

BEREC Report on the outcome of the public consultation on the draft BEREC Guidelines on Geographical surveys of network deployments. Verification of information

10 June 2021

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1 Executive Summary

The Draft BEREC Guidelines on Geographical surveys of network deployments, Verification of information, were approved for public consultation at the fourth BoR ordinary meeting of 2020.

These Guidelines are provided by BEREC in response to the task set in Article 22 (7) of the Directive (EU) 2018/1972 of the European Parliament and of the Council of 11th December 2018 establishing the European Electronic Communications Code (hereinafter EECC) to assist National Regulatory Authorities (NRAs) and/or Other Competent Authorities (OCAs) on the consistent application of Article 22 of the EECC.

According to this Article, NRAs and/or OCAs shall conduct a geographical survey of the reach of electronic communications networks capable of delivering broadband (“broadband networks”) by 21 December 2023 and shall update it at least every 3 years.

In March 2020, BEREC issued the Core Guidelines establishing a series of information that MS have to deliver in order to characterize the reach and performance of electronic communication networks capable of delivering broadband, including the characterization of VHCN¹.

The current Guidelines aim at providing common guidance to NRAs/OCAs on how to verify the QoS-1 indicators as defined in the Core Guidelines, including, where considered necessary and appropriate, the use of QoS-2 and QoS-3 information. This is, the verification of the current reach of broadband networks and the quality of the services that they could offer as declared by the operator, including the verification of the declaration of an area or grid as being covered with a VHCN. The validation of address databases and the verification of information regarding planned deployments is out of the scope of the Guidelines.

The Guidelines describe different verification methods and provide recommendations to be considered by Authorities when assessing the quality of QoS-1 data provided by operators. Authorities may choose verification methods depending on the information available and their needs. The Guidelines stress that Authorities should publish their verification methodologies and outline the verification results in order to establish transparency and help make their proceedings plausible to market participants.

Stakeholders were invited to submit their inputs from the 15th of December 2020 to the 27th of January 2021. Seven responses were received, from operators, operators’ associations, public authorities and others. One respondent wants to keep its identity confidential. All the contributions are published on the BEREC website, including a non-confidential version of the confidential submission.

¹ Document BoR (20) 42.

All the respondents welcomed the opportunity to participate in this consultation. Some responses argued that verification is not required by Article 22 and that, therefore, BEREC should not be delivering on this aspect of broadband mapping. Almost all answers were against the use of third parties' declarations to highlight potential inaccuracies in the QoS-1 reported data. Also, they all draw BEREC's attention to the limitations in the use of QoS-2 and QoS-3 data (even if supervised by an Authority) to verify reported QoS-1 data, and some opposed to this use. Finally, some wording proposals were made.

On the other hand, all contributors celebrated that BEREC had taken into account the need for transparency and accountability, regarding the verification methodologies and the results of these exercises. The stakeholders are highly supportive of the involvement of the operators in the verification process, through comprehensive consultation and dialogue.

BEREC has considered all the responses in delivering this report and amended the Guidelines in the light of the responses, where it has been considered necessary, as presented in what follows.

2 Introduction

In this document, the comments are grouped according to the Guidelines' section they refer to, containing, at the same time, a general comments section.

During the period from the 15th of December 2020 to the 27th of January 2021, BEREC received 7 contributions, including one which has confidential elements, from the following stakeholders:

1. Federal Ministry of Transport and Digital Infrastructure in Germany ("BMVI")
2. European Competitive Telecommunications Association ("ECTA")
3. European Telecommunications Network Operators' Association ("ETNO")
4. FTTH Council Europe ("FTTH Council")
5. Liberty Global ("LG")
6. Verification Partners ("VP")
7. Confidential

BEREC is grateful to receive the submissions and has carefully considered all of them. Accordingly, BEREC sets out its summary of assessments and responses in this report².

² BEREC received a few comments which were not referring to the Draft Guidelines, but rather targeted at the BEREC Core Guidelines (BoR (20) 42) or the BEREC VHCN Guidelines (BoR (20) 169), which were subject to public consultation in the past. Such suggestions and/or observations are out of the scope of this consultation and, therefore, not treated in this document.

All the stakeholders welcomed the opportunity to comment on the Draft Guidelines, having expressed their strong support for the transparency and accountability section (section 6) included in BEREC's draft document.

3 General Comments

ECTA and a confidential contributor question the legal basis of the Draft Guidelines and their consistency with provisions of the EECC, stating that the verification of information by NRAs/OCAs is not addressed in Article 22 and in corresponding recitals of the EECC.

