control is one specific delivery method for the kind of services that would likely be SoIASunder the Regulation. There are two reasons for implementing strict admission control. The first is to ensure the user is authorised to use the service. The second is for network resources. This mechanism is therefore mainly used for services that require specific and/or high rates, namely real-time video and voice. Other services which could be delivered as SoIAS do not require specific and/or high rates, e.g. home health care, smart grid management and home surveillance, and are therefore not delivered with strict admission control. This does not mean they may not need to be delivered as SoIASfor reliability and a mandate to apply strict admission control could impede such services to be offered.

- Bitkom's recommendation for alternative wording:

§ 106: ~~"If assurance of a specific level of quality is objectively necessary this cannot be provided by simply granting general priority over comparable content. It is understood that specialised services are offered through a connection that is logically separated from the IAS to assure these levels of quality. The connection is characterised by an extensive use of traffic management in order to ensure adequate service characteristics and strict admission control."~~

III.5 Verification that specialized service could not be delivered over IAS, VPN

Regarding §§ 101 and 107 Bitkom does not have a consensual position and does therefore not comment on the issue of a verification that SoIAS could not be delivered over IAS.

§ 110: *"QoS might be especially important to corporate customers and these customers might be in need of specialised services which – as they are addressing businesses – are often referred to as "business services". Such "business services" cover a wide array of services and have to be assessed on a case-by-case basis."*

§ 111: *"Business customers often request services relating to virtual private networks (VPN), which are also discussed in paragraph 11 above. […] The term VPN can be used in relation to two different types of services:*

- *"VPN application": A VPN application is typically used in the context of teleworking. A computer (e.g. an employee's laptop) uses the public internet to connect to corporate services. In order to protect the information transferred, a VPN application on the client encrypts all traffic and typically sends all traffic to a VPN concentrator located within the corporate network. Both ends - the client and the concentrator - use an IAS, and this would therefore not be a specialised service.*
- *"VPN network service": A VPN network service is typically used to provide a private connection between a number of sites (e.g. different locations of a corporation). Such VPN services are typically implemented over common infrastructure with IAS (e.g. based on MPLS). Such services are provided in parallel with IAS. As long as the services comply with the requirements set out in the Regulation, they are considered to be specialised services."*

The Guidelines should make it clear that providers are entitled to take into account "commercial considerations" when providing optimised services under Article 3(5). An operator who supports optimised services, content, or apps must be able to charge customers different prices for objectively different forms of optimised service, content, or app support. Indeed, the entire basis of Article 3(5) is that the optimised service, content, or app has an objectively higher quality requirement than normal internet service access. If so, it also seems obvious that in so far as different types of services, content, or apps have higher quality requirements than other services, content, or apps, then the provider is entitled to reflect this higher level of service provision in its pricing.

BEREC hints at the important fact that a certain QoS is often necessary for corporate customers and that they are in need of specialized services and often request services relating to virtual private networks (VPN). Business customers often ask for combined products comprising internet access services as well as additional services. A clear cut between these services can´t be made. In our opinion business products/ services designed for corporate customers should be treated separately and differentially. It must be possible for ISP to fulfill individual needs of their business customers, for example also prioritization of a defined traffic category, and therefore charge a fee. Application of the general open internet rules does not fit here and would prevent business providers from developing and launching new specialized business products.

▸ Bitkom's recommendation for alternative wording:

§ 110: "QoS might be especially important to corporate customers and these customers might be in need of SoIAS ~~specialised services~~ which – as they are addressing businesses – are often referred to as "business services". Such "business services" cover a wide array of services and have to be assessed on a case-by-case basis."

New: "Considering different types of services, content, or apps that have higher quality requirements than other services, content, or apps, the provider is entitled to reflect this higher level of service provision in its pricing."

§ 111. "Business customers often request services relating to virtual private networks (VPN), which are also discussed in paragraph 11 above. […] The term VPN can be used in relation to two different types of services:

- *"VPN application service": A VPN application service is typically used in the context of teleworking. A computer*

(e.g. an employee's laptop) uses the public internet to connect to corporate services. In order to protect the information transferred, a VPN application service on the client encrypts all traffic between the VPN client and the VPN server and typically sends all traffic to a VPN concentrator located within the corporate network. Both ends - the client and the concentrator - use an IAS, and this would therefore not be a specialised service. Such services can be provided using an IAS or in parallel with IAS as SoIAS ~~specialised services~~.

- *"VPN network service": A VPN network service is typically used to provide a private connection between a number of sites (e.g. different locations of a corporation). Such VPN services are typically implemented over common infrastructure with IAS (e.g. based on MPLS). Such services are provided in parallel with IAS. As long as the services comply with the requirements set out in the Regulation, they are considered to be SoIAS ~~specialised services~~."*

III.6 Ex-Post approach

§ 108: *"The internet and the nature of IAS will evolve over time. A service that is deemed to be a specialised service today may not necessarily qualify as a specialised service in the future due to the fact that the optimisation of the service may not be required, as the general standard of IAS may have improved. On the other hand, additional services might emerge that need to be optimised, even as the standard of IAS improves. Given that we do not know what specialised services may emerge in the future, NRAs should assess whether a service qualifies as a specialised service on a case-by-case basis."*

Optimisation of specific services can bring supply-chain efficiencies across multiple sectors, including utilities, health, agriculture and automotive. The industrial use cases for these services will place different demands on the network: for example,

- An agriculture case can involve coverage of a fixed area, with infrequent, small updates over a period of ten years from deployed sensors.
- A robotic surgery case could involve ultra-low latency and high-data throughput with minimal packet loss for an hour.
- A consumer augmented reality service may involve low-latency video updates whilst transiting between radio cells – for example, a motorcycle rider with a heads-up display.