ETNO supports paragraph 6 in the Draft Guidelines and explains that it is necessary that the results of the geographical surveys are accurate, since this information is used for many regulatory and policy functions (as described in Article 22 (5) of the EECC). In the same vein, FTTH Council stresses that NRAs/OCAs will only be able to confidently use the information resulting from the geographical surveys if the data is verifiable and trusted.

Nevertheless, ETNO states that Article 22 does not provide for a specific obligation on NRAs to verify QoS-1 data with QoS-2 or QoS-3 measurements, and therefore, in its view, it should be up to each Authority to decide how and if to assess the accuracy of QoS-1 data.

BEREC Response 1

Verification is an intrinsic and indispensable part of the broadband survey activity in the context of Article 22. Given the range and the importance of the functions which the broadband survey information in Article 22 needs to cater for, the data feeding the survey and the survey's results must be of good quality. Otherwise, the consequences may be adversarial to the policies envisaged or even lead to misguided policy decisions. Therefore, in BEREC's view, a consistent implementation of the obligations under Article 22 provisions, in particular 22 (1), requires that Authorities are reassured and undertake efforts to assess that the data is correct and robust.

Having said this, as stated by paragraph 11 in the Draft Guidelines³, each Authority may choose which verification methods to use and when and where to apply them. The choice of verification method depends on several aspects: i.) the result of the survey and the plausibility of operators' declarations, ii.) the planned use of the survey information in the different possible functions, iii.) the availability of additional information that may prove useful for verification and iv.) the Authority's assessment of the proportionality of any additional data requirements made to operators.

Changes to Guidelines:

³ Throughout the document, unless otherwise stated, BEREC refers to the numbering of paragraphs in the Draft Guidelines, document BoR (20) 230.

The final Guidelines include a new paragraph 7 stating: “Consequently, BEREC considers that the process of assuring the quality of the data provided by operators is intrinsic to a consistent implementation of the obligations under Article 22 (as required by paragraph 7): collecting and relying on incorrect data would be detrimental to the correct fulfilling of the tasks of the authorities prescribed by the EECC.”

ECTA and a confidential contributor point out that complex additional information requirements may result in a disproportionate burden on smaller operators. Therefore, care needs to be taken that the publication of such information does not result in a competitive distortion or disadvantage for these operators. The confidential contributor refers to the infrastructure-related information which would be readily available from the regulated operator/wholesale access provider and/or other public sources.

ETNO also states that the application of various verification methods should not determine additional data requirements to the operators, on top of the data reported according to the Core Guidelines. Moreover, it considers that the verification-related costs should not be borne by the operators and warns that any improvement of the modelling suggested to operators (as a result of investigations) should be proportionate and would require an assessment of the implied workload in relation to the improved accuracy.

FTTH Council believes that Authorities “must balance their obligation to ensure a consistent and accurate analysis of data on geographic markets with the administrative and operational burden placed on operators with network deployments” and warns on the significant administrative burden for all parties that may be caused by the five-step process of ensuring the quality of data proposed by BEREC, noting that BEREC should advise NRAs and OCAs on its minimisation to the extent possible.

FTTH Council mentions that there is no indication with respect to the frequency of the verification assessments and that BEREC should recognize that such processes should be linked solely to specific data gatherings (which themselves are likely to be linked to the market analysis procedure).

BEREC Response 2

As paragraph 11 in the Draft Guidelines explains, each authority should decide on the verification method used in order to enable the use of the broadband survey in the different functions it is meant for. It should be noted that verification is linked solely to the data gatherings pursued to deliver on an Article 22 broadband survey, yet these data requests are not linked only to the market analysis procedure since paragraph 5 in Article 22 describes the use of such data for many other functions.

The Draft Guidelines describe a five-step procedure which is nowadays already used by many Authorities who provide broadband coverage maps. The Guidelines make explicit those stages so that the process of verification can be clearly understood and recognised by all parties. However, each Authority should decide on the emphasis it places on each

step in the process. By describing the five-step process, BEREC is merely presenting the different stages that could be envisaged in the data assurance process. Moreover, the Guidelines suggest a series of verification methods for the Authorities' consideration.

The Draft Guidelines suggest a series of verification methods that may require additional data to the one required for the Article 22 broadband surveys. BEREC understands that any additional data requirements impose a new cost on providers, and because of this, in the Guidelines, it expresses that, if possible, data re-use is to be encouraged (see paragraph 60). Nevertheless, Authorities' needs for verification may result in additional data requirements, which should be assessed as proportionate by each NRA/OCA. BEREC will strengthen these ideas in the Guidelines.

Regarding the effects of data requests on small operators, first BEREC wants to express that reasonably any additional data meant for verification should be requested to the operators who have provided the Authority with the main survey information. Those are, in principle, all network operators who can control any part of the access network. However, paragraph 25 of BoR (20) 42 established that, where a broadband service is provided on the basis of wholesale access, NRAs/OCAs may decide to request information only from the wholesale provider and access seekers could be released from the obligation to provide such information.

On the point of the publication of information made by ECTA, it needs to be stressed that the Draft Guidelines have not recommended or even suggested the publication of information which is sourced from operators to carry out verification. Similarly, the Draft Guidelines have not suggested that operators should modify the modelling of the QoS capacity of their networks. However, paragraph 6 in the Draft Guidelines recognises that inappropriate modelling hypothesis may result in inaccurate data, so Authorities may find that in some cases it is necessary to address modelling assumptions.

Changes to Guidelines:

A new paragraph (paragraph 36 in the final Guidelines) states: "In so far this is possible, BEREC encourages to carry out verification by re-using existing data bases, resident in the Authority or required from other public bodies. Whenever there is a need to require additional data to an operator, the Authority should carefully assess the proportionality of the data request, striking the right balance between the need for information and the burden these requests place upon providers".

ECTA mentions the need for BEREC to tone down or delete "unsubstantiated allegations against operators". To that end, ECTA observes that BEREC suggests that data provided by an operator may be of poor quality or misleading. Moreover, according to ECTA, BEREC tends to consider such data by definition as '*inaccurate*', needing to be verified and even challenged

by third-parties. ECTA puts forward some examples of words used in BEREC's text in order to sustain its point of view.

In agreement with ECTA, a confidential contributor points to the fact that the verification methodology is built on the wrong assumption that the data reported by operators according to the provisions of Article 22 are incorrect, misreported, suspicious, which is used as a justification for BEREC's proposed verification, whilst BEREC hardly provides a justification for this.

By contrast, FTTH Council points to the fact that operators may have a commercial incentive to deliberately report poor or misleading data overstating the actual situation in the market, so as to deny public interventions in the short run.

BEREC Response 3

Contrary to what is suggested by ECTA and the confidential contributor, BEREC is not claiming that all the data or even most of the data provided by the operators is wrong, rather that in some circumstances data may be wrong. However, this needs to be established and precisely because of this, verification is necessary. According to the experience of NRAs dealing with broadband coverage maps, sometimes there are findings of inaccurate data being reported for a wide range of reasons. The data requirements included in the Core Guidelines are extensive and with complex definitions and, because of that, all sorts of errors and misunderstandings can be expected.

Moreover, as the FTTH Council suggests, in some occasions, operators may have commercial incentives to report data inaccurately for several reasons, which adds weight to the motivations to carry out verification.

Since the Draft Guidelines deal with the verification of information, it is reasonable that they speak of incorrect or inaccurate data as verification aims to detect precisely those. BEREC will substitute the term "suspicious data" by "doubtful data" in paragraph 54.

Changes to Guidelines:

Paragraph 61 in the final Guidelines reads: "Declared service data can be used as a contrast on the QoS-1 data, just to find out about possible contradictions between the two databases, for which GIS cross checks may be useful. Such verification can help to find some doubtful QoS-1 data in terms of speeds (and other parameters) or network availability, e.g. if an operator is declaring a network (QoS-1 data) in the area without any service provided, or if all services in the given area are provided on significantly lower speed than the speed class reported on QoS-1".

Finally, FTTH Council denotes a granular nature of the current proposal that suggests a very refined and interactive process which in turn suggests that the boundaries of geographic markets may not be stable over time.

BEREC Response 4

Article 22 survey of broadband networks reach is an information tool which needs to be descriptive of the broadband networks available on the terrain. The survey needs to be accurate and up to date. Accuracy requires that any errors detected in the survey are corrected and thus paragraph 12 in the Draft Guidelines describes the survey as “alive”, since past information may change with new submissions or as a result of verification. Being “up to date” requires that the information is processed regularly since broadband networks expand and are upgraded, continuously increasing their capabilities. Therefore, paragraph 27 in BoR (20) 42 states that “The GS survey of current broadband reach should be carried out at least once a year”.

Regarding the boundaries of geographic markets and their stability, BEREC refers to response number 8 in BoR (20) 41, where it stated that BEREC is delivering guidelines on the information to be collected, but not to explain how this information should be used by the different Authorities carrying out relevant functions. It is up to the NRAs performing the markets analyses to decide on the weight that the geographical surveys should have on their decision making and how to establish boundaries for geographical markets, although it is clear that the information needed for this exercise has to be accurate and up to date.