However, the Guidelines introduce a requirement for NRAs to verify whether, and to what extent, optimised delivery is objectively necessary to ensure one or more specific and key features of the applications, and to enable a corresponding quality assurance to be given to end-users. This suggests an ex ante approach should be taken, which goes against the requirements of the Regulation and would stifle the development of the internet of things. The BEREC Guidelines should make it clear that any assessment must be done on an ex post basis.

▸ Bitkom's recommendation for alternative wording:

§ 108: *"The internet and the nature of IAS will evolve over time. A service that is deemed to be a SoIAStoday may not necessarily qualify as a specialised service in the future due to the fact that the optimisation of the service may not be required, as the general standard of IAS may have improved. On the other hand, additional services might emerge that need to be optimised, even as the standard of IAS improves. Given that we do not know what SoIASmay emerge in the future, NRAs should assess whether a service qualifies as a specialised service on a case-by-case basis based on an ex-post approach."*

III.7 Sufficient network capacity for specialized services

§ 114: *"This implies that, in order to ensure the quality of the specialised services, ISPs would have to ensure sufficient network capacity for both any IAS offers provided over the infrastructure and for specialised services. If not, provision of the specialised services would not be allowed under the Regulation."*

§ 115: *"NRAs could request information from ISPs regarding how sufficient capacity is ensured, and at which scale the service is offered (e.g. networks, coverage and end-users). NRAs could then assess how ISPs have estimated the additional capacity required for their specialised services and how they have ensured that network elements and connections have sufficient capacity available to provide specialised services in addition to any IAS provided."*

§ 120: *"NRAs should assess that the provision of specialised services does not reduce general IAS quality by lowering measured download or upload speeds or, for example, by increasing delay, delay variation or packet loss. Normal small-scale temporal network fluctuation should not be considered to be to the detriment of the general quality. Network outages and other temporary problems caused by network faults, for example, should be treated separately."*

Bitkom requires to BEREC that the guidelines should not prescribe the means that the operator has to take in order to deliver the quality of the specialised service. The analysis of the impact of optimised non IAS on IAS availability and general quality must take into account an essential fact: should any given optimised non IAS disappear, the usage served by this optimised non IAS would continue, even at a degraded quality, and would occupy IAS resources, inefficiently because of lack of optimisation. Therefore, the assessment of the capacity allocated to specialised services should be made net of the IAS capacity saved by having optimised non IAS provided outside IAS.

To formalise this idea, BEREC guidelines should use the right counterfactual to compare the situation with or without optimised non IAS. Absent optimised non IAS, the corresponding usage would not disappear, but would have to be carried on IAS resources, in a less optimised way with less quality, less consumer satisfaction, and more network capacity requirement due to absence of optimisation. Therefore, in general, the existence of optimised non IAS saves network capacity for the benefit of applications and contents provided on IAS. Considering the appropriate counterfactual scenario, it should be clear that most generally the existence of optimised non IAS improves the general quality of applications and content provided over IAS.

BEREC guidelines cannot either impose contradictory requirements to optimised non IAS which would be structurally impossible to meet, in contradiction with the freedom to provide specialised services provided by the Regulation. In particular, it would be logically inconsistent to require from optimised non IAS to provide better quality that would not be possible over IAS, and at the same time to prohibit priority access to network resources for specialised services. There is a good reason why the Regulation does not impose non-discrimination between IAS traffic and optimised non IAS: it is precisely to allow optimised non IAS to offer quality or guarantees which cannot be guaranteed on IAS. Any provision in BEREC guidelines which would prohibit priority access to network resources for optimised non IAS (of course subject to the non-impairment of the availability and general quality of IAS) would contradict the text and the spirit of the Regulation and would have damaging effects on EU citizens and businesses.

- Bitkom's recommendation for alternative wording:

§ 114: ~~*"This implies that, in order to ensure the quality of the specialised services, ISPs would have to ensure sufficient network capacity for both any IAS offers provided over the infrastructure and for specialised services. If not, provision of the specialised services would not be allowed under the Regulation."*~~

§ 115: ~~*"NRAs could request information from ISPs regarding how sufficient capacity is ensured, and at which scale the service is offered (e.g. networks, coverage and end-users). NRAs could then assess how ISPs have estimated the additional capacity required for their specialised services and how they have ensured that network elements and connections have sufficient capacity available to provide specialised services in addition to any IAS provided."*~~

§ 120: *"NRAs should assess that the provision of* ~~*specialised services*~~ *does not reduce general IAS quality by lowering measured download or upload speeds or, for example, by increasing delay, delay variation or packet loss. Normal* ~~*small-scale temporal*~~ *network fluctuation as well as non-severe impact should not be considered to be to the detriment of the general quality. Network outages and other temporary problems caused by network faults, for example, should be treated separately."*

IV. Transparency measures for ensuring open internet access (Article 4)

IV.1. Retrospective application of contractual obligations and legal uncertainty

Bitkom believes that BEREC should restrain from recommending a retrospective application of provisions, which could negatively impact millions of already existing customers. BEREC has to acknowledge that ISPs have already adjusted business practices and recommend a flexible application of its guidelines.

§ 130: *"Articles 4(1), 4(2) and 4(3) apply to all contracts regardless of the date the contract is concluded or renewed. Article 4(4) applies only to contracts concluded or renewed from 29 November 2015."*

§ 133: *"Modifications to contracts are subject to national legislation implementing Article 20(2) of the Universal Service Directive."*

The regulation according to § 130 has entered into force at 30 April 2016, as included in art. 10 (2). Considering that BEREC is only obliged to provide guidance until 30 August, providers have a high legal uncertainty if their adjustment measures will be considered as being compliant. This uncertainty is even more sever with regard to Art. 4 (4) which entered into force already in November 2015, very shortly after the regulation was adopted. BEREC needs to acknowledge that such timeframes are challenging and do not reasonably allow providers to ensure adequate full compliance with all provisions.

The guidelines need to explicitly grant NRAs flexibility about the point in time when to consider the guidelines as possible benchmark for providers' compliance with the regulatory provisions. The guidelines shall not serve for NRAs as benchmark to assess compliance of already concluded contracts but only for contracts that are concluded after BEREC has finalised its recommendations. Otherwise those providers who early adjusted their contracts to comply with the deadlines would be disadvantaged compared to providers who wait for legal clarification through BEREC.

BEREC's interpretation of Art. 4 (4), to apply Art. (1), (2), (3) in §§ 130 and 133 to any contract in the market, would require adjustment of contractual documents not only for new but also for many millions of already existing customers. This would lead to customers' confusion, a loss of trust if new contractual parameter diverge from agreed provisions, and possibly contractual consequences (see elaboration below on Art. 4 (1) letter (d) and Art. 4 (4)). Consumer would be informed about the new, deviating contractual performance parameters, which may lead to the demand for termination rights based on Art. 20 (2) of the Universal Service Directive. Besides these negative effects, a retrospective application is not prescribed in the TSM regulation and there is no room for such an interpretation: Article 10 prescribes that the obligations enter into force at 30th April 2016. The listed exceptions do not refer to Art. 4 and, thus, no variation from this general deadline is allowed. Also, there are no exceptions included elsewhere (e.g. as this is sometimes the case in other regulation such as in Regulation 531/2012 Art. 7, referring to Art. 6 which explicitly prescribes an application to all contracts in the market). Article 4 (1) in conjunction with Recital 18 aims at facilitating consumers' informed choice, which clearly refers only to new contracts.. From a practical perspective, a retrospective application would be highly detrimental: Providers can only agree new performance parameters within new contracts. Adjustments of existing contracts would require explicit agreements of every customer and would imply the right for each customer to terminate the contract.

The retrospective application of Art. 4 (4) is in no contradiction to apply the other paragraphs only in April 2016. The Art. 4 (4) works independently from the requirements of new contractual performance parameters (Art 4 (1), (2), (3)). Also article 3 which is valid from the 30th April 2016 applies independently from the fact that some regulations in article 3 apply to existing contracts, where explicitly prescribed. The provisions in Art. 4 (1) have to be considered in conjunction with Art. 4 (4), which aims at enabling customers to control the contractual performance. Since Art. 4 (4)

applies solely to contracts concluded after the 29th November 2015, it would make no sense to implement new information into all existing contracts. End-users would be informed about new contractual parameters, however, would have none of the related rights foreseen in Art. 4 (4). BEREC shall not go beyond the regulatory provisions and obligations must not apply to contracts concluded before November 2015 (Art. 4 (4)) or, respectively, April 2016 (Art. 4 (1), (2), (3)). § 130 needs to be deleted accordingly.

BEREC's reference to contractual modification and national legislation in § 133 linked to Art. 4 (1) letter (a) should clarify that the provisioning of additional information to already existing customers shall not be considered as contractual modification. Accordingly, this must not trigger an exceptional right of termination as included in Art. 20 (2) Universal Service Directive.

▸ Bitkom's recommendation for alternative wording:

§ 130: *"Articles 4(1), 4(2) and 4(3) apply to all contracts ~~regardless of the date the contract is~~ concluded or renewed from 30 April 2016. Article 4(4) applies only to contracts concluded or renewed from 29 November 2015. Distinctions between consumers and business customers concerning information and publication due to the nature of the services are possible."*

§ 133: *"Modifications to contracts are subject to national legislation implementing Article 20(2) of the Universal Service Directive. Provisioning of additional information to already existing customers is not considered as contractual modification and therefore does not trigger an exceptional right of termination as included in Art. 20 (2) Universal Service Directive."*

IV.2. Publication of Information

In Bitkom's point of view the tightened regulatory obligations to publish information are further restricted by BEREC, causing significant additional effort for ISPs. BEREC's approach to suggest customised technical parameters contradicts with publication of general information.

§ 127: *"NRAs should ensure that ISPs include in the contract and publish the information elements below, preferably presented in two parts (levels of detail):*

- *The first part should provide high-level (general) information. The information about the IAS provided should include, for example, an explanation of speeds, examples of popular applications that can be used with a sufficient quality, and an explanation of how such applications are influenced by the limitations of the provided IAS. This part should include reference to the second part where the information required by Article 4(1) of the Regulation is provided in more detail.*
- *The second part would consist of more detailed technical parameters and their values and other relevant information defined in Article 4(1) of the Regulation and in these Guidelines."*

The guidelines include the recommendation that ISPs include in the contract and publish the information referred to in Article 4(1) letters (a) to (e), preferably presented in two parts. There is no such requirement in the regulation that would justify a further restriction on how the detailed public and contractual information have to be presented and that beyond general information also more detailed explanations are required. It has to be noted that the general provision to publish information on contracts already goes beyond horizontal rules, which only obliges service providers to indicate main characteristics of a contract before contract conclusion. This horizontal rule applies for ISPs additionally, as BEREC states in the footnotes. BEREC's draft proposal to publish also "more detailed technical parameters" would cause further effort for providers and needs to be skipped.