Changes to Guidelines: None required.

LG urges BEREC to take sufficient time and effort to review and discuss with stakeholders their input to such consultations, to ensure that it takes into account the full range of industry experiences and views; and that BEREC’s activities are appropriate, necessary and proportionate. LG is generally concerned that if BEREC fails to do this, it may create legal uncertainty resulting in court cases putting a high and unjustified burden on commercial operators.

BEREC Response 5

BEREC reads thoroughly and considers carefully all the public consultation inputs it receives. The BEREC public consultation reports provide an answer to the comments made by participants explaining why or why not such comments are taken on board.

BEREC understands that sometimes stakeholders would like to have time to further discuss their input, but it sees that normally public consultation responses are sufficiently clear and provide the necessary argumentation supporting the comments made, so that BEREC can properly take account of those.

<p>Changes to Guidelines: None required.</p>

4 Comments on Section 1 - Introduction of the Guidelines

Firstly, there are a number of comments by stakeholders praising Section 6 of the Draft Guidelines and the reference in paragraph 11 to the publication of verification methodologies and results in order to establish transparency and help make the Authorities' proceedings plausible to market participants. For convenience, BEREC responds to and summarizes all the comments about Section 6 and paragraph 11 in this section of the public consultation report.

ECTA explicitly congratulates BEREC for adding a section on transparency and accountability and supports its contents. Furthermore, ECTA proposes that transparency and accountability requirements should be applicable for all the documents issued by BEREC.

ETNO is also appreciative of BEREC's proposed transparency regarding the adopted verification methods and notes the importance of establishing a commonly agreed method in advance with operators, to the end of ensuring homogenous data and methods across operators.

Finally, LG agrees that the Authorities should be transparent with the verification methods used, asking BEREC to encourage them to engage closely with operators in designing the process, which should be proportionate for all the operators and technologies involved. Moreover, LG expresses its desire to be closely informed with respect to any pilot studies which might be conducted with respect to new QoS-2 campaigns.

<p>BEREC Response 6</p>

<p>BEREC acknowledges the comments received and is grateful for the positive feedback on Section 6 and paragraph 12 of the final Guidelines.</p>
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<p>Changes to Guidelines: None required.</p>

ECTA is highly supportive of the direct involvement of the operators in the verification process and is also of the view that, as a general principle, a bilateral consultation process between the NRA/OCA and the affected operator should take place prior to any publication of geographic survey information.

ETNO also welcomes BEREC guidance (paragraph 12) with respect to the on-going update process of the maps and the corresponding databases to the aim of assuring high quality of information. Nevertheless, ETNO advises against modifications to the map without prior dialogue/engagement with the operators who reported data and adds that changes in the mapping methodologies should be avoided in order to limit distortions over time.

BEREC Response 7

First, BEREC agrees that Authorities need to consider carefully changes in mapping methodologies so as to limit unnecessary distortions in broadband surveys information and discontinuing the activities undergone by operators and authorities. Nevertheless, broadband mapping methodologies also need to change regularly, because of the emergence of new technologies, market developments, the experience of operators and authorities in delivering broadband maps and state of the art knowledge in the field. In any event, it should be noted that BEREC is not planning to review the BEREC Guidelines on Article 22 in the short term and will only do this after carefully assessing how the provisions have been implemented across the EU.

Second, several paragraphs in the Draft Guidelines recommend that Authorities contact the operators so that they can respond or explain any differences between the information provided when responding to a request of information in the context of the Article 22 surveys and other information used for verification. For example, paragraph 26 requires this in the case of discrepancies with end user declarations, and paragraph 39 when infrastructure information is not coherent with the declared availability of a technology or QoS on the terrain, for fixed broadband. BEREC finds that whichever data is used for verification purposes, it is always advisable to contact the operators first to find out about explanations regarding discrepancies, before updating the broadband map. BEREC will include a paragraph in the final Guidelines to clarify this.

However, it should be noted that, in any case, the decision to update or not to update the information remains under the judgement of the concerned Authority.

Changes to Guidelines:

The final Guidelines include a new paragraph (paragraph 37 in the final Guidelines) which states the following: “Additionally, it is advisable that Authorities contact the relevant operators whenever they find discrepancies between their submissions to the main database and the verification information, so that they can provide an explanation for the discrepancies, to assess whether the main database needs to be updated. In any case, the decision to update the main database lies on the judgement of the Authority only”.

5 Comments on Section 4 - Use of third parties to find out about inaccuracies in data (STEP 2)

BMVI welcomes the value added by third parties' input with regard to the verification process, stressing that indeed information from third parties may enable the Authority to suspect that some particular data is inaccurate. Therefore, it suggests adapting the formulation in paragraph 23 be deleting “some” and changing “allowed” into “most welcome”.

ECTA and another confidential contributor express a very strong disagreement with the set of suggestions regarding the direct end-users' input to mapping and are against any publication of end-user input on maps. ECTA highlights, on the one hand, that the end-users have a claim on mapping non-confidential data only when there are no other tools available on the market and solely for the check regarding an informed choice of service and, on the other hand, they may not have the necessary (technical) knowledge to correctly assess the situation at a given geographic location, while the end-user environment measurements may introduce undue differences when compared to operators' reported data. Therefore, ECTA asks BEREC to reconsider the statements made in paragraphs 26, 27, 28 and 30 and, actually, both ECTA and the confidential contributor call for complete removal of STEP 2 from the Guidelines.

According to the confidential contributor the sole problems with the reported data stem out of unintentional errors made by operators or possible misunderstandings of the NRAs' reporting requirements. Such problems can easily be handled under step 1 verification, namely by internal validation.

The confidential stakeholder goes on to explain that publication of third-parties' complaints and their reporting of potentially inaccurate data on the map go against the Code and would result in competitive distortions among operators. Moreover, due account of the fact that the two categories of data on focus are not comparable needs to be taken. Should BEREC maintain its approach, the potentially identified problems should be solved bilaterally between the NRAs and the operators concerned.

LG also expresses its concern that the third-party information is likely to lead to higher administrative burden for operators - end-users cannot be a source of accurate information regarding the theoretical capability of the networks and other operators are also in no position to have sufficient oversight to provide relevant data. Therefore, LG asks BEREC to make clearer the fact that the information available to end-users from the geographic surveys is based on theoretical network capability and may be irreconcilable with end-user experience. For the same reason, LG disagrees with encouraging end-user declarations in the mapping tool.

If regulators still opt for a feedback mechanism despite its limitations, ETNO asks BEREC to consider that: (i) end user measurements may be influenced by the subscription-related speed-cap and other factors and they may not reflect the network capability as QoS-1 prescribes; (ii) if the overall quality of information on the map is not good, regulators and operators risk becoming overloaded with declarations of discrepancies, resulting in not enough time for investigation and implementation of possible improvements.

Since it is not always possible to improve the theoretical modelling, in ETNO's view, end users' input in the verification process has to be regarded with caution: the limitations of theoretical calculation models cannot be lifted in the short run and are difficult to explain to end users, so the discrepancies found by those may determine a loss of confidence in the maps.

BEREC Response 8

As a general conduct and principle to be followed, BEREC welcomes and encourages transparency with respect to all the relevant aspects in the telecom sector for which knowledge is pooled and shared according to the tasks prescribed by the BEREC Regulation EU/2018/1971. This includes, *inter alia*, end-users' generated data relevant for the regulatory remit in the electronic communications field.

BEREC has recognised in paragraphs 25 and 26 that there are limits in the use of users' declarations for verification means. Moreover, the wording used by BEREC in proposing such reporting and verification methods is always cautious ("may enable", "may result", "can provide/help", "indication" and alike), stressing, at the same time, the necessity to revert the identified problems to the operators for clarification purposes.

Furthermore, any reporting by a third party of inaccuracies in coverage and quality of service data in the geographical survey can be assessed by the competent authorities, whereby the accuracy of the claim can be evaluated in order to decide on a due course of action.

In any event, the relevant NRAs/OCAs aim to increase the quality of their Article 22 broadband mapping (which can be done by several means, including the one proposed in this section of the Draft Guidelines) and judge whether the discrepancies are indicative of a problem or not.

With respect to the publication of end-users' claims concerning misreported data on the map, BEREC clarifies that the Draft Guidelines do not propose such publication. The wording of paragraph 28 is indicative of the possibility of integrating the submission of identified discrepancies in the mapping exercise, in a given, standard format. In other words, BEREC proposes the inclusion of a software-related facility embedded in the map, but without such claims being visible/published on the map itself.

Changes to Guidelines:

With respect to BMVI's comment, BEREC agrees and changes the wording of the paragraph, so that paragraph 26 in the final Guidelines reads as follows: "When data on the broadband coverage or characteristics on the terrain is made public by the Authority and interaction with the public is most welcome, information from third parties may enable the Authority to suspect that some particular data is inaccurate. [...]"