Apart from this, the publication of information to facilitate informed end-user's choice conflicts with BEREC's interpretation of Art. 4 (1) letter (d). While published information are per se general and non-individual, BEREC recommends the provisioning of customised technical parameters in individual contracts (e.g. individual speed ranges). However, the publication of customised contractual information are of no value for end-users who want to compare different offerings and ISPs would be required to publish a huge variety of different information, reflecting each customised contract. BEREC should clarify that publication of information has to refer to general information. Also individually agreed contract cannot reasonable include customised technical parameters (see comment on § 142 et seq.).

▸ Bitkom's recommendation for alternative wording:

§ 127: *"NRAs should ensure that ISPs include in the contract and publish the information elements below~~, preferably presented in two parts (levels of detail)~~:*

- *~~The first part should provide high level (general) information. The information about the IAS provided should include, for example,~~ an explanation of speeds, ~~examples of popular applications that can be used with a sufficient quality, and an explanation of how such applications are influenced by the limitations of the provided IAS. This part should include reference to the second part where the information required by Article 4(1) of the Regulation is provided in more detail.~~*
- *~~The second part would consist of more detailed~~ technical parameters and their values and other relevant information defined in Article 4(1) of the Regulation and in these Guidelines."*

IV.3 Contractual information and compliance requirements

In Bitkom's point of view BEREC's should refrain from relating all technical parameters and from fully customising offerings that address mass market. End-users would have less valid information on the available speed, ISPs less incentive to invest in high speed internet, and broadband targets would be threatened.

§ 131: *"NRAs should ensure that ISPs include in the contract and publish a concise and comprehensive explanation of traffic management techniques applied in accordance with the second and third subparagraphs of Article 3(3), including the following information:*

- *how the measures might affect end-user experience in general respect and with regard to specific applications (e.g. where specific categories of traffic are treated differently in accordance with Article 3). Practical examples should be used for this purpose;*
- *the circumstances and manner under which traffic management measures possibly having an impact as foreseen in Article 4(1) letter (a) are applied ;*
- *any measures applied when managing traffic which use personal data, the types of personal data used, and how ISPs ensure the privacy of end-users and protect their personal data when managing traffic.*

§ 132: *The information should be concise and comprehensive. The information should not simply consist of a general condition stating possible impacts of traffic management techniques that could be applied in accordance with the Regulation. Information should also include, at least, a description of the possible impacts of traffic management practices which are in place on the IAS.*

BEREC's draft guidelines in §§ 131 and 132 regarding Article 4(1) letter (a) unreasonably restrict the regulatory provisions. Information on traffic management measures have to be general in order to allow some flexibility for business. Otherwise, any minor change in future traffic management risks to impact the contractual information and, thus, would appear as contractual modification. BEREC should avoid imposing such an excessive burden on providers, which would restrict capability to innovate.

▸ Bitkom's recommendation for alternative wording:

§131: *"NRAs should ensure that ISPs include in the contract and publish a ~~concise and comprehensive~~ explanation of traffic management techniques applied in accordance with the second and third subparagraphs of Article 3(3), including the following information:*

- *how the measures might affect end-user experience in general respect and with regard to specific applications (e.g. where specific categories of traffic are treated differently in accordance with Article 3). Practical examples should be used for this purpose;*
- ~~*the circumstances and manner under which traffic management measures possibly having an impact as foreseen in Article 4(1) letter (a) are applied ;*~~
- ~~*any measures applied when managing traffic which use personal data, the types of personal data used, and how ISPs ensure the privacy of end-users and protect their personal data when managing traffic.*~~

§ 132: *The information should be concise and comprehensive. The information should ~~not simply~~ consist of a general condition stating possible impacts of traffic management techniques that could be applied in accordance with the Regulation. Information should also include, at least, a description of the possible impacts of traffic management practices which are in place on the IAS.*

§ 134: *"Besides speed, the most important QoS parameters are delay, delay variation (jitter) and packet loss. These other QoS parameters should be described if they might, in practice, have an impact on the IAS and use of applications. NRAs should ensure that ISPs provide information which is effects-based. Users should be able to understand the implications of these parameters to the usage of applications and whether certain applications (e.g. interactive speech/video or 4K video streaming) cannot in fact be used due to the long delay or slow speed of the IAS. Categories of applications or popular examples of these affected applications could be provided."*

§ 135: *"Regarding volume limitations, contracts should specify the 'size' of the cap (in quantitative terms), what that means in practice and the consequences of exceeding it (e.g. additional charges, speed restrictions, blocking of all traffic etc.). If the speed will decrease after a data cap has been reached, that should be taken into account when specifying speeds in contract and publishing the information. Information and examples could also be provided about what kind of data usage would lead to a situation where the data cap is reached (e.g. indicative amount of time using popular applications, such as SD video, HD video and music streaming)."*

While the regulation's text of Art. 4(1) letter (b) requires to provide clear and comprehensible explanations how IAS are impacted, BEREC recommends in §§ 134 and 135 the provisioning of more detailed explanations and information more suited for experts. It is unlikely that average customers understand the degree of details that BEREC considers as useful. Contractual documents are further inflated with technical information on e.g. jitter, delay and packet loss, that are of no practical use for by far most customers. Also for experts, the indication of these parameters will not provide any information about the IAS' performance, since their values are highly dependent on other factors (e.g. the kind of downstream platform in higher network topologies, influence by third parties).