BEREC proposes the following modifications for paragraph 31 of the final Guidelines:

"[...] In order to facilitate the end-users' submission of geographically referenced data and to ease the internal cross-checking of information, it is good to integrate the third-party reporting of data inaccuracies in the broadband map itself, with a given format and detailed information request such as personal details, operator, mobile/fixed broadband, commercial retail offer name, contractual maximum speeds, measurements if available, technology if known."

6 Comments on Section 5 - Verification (STEP 3) and decision regarding data accuracy (STEP 4)

6.1 Network infrastructure locations and characteristics

In terms of verification methods, ETNO complains that BEREC's proposals in that regard may lead to regulators aiming to recalculate the QoS-1 values the operators reported. In ETNO's view, the recalculation of QoS-1 values requires a lot of know-how and is very time consuming to implement.

BEREC Response 9

BEREC firstly stresses that the proposed approach is a good means to verify the QoS-1 data.

Indeed, the recalculation of QoS-1 values is time consuming, as many of the mapping related activities are, and requires know-how, but there are already several NRAs/OCAs whom are doing this in Europe. Every NRA/OCA needs to assess the necessity for this and balance the benefits and costs of this activity. At the same time, it is for the Authorities to decide if the recalculation of QoS-1 values should be carried out broadly or only for specific cases.

Changes to Guidelines: None required.

According to ECTA and the confidential stakeholder's submission, the Guidelines should emphasise that NRAs/OCAs should ensure strict confidentiality of the information concerning the geographic location of network elements, since it is highly sensitive, and should make all the necessary arrangements to ensure protection of the systems/databases from unwarranted access by unauthorised third parties.

ETNO also stresses the importance of safeguarding the confidentiality of the information.

BEREC Response 10

BEREC reminds that Section 2.7.2 in BoR (20) 42 deals with confidentiality and the consideration of business secrets. For clarity, BEREC will include a reference to this section of the Core Guidelines in the current Guidelines. Moreover, BEREC acknowledges that NRAs and OCAs must respect European and national rules on commercial confidentiality.

Changes to Guidelines:

Paragraph 39 of the final Guidelines includes this footnote: “Concerning the confidentiality of such data, please see Section 2.7.2 of the Core Guidelines, which deals with confidentiality and business secrets. Moreover, BEREC stresses the fact that access to systems/databases containing such data is also under the protection of confidentiality requirements, with respect to unauthorized access by any third parties, for instance.”

ECTA and the confidential contributor question the legitimacy of conducting on-site inspections to verify geographical surveys of network deployments (both for fixed and wireless networks). ECTA goes on to state that a cost-benefit analysis should be made, taking due account of the costs borne by the operators in direct relationship with such inspections.

With respect to the concept of homes passed (fixed broadband services), ETNO explains that NRAs could verify whether premises are effectively passed and if additional construction works are needed for actually connecting the respective premises. Such verifications would result in on-site inspections conducted by NRAs to verify the infrastructure positions.

BEREC Response 11

Inspections are legitimate and part of the regular activities that Authorities can undertake. Nevertheless, inspections should not be mandatory, and the NRAs/OCAs needs to assess whether they are required on a case-by-case basis.

Furthermore, on-site inspections are already used by NRAs/OCAs for State Aids projects, since they are the best practices to ensure the observance of the technical access conditions approved by the Authorities when fulfilling their tasks.

Additionally, ETNO's suggestion strengthens BEREC's proposal for the opportunity of on-site inspections subject to an adequate assessment, being strictly at odds with ECTA's view presented before, whereby on-site inspections legitimacy is questioned.

Changes to Guidelines: None required.

6.1.1 Fixed Broadband

ETNO complains that the verification methods proposed by BEREC for xDSL fixed broadband are simplistic because they do not take into account certain essential factors with respect to speed, which operators do (for instance, the cable length, attenuation, dynamic line management improvement, vectoring and so on).

To the contrary, FTTH Council supports the detailed verification of data with respect to fixed infrastructures proposed by BEREC, since it would allow for a forward-looking assessment with regards to areas which were considered marginal in the past, but which are becoming accessible to private investments due to innovation in the construction methods, in the context of VHCN.

LG expresses its worries that the verification methods proposed have been pencilled with the DSL networks in mind, disregarding the particularities of HFC networks. Technological neutrality principle should be guarded adequately.

LG disagrees with BEREC's suggestion in paragraphs 34 and 36 whereby it is implied that knowledge of the geographical coordinates of active access nodes (in their case, the CMTS) and the distance between the node and each premise can be used to carry out quality assurance, in the context of the HFC networks. Quality of service parameters (speed, jitter or packet loss) cannot be tested based on this information. Latency would be affected by the distance, but the requirement of this information seems highly disproportionate. Confidentiality-related aspects are also raised by LG.