▸ Bitkom's recommendation for alternative wording:

§ 134: ~~*"Besides speed, the most important QoS parameters are delay, delay variation (jitter) and packet loss. These other QoS parameters should be described if they might, in practice, have an impact on the IAS and use of applications. NRAs should ensure that ISPs provide information which is effects-based. Users should be able to understand the implications of these parameters to the usage of applications and whether certain applications (e.g. interactive speech/video or 4K video streaming) cannot in fact be used due to the long delay or slow speed of the IAS. Categories of applications or popular examples of these affected applications could be provided."*~~

§ 135: *"Regarding volume limitations, contracts should specify the 'size' of the cap (in quantitative terms), what that means in practice and the consequences of exceeding it (e.g. additional charges, speed restrictions, blocking of all traffic etc.). If the speed will decrease after a data cap has been reached, that should be taken into account when specifying speeds in contract and publishing the information.* ~~*Information and examples could also be provided about what kind of data usage would lead to a situation where the data cap is reached (e.g. indicative amount of time using popular applications, such as SD video, HD video and music streaming)."*~~

§ 139: *"BEREC understands that the requirement on ISPs to include in the contract and publish information about advertised speeds does not entail a requirement to advertise speeds; rather, it is limited to including in the contract and publishing information about speeds which are advertised by the ISP. The requirement to specify the advertised speed requires an ISP to explain the advertised speed of the particular IAS offer included in the contract, if its speed has been advertised. An ISP may naturally also advertise other IAS offers of higher or lower speeds that are not included in the contract to which the subscriber is party (whether by choice or due to unavailability of the service at their location), in accordance with laws governing marketing."*

§ 147: *"Advertised speed is the speed an ISP uses in its commercial communications, including advertising and marketing, in connection with the promotion of IAS offers. In the event that speeds are included in an ISP's marketing of an offer (see also paragraph BEREC understands that the requirement on ISPs to include in the contract and publish information about advertised speeds does not entail a requirement to advertise speeds; rather, it is limited to including in the contract and publishing information about speeds which are advertised by the ISP. The requirement to specify the advertised speed requires an ISP to explain the advertised speed of the particular IAS offer included in the contract, if its speed has been advertised. An ISP may naturally also advertise other IAS offers of higher or lower speeds that are not included in the contract to which the subscriber is party (whether by choice or due to unavailability of the service at their location), in accordance with laws governing marketing), the advertised speed should be specified in the published information and in the contract for each IAS offer."*

§ 148: *"NRAs could set requirements on defining advertised speeds under Article 5(1), for example that the advertised speed should not exceed the maximum speed defined in the contract."*

§ 153: *"The advertised speed for a mobile IAS offer should reflect the speed which the ISP is realistically able to deliver to end-users. Although the transparency requirements regarding IAS speed are less detailed for mobile IAS than for fixed IAS, the advertised speed should enable end-users to make informed choices, for example, so they are able to evaluate the value of the advertised speed vis-à-vis the actual performance of the IAS. Significant factors that limit the speeds achieved by end-users should be specified."*

§ 154: *"NRAs could set requirements on defining estimated maximum speeds under Article 5(1), for example that the advertised speed for an IAS as specified in a contract should not exceed the estimated maximum speed as defined in the same contract. See also paragraph BEREC understands that the requirement on ISPs to include in the contract and publish information about advertised speeds does not entail a requirement to advertise speeds; rather, it is limited to including in the contract and publishing information about speeds which are advertised by the ISP. The requirement to specify the advertised speed requires an ISP to explain the advertised speed of the particular IAS offer included in the contract, if its speed has been advertised. An ISP may naturally also advertise other IAS offers of higher or lower speeds that are not included in the contract to which the subscriber is party (whether by choice or due to unavailability of the service at their location), in accordance with laws governing marketing."*

BEREC's recommendations on Art. 4(1) letter (d) on advertisement required some clarification and should not go beyond the TSM regulation obligations. Advertisement has first of all to address mass market and not individual cus-

tomers. Therefore, advertisement is usually not individual and only includes general information. Often one single advertised tariff name includes various sub-categories with different speed ranges. Therefore, an advertised tariff name does not necessary link to the individual agreed speed range. BEREC should clarify this in the guidelines, anticipating the necessary adjustments on contractual information on maximum speed. Otherwise, providers would be forced to create an individual tariff name for every possible speed range, which leads to a huge variety of different tariff names. Alternatively, providers would have to advertise only the lowest possible speed. This would mean that providers could not differentiate any more through advertising the available maximum speeds and lose an incentive for investments in next generation networks. Horizontal law, particularly based on the Unfair Commercial Practices Directive, proves to be an effective tool to tackle misleading advertisement, such as advertisement of speed which cannot be realistically delivered to end-users.

▸ Bitkom's recommendation for alternative wording:

§ 139: *"BEREC understands that the requirement on ISPs to include in the contract and publish information about advertised speeds does not entail a requirement to advertise speeds; rather, it is limited to including in the contract and publishing information about speeds which are advertised by the ISP. The requirement to specify the advertised speed requires an ISP to explain the advertised speed of the particular IAS offer included in the contract, if its speed has been advertised. An ISP may naturally also advertise other IAS offers of higher or lower speeds that are not included in the contract to which the subscriber is party (whether by choice or due to unavailability of the service at their location), in accordance with laws governing marketing."*

§ 147: *"Advertised speed is the speed an ISP uses in its commercial communications, including advertising and marketing, in connection with the promotion of IAS offers. In the event that speeds are included in an ISP's marketing of an offer (see also paragraph BEREC understands that the requirement on ISPs to include in the contract and publish information about advertised speeds does not entail a requirement to advertise speeds; rather, it is limited to including in the contract and publishing information about speeds which are advertised by the ISP. The requirement to specify the advertised speed requires an ISP to explain the advertised speed of the particular IAS offer included in the contract, if its speed has been advertised. An ISP may naturally also advertise other IAS offers of higher or lower speeds that are not included in the contract to which the subscriber is party (whether by choice or due to unavailability of the service at their location), in accordance with laws governing marketing), the advertised speed should be specified in the published information and in the contract for each IAS offer."*