BEREC Response 12

First, BEREC notes that the infrastructure position is always relevant for the technological declaration, this is to understand whether the different technologies are available at a premise or a grid, or the coverage area of an electronic communications network, as recognised by paragraph 34 and also paragraph 39.

Moreover, this information is also useful to verify criterion 1 of the VHCN Guidelines, where it needs to be established that the fiber reaches the concerned premise, in order to qualify as a VHCN. If it does not, the distance, as expressed through the length of the non-fiber segments (typically the last hundred meters), has to be taken into account.

Second, regarding the verification of the quality of service information, such as speed categories, in BEREC's view, the distance between the active access nodes and the premise or the geographical centre of each served grid is relevant to verify the QoS reporting of the operators who rely on access networks that are non-fiber-based (especially, in the case of copper-based or wireless access). In those cases, the distance from the active access point to the end-user (premise or center of the grid) can be used to test the plausibility of the QoS declaration, even when the distance is not the only parameter which affects the QoS, as BEREC already recognizes in paragraph 37.

BEREC wants to note that other agencies recommend the use of distance thresholds to assess the plausibility of maximum speed declarations. For instance, in 2020, the Federal Communications Commission has adopted maximum buffers to consider areas serviceable by networks. For example, for DSL technologies to offer speeds at 25/3 Mbps or greater, a maximum distance of 6,600 route feet from the DSLAM to the covered premises. For Hybrid-Fiber Coax (HFC or cable) technologies, a maximum buffer of 12,000 route feet from the aggregation point to the customer premises. For providers using Fiber to the Premises

(FTTP or fiber) technologies, a maximum buffer of 196,000 route feet from the OLT to the Optical Network Termination (ONT)⁴.

BEREC recognises that these thresholds have to be established in collaboration with the operators in paragraph 41.

Moreover, as paragraph 38 establishes, distance is also necessary for characterizing the availability of VHCNs, as the endpoints for measuring latency or packet loss (CPE to OLT or metro POP, for example) should be declared in advance.

In order to clarify its position, BEREC will make minor wording amendments to some paragraphs, as presented below.

Changes to Guidelines:

Paragraph 39 of the final Guidelines states that: “Where this information is available, knowledge of the geographical coordinates of the active access nodes (such as DPU in case of G.fast, DSLAM for DSL, CMTS in case of DOCSIS or OLT in case of FTTH) and their coverage radii, declared by the providers, makes it possible for the Authority to determine (with GIS tools) the coverage area of an electronic communications network and to carry out a certain quality assurance of the fixed broadband main database (premises/small grids passed with a broadband network and, to certain extent, the characteristics of the broadband service that could be offered by that network.”

Paragraph 41 of the final Guidelines reads as: “For this purpose, if the location of the active access nodes is known to the Authority, GIS systems may be used to calculate the distance following roads or pedestrian ways, not just the line of sight, between the nearest active access node and each premise or small grid. Like this, the Authority may verify information on available technologies, the categories of end-users served (business/residential), as well as, in certain circumstances, a number of quality parameters of internet access services that could theoretically be provided by the network (such as bandwidth speeds and VHCN declarations according to criteria 3 of the BEREC VHCN GL⁵).”

With respect to the information regarding the operators’ infrastructures at detailed geographical level (such as, but not limited to location of active access nodes, the coverage radii, loops’ lengths etc.), ECTA and a confidential contributor point out that if such data is

⁴ See paragraph 17 in FCC-20-94A1 available at <https://docs.fcc.gov/public/attachments/FCC-20-94A1.pdf>

⁵ See document BoR (20) 165

https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/9439-berec-guidelines-on-very-high-capacity-networks

readily available from wholesale access providers, it should not be requested directly from the concerned operators a second time.

BEREC Response 13

BEREC concurs with the view expressed by the two stakeholders, stressing that the same detailed data on infrastructures is not to be requested from different operators. To that end, BEREC refers to paragraph 25 in the Core Guidelines that states that: “In cases where a broadband service is provided on the basis of wholesale access, NRAs/OCAs may decide to request information only from the wholesale provider. NRAs/OCAs should consider whether the information from the wholesale provider would be sufficient. In case of sufficient information provided by the wholesale provider, access seekers could be released from the obligation to provide such information.”, calling for a balanced, case-by-case approach with respect to such data requests.

Changes to Guidelines:

In order to make its position clearer, BEREC includes paragraph 42 in the final Guidelines, which states: “In any case, if the Authority requires the position of or distances from premises/grids to active access nodes, such information shall be required primarily from the wholesale operators providing access, while the need for additional data requests directed to access takers is subject to the Authority’s judgement on necessity and proportionality. In any event, BEREC advises against the duplication of data requests.”