§ 148: ~~*"NRAs could set requirements on defining advertised speeds under Article 5(1), for example that the advertised speed should not exceed the maximum speed defined in the contract."*~~

§153: ~~*"The advertised speed for a mobile IAS offer should reflect the speed which the ISP is realistically able to deliver to end-users. Although the transparency requirements regarding IAS speed are less detailed for mobile IAS than for fixed IAS, the advertised speed should enable end-users to make informed choices, for example, so they are able to evaluate the value of the advertised speed vis à vis the actual performance of the IAS. Significant factors that limit the speeds*~~

~~*achieved by end-users should be specified."*~~

§ 154: *"~~NRAs could set requirements on defining estimated maximum speeds under Article 5(1), for example that the advertised speed for an IAS as specified in a contract should not exceed the estimated maximum speed as defined in the same contract. See also paragraph BEREC understands that the requirement on ISPs to include in the contract and publish information about advertised speeds does not entail a requirement to advertise speeds; rather, it is limited to including in the contract and publishing information about speeds which are advertised by the ISP.~~ The requirement to specify the advertised speed requires an ISP to explain the advertised speed of the particular IAS offer included in the contract, if its speed has been advertised. An ISP may naturally also advertise other IAS offers of higher or lower speeds that are not included in the contract to which the subscriber is party (whether by choice or due to unavailability of the service at their location), in accordance with laws governing marketing."*

§ 141: *"NRAs could set requirements on defining minimum speed under Article 5(1), for example that the minimum speed could be in reasonable proportion to the maximum speed."*

BEREC's far going recommendation on speed ranges with regard to Art. 4 (1) letter (d) are impractical, will not improve transparency on individual performance and will likely negatively impact national broadband targets. The performance of IAS fluctuates for technological reasons. This applies to fixed IAS and, even more, to mobile IAS. Depending on the end-users location and the used technology, the fluctuation can be broader or more narrow. In any case, providers have to offer speed ranges to customers and customers have the right to receive always a speed that is not lower than the minimum agreed speed range.

Given that the agreement of speed ranges is necessary, a strict limitation of maximum speed such as recommended in the proportionality criteria in § 141 risks that providers will only indicate lower maximum speed in the contract, even if the available speed for customers is much higher. Customers would not be informed any more about the realistically available maximum speed. This will also directly impact advertised maximum speed, which must not be higher than the contractual maximum speed. Even if higher speed are available, ISPs could neither advertise nor conclude contracts based on the available maximum speeds.

Since national broadband targets usually refer to the maximum available speed as offered in tariffs, a reduction of maximum speed in the contract would also impact the national broadband targets. Considering these negative impacts, little benefit for consumers and the lack of respective rules within the TSM regulation, § 141 shall be deleted.

▸ Bitkom's recommendation for alternative wording:

§ 141: ~~*"NRAs could set requirements on defining minimum speed under Article 5(1), for example that the minimum speed could be in reasonable proportion to the maximum speed."*~~

§ 142: *"The maximum speed should be actually achievable by the end-user at least some of the time (e.g. at least once a day). An ISP is not required to technically limit the speed to the maximum speed defined in the contract."*

Beyond the TSM provisions, BEREC recommends that the maximum speed of fixed IAS indicated in the contract according to Art. 4 (1) letter (d) has to be achieved by the end-user at least some of the time. This recommendation does not reflect technological requirements and requirements for commercial offerings in mass markets. As a consequence of BEREC's interpretation of maximum speed, end-users would be less accurate informed and ISPs' would be forced to lower the offered maximum speed even if that speed is available in most cases.

In mass markets, an offered tariff is usually not customised but may encompass various different speed ranges. Regarding maximum agreed speed ranges, usually customers regularly achieve the maximum speed. However, in some cases the maximum agreed speed is not available due to technical constraints or in cases of preliminary agreements (where network roll-outs are planned). Consequently, there are some customers who will only have available a maximum speed in the lower areas of the speed range. Apart from that, even though ISPs have sophisticated calculations models to estimate min and max speed before contract conclusion, there is always the risks that the performance of speed is found to be lower than expected after having established the physical connection (after contract conclusion).

Safety discount ensure that customers always receive at least the agreed minimum speed. If ISPs are now becoming obliged that every customers also reaches at least sometimes the maximum speed, safety discounts for maximum speed have to be significantly increased. Since this refers to tariffs in mass markets, which have to cover all possible constellations, the offered maximum speeds would have to be dramatically reduced. This would be necessary even if the maximum speed is at least sometimes available for most customers.

Besides this, the limitation of maximum speed provides the possibility to offer different tariffs for each network technology. If providers have to reduce the maximum speed, even if available, this important instrument for price differentiation is lost.

- Bitkom's recommendation for alternative wording:

§ 142: "The maximum speed should be actually achievable by the end-user at least some of the time (~~e.g. at least once a day~~). An ISP is not required to technically limit the speed to the maximum speed defined in the contract."

§ 144: *"The normally available speed is the speed that an end-user could expect to receive most of the time when accessing the service. BEREC considers that the normally available speed has two dimensions: the numerical value of the speed and the availability (as a percentage) of the speed during a specified period, such as peak hours or the whole day."*

§ 145: *"The normally available speed should be available during the specified daily period. NRAs could set requirements on defining normally available speeds under Article 5(1), Examples include:*

- *specifying that normally available speeds should be available at least during off-peak hours and 90% of time over peak hours, or 95% over the whole day;*
- *requiring that the normally available speed should be in reasonable proportion to the maximum speed."*

§ 146: *"In order to be meaningful, it should be possible for the end-user to evaluate the value of the normally available speed vis-à-vis the actual performance of the IAS on the basis of the information provided."*

BEREC recommends a very specific definition of "normally available speed" as included in Art. 4(1) letter (d) which is not justified based on the TSM provision and does not provide a valuable information for end-users. As described above, IAS performance fluctuates and a "normally available speed" requires definition. BEREC's proposed definition focuses mainly times when networks tend to have bottlenecks: normally available speed shall reflect the performance measured 90% of time over peak hours. Such "normally" available speed will not reflect the experience of users during most times of the day. Accordingly, BEREC's recommends that the maximum speed shall be proportionate to the normally available speed would unreasonably limit the indication of maximum speed. Additionally to the proposed proportionality of minimum speed and maximum speed, the normally available speed will further limit the indication of maximum speed. Again, this limitation applies even if the speed is available to customers. Considering all this, the reference to maximum speed included in § 145 needs to be deleted.

Apart from that, similar to the indication of speed ranges also "normally available" speed cannot be indicated in a customised way. The indication of this parameter in the contract can only reflect an estimated value that refers to the mass market and may significantly differ from individual circumstances. Accordingly, deviation of individual measurement from normally available speed cannot lead to contractual consequences. BEREC should clarify this in the guidelines in § 146.

Instead of going beyond the TSM regulation and restricting maximum and advertised speeds, BEREC should only recommend a reasonable definition of "normally available speed", which matches with the experience of most customers. This gives end-users an indication of the speed that can be generally expected. Such a general indication must not establish individual contractual rights, however, should provide a reasonable and representative information. A reasonable definition of this parameter could be the speed that is available for e.g. 80% of customers in a specific tariff.

▸ Bitkom's recommendation for alternative wording:

§ 144: *"The normally available speed is the speed that is available for e.g. 80% of customers in a specific tariff ~~an end-user could expect to receive most of the time~~ when accessing the service. ~~BEREC considers that the normally available speed has two dimensions: the numerical value of the speed and the availability (as a percentage) of the speed during a specified period, such as peak hours or the whole day.~~"*

§ 145: *~~"The normally available speed should be available during the specified daily period. NRAs could set requirements on defining normally available speeds under Article 5(1), Examples include:~~*

- ~~*specifying that normally available speeds should be available at least during off-peak hours and 90% of time over peak hours, or 95% over the whole day;*~~
- ~~*requiring that the normally available speed should be in reasonable proportion to the maximum speed.*~~*"*

§ 146: *"In order to be meaningful, it should be possible for the end-user to evaluate the value of the normally available speed vis-à-vis the actual performance of the IAS on the basis of the information provided."*

§ 155: *"Remedies available to consumers as described in Article 4(1) letter (e) are defined in national law. Examples of possible remedies for a discrepancy are price reduction, early termination of the contract, damages, or rectification of the non-conformity of performance, or a combination thereof. NRAs should ensure that ISPs provide consumers with information specifying such remedies."*

Contrary to the TSM's general information requirement in Art. 4 (1) letter (e), BEREC suggested to impose extensive information requirements: Provision of certain remedies for a discrepancy like price reduction, early termination of the contract, damages, or rectification of the non-conformity of performance, or a combination thereof. BEREC's overly strict interpretation of this article is even more inappropriate since there is no indication that ISPs' customers require more information. Already today, ISPs provide significantly more transparency to their customers compared to other service providers.

▸ Bitkom's recommendation for alternative wording:

§ 155: ~~*"Remedies available to consumers as described in Article 4(1) letter (e) are defined in national law. Examples of possible remedies for a discrepancy are price reduction, early termination of the contract, damages, or rectification of the non-conformity of performance, or a combination thereof. NRAs should ensure that ISPs provide consumers with information specifying such remedies."*~~

IV.4. Non-conformity of contract

Bitkom believes that BEREC's interpretation of technical parameters in Art. 4 (1) letter (d) in conjunction with unspecific provisions on conformity of contracts, and non-reliable measurement mechanisms risks massive confusion and legal uncertainty for end-users and ISPs.

§ 158: *"The relevant facts proving a significant discrepancy may be established by any monitoring mechanism certified by the NRA, whether operated by the NRA or a third party. The Regulation does not require Member States or an NRA to establish or certify a monitoring mechanism. The Regulation does not define how the certification must be done. If the*

NRA provides a monitoring mechanism implemented for this purpose it should be considered as a certified monitoring mechanism according to Article 4(4).”

TSM’s obligations as described in Art. 4 (4) requires specification through BEREC. As elaborated above, ISPs can only ensure to deliver speed to individual customers within the individually agreed speed ranges (between minimum and maximum speed). Any significant discrepancy between the contractual agreed parameters and the available performance at the customers’ IAS shall constitute non-conformity of contract. The technical parameters “normally available speed” and “advertised speed” have to be per se general and do not necessarily reflect the performance at the individual customer’s IAS. Any significant discrepancy of the contractually agreed parameters and the generally (non-individually) monitored values shall constitute non-conformity of contract. This has to be based on a reliable measurement mechanism (see elaborations on § 170-172).

BEREC exempts NRAs’ monitoring systems from the certification requirement in Art. 4 (4). While the regulation does not foresee such an exclusion, it is also highly questionable why third party monitoring mechanisms shall fall under specific certification criteria while NRAs’ systems may apply diverging criteria. In order to ensure consistent and reliable monitoring results, all providers of monitoring mechanisms that are officially recognised to measure contractual compliance shall be required to certify. This should be done by an independent and official body, empowered for fact-finding measures regarding the performance of IAS.

▸ Bitkom’s recommendation for alternative wording:

§ 158: *“The relevant facts proving a significant discrepancy may be established by any monitoring mechanism certified by the NRA, ~~whether operated by the NRA or a third party~~. The Regulation does not require Member States or an NRA to establish or certify a monitoring mechanism. The Regulation does not define how the certification must be done. If the NRA provides a monitoring mechanism implemented for this purpose it should be considered as a certified monitoring mechanism according to Article 4(4).”*

§ 159: *“It would help make the rights enshrined in the Regulation more effective if NRAs were to establish or certify one or more monitoring mechanisms that allow end-users to determine whether there is non-conformity of performance and to obtain related measurement results for use in proving non-conformity of performance of their IAS. The use of any certified mechanism should not be subject ~~to additional costs to the end-user~~ and should be accessible also to disabled end-users.”*

The provision that usage of a monitoring system should not be subject to additional costs requires that the data traffic which is required to perform measurements are zero-rated. This conflicts with BEREC too restrictive view, as elaborated above. BEREC needs to adjust the too restrictive position on zero-rating, inter alia, if measurements should not cause costs for end-users.

▸ Bitkom's recommendation for alternative wording:

§ 159: *"It would help make the rights enshrined in the Regulation more effective if NRAs were to establish or certify one or more monitoring mechanisms that allow end-users to determine whether there is non-conformity of performance and to obtain related measurement results for use in proving non-conformity of performance of their IAS. The use of any certified mechanism should not be subject to additional costs to the end-user and should be accessible also to disabled end-users. BEREC suggests that these services are available as a zero-rated service."*

§ 160: *"The methodologies that could be used by certified monitoring mechanisms are further discussed in the next section on Methodology for monitoring IAS performance. The purpose of this guidance regarding methodologies is to contribute to the consistent application of the Regulation. However, NRAs should be able to use their existing measurement tools and these Guidelines do not require NRAs to change them."*

BEREC needs to clarify that any measurement which can be used for assessing contractual conformity has to be certified based on criteria, which ensure reliable measurement results (see elaboration on § 170-172).

▸ Bitkom's recommendation for alternative wording:

§ 160: *"The methodologies that could be used by certified monitoring mechanisms are further discussed in the next section on Methodology for monitoring IAS performance. The purpose of this guidance regarding methodologies is to contribute to the consistent application of the Regulation. ~~However, NRAs should be able to use their existing measurement tools and these Guidelines do not require NRAs to change them.~~"*

V. Supervision and enforcement (Article 5)

§ 170: *"IAS performance assessment can be performed at the user or market level:*

- *User-level assessment: end-user measurements of the performance of IAS offers can be performed to check whether the ISP is fulfilling his contract. Measurement results are compared to the contracted performance of the IAS offer.*
- *Market-level assessment: user-level measurement results are summarised into aggregated values for different categories such as IAS offers, ISPs, access technologies (DSL, cable, fibre etc.), geographical area etc. Aggregated measurement results can be used for market-level assessments."*

§ 171: *"NRAs can use market-level assessment for the regulatory supervision envisaged by Article 5(1) to:*

- *cross-check that the published information is consistent with monitoring results (see paragraph NRAs);*
- *check that specialised services are not provided at the expense of IAS;*

- *check that the performance of IAS is developing sufficiently over time to reflect advances in technology."*

§ 172: *"Market-level assessment data can also be used for:*
- *transparency purposes by publishing statistics, as well as interactive maps showing mobile network coverage or average performance in a geographic area for fixed access networks;*
- *considering the availability of different IAS offers or offer ranges provided by ISPs, as well as their penetration among end-users;*
- *assessing the quality for a specific type of IAS, e.g. based on an access technology (such as DSL, cable or fibre);*
- *comparison of IAS offers in the market;*
- *investigating possible degradation caused by specialised services."*

Referring to Art. 5, ISPs can only ensure quality within own network. This requires that reliable measurement systems, which are supposed to indicate the actual performance, exclude interference from factors outside ISPs' networks. Factors to be excluded are in end-users' infrastructures (e.g. capacity bottlenecks in laptops, smartphones or routers; exclusion of WiFi or in-house cabling) as well as servers and networks beyond ISPs' backbone (that do not belong to the ISP). The latter requires the installation of measurement servers within or close to ISPs' backbone. Further details on criteria for measurement systems are provided in ETNO's and GSMA's previous joint position paper on BEREC's Guidelines. BEREC should make a firm statement on the requirement for sound measurement mechanisms, in order to ensure that certified measurement mechanisms are indeed providing reliable results.

▸ Bitkom's recommendation for alternative wording:

§ 170: *"IAS performance assessment can be performed at the user or market level:*
- *User-level assessment: end-user measurements of the performance of IAS offers can be performed to check whether the ISP is fulfilling his contract. Measurement results are compared to the contracted performance of the IAS offer.*
- *Market-level assessment: user-level measurement results are summarised into aggregated values for different categories such as IAS offers, ISPs, access technologies (DSL, cable, fibre etc.), geographical area etc. Aggregated measurement results can be used for market-level assessments."*

§ 171: *"NRAs can use market-level assessment for the regulatory supervision envisaged by Article 5(1) to:*
- *cross-check that the published information is consistent with monitoring results (see paragraph NRAs);*
- *check that SoIAS ~~specialised services~~ are not provided at the expense of IAS;*
- *check that the performance of IAS is developing sufficiently over time to reflect advances in technology."*

§ 172: *"Market-level assessment data can also be used for:*
- *transparency purposes by publishing statistics, as well as interactive maps showing mobile network coverage or average performance in a geographic area for fixed access networks;*
- *considering the availability of different IAS offers or offer ranges provided by ISPs, as well as their penetration among end-users;*

- *assessing the quality for a specific type of IAS, e.g. based on an access technology (such as DSL, cable or fibre);*
- *comparison of IAS offers in the market;*
- *investigating possible degradation caused by SoIAS ~~specialised services~~."*