6.1.2 Mobile Broadband

LG requests that BEREC does not encourage national authorities to perform theoretical network coverage simulations because these issues are complex, there are differences between the methods used by various operators, the propagation models used are different and the amount of information that the authorities would need to that end is enormous. Rather, the NRAs/OCAs should engage closely with operators to validate the coverage maps (and models) developed by the operators.

ETNO deems that the verification method for mobile broadband is too simplistic and, thus, it may report discrepancies that might be due to the method itself rather than under performance of the network.

BEREC Response 14

BEREC's Common Position on information to consumers on mobile coverage⁶ (BoR (18) 237) conveys the following messages:

- "... 10 out of 33 NRAs use their own mobile signal prediction software which they combine with network data that is mainly provided by the mobile operators (e.g. base station locations, antenna parameters, frequencies). The software predicts mobile coverage, whose output can be referred to as theoretical mobile coverage, or mobile signal predictions."
- "These are mainly used to verify whether coverage obligations are being fulfilled by the operator. More generally, this approach allows the verification of national population or geographic area being covered by a pre-defined service parameter"
- "It is clear that in the majority of countries each operator or NRA has its own way of calculating mobile coverage. Whether the NRA performs the calculation itself or obtain the coverage information from the operators, it should ensure the accuracy of the information. This would help ensure comparability between the operators."

According to the referred above, it is clear that some NRAs already performed theoretical calculations as of 2018⁷, and this possibility is the one that allows to verify or to calculate the coverage in 100% of their country land mass. BEREC is not encouraging NRAs to perform such calculations, but if they want to do so, the use of specialised tools is recommended.

As BEREC response 9 states: "Indeed, the recalculation of QoS-1 values is time consuming, as many of the mapping related activities are, and requires know-how, but there are already several NRAs/OCAs whom are doing this in Europe. Every NRA/OCA needs to assess the necessity for this and balance the benefits and costs of this activity. At the same time, it is for the Authorities to decide if the recalculation of QOS-1 values should be carried out broadly or only for specific cases".

Regarding ETNO's comment, indeed BEREC recognises that discrepancies in QoS-1 parameters can be due to the choice of estimation method and hypothesis. Because of this, paragraph 46 in the Draft Guidelines, requires that in case an Authority performs such calculations, the mobile operators provide her with the relevant modelling information so that the Authority can reflect as much as possible the operator's method.

Changes to Guidelines: None required.

⁶ Source:

https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/common_approaches_positions/8315-berec-common-position-on-information-to-consumers-on-mobile-coverage

⁷ Potentially, nowadays there could be even more NRAs doing that.

6.2 Declared service data by operators

LG considers that speed information provided for the purposes of the geographic surveys will be based on network capability (rather than on the particular services being offered), and it is, therefore, not the same information as provided under the Open Internet Regulation. LG suggests that the Core Guidelines have adopted the same definitions as in the Open Internet Regulation when this is not the case and encourage BEREC to recognise these differences in the final Guidelines. At the same time, LG requires BEREC to adjust the text in paragraph 53 so as to send the clear message that the Open Internet definitions are not the same as the ones specified in the Core Guidelines.

BEREC Response 15

BEREC has always been cognisant of the differences in the declared speeds based on theoretical network capabilities (QoS-1 data) and the reporting according to the Open Internet Regulation.

BoR (20) 42 requires the identification of different speed tiers or categories for upload and download speed, at each address or grid. These Guidelines specify speed definitions that are based on the IP packet layer (level 3) and that are reflective of the network capability. For fixed broadband, both maximum and peak time speeds are required and, for mobile broadband, the maximum speed information is suggested as optional. The six speed categories are detailed in Annex 2 of BoR (20) 42.

Article 4(1) (d) of the Regulation EU 2015/2120⁸ establishes that contracts should provide information on the minimum, normally available, maximum and advertised download and upload speed of the internet access services in the case of fixed networks, or of the estimated maximum and advertised download and upload speed of the internet access services in the case of mobile networks. Paragraph 140 in BoR (20) 112, the BEREC Guidelines on the Implementation of the Open Internet Regulation specifies that the speed values required by Article 4(1) (d) of the Regulation should be specified on the transport layer protocol payload (level 4). Paragraphs 145 and 147 in BoR (20) 112 relate those speeds to what end users could expect to receive when signing up with an offer. For example: “The normally available speed is the speed that an end-user could expect to receive most of the time when accessing the service”.

Given all of this, BEREC agrees to clarify in the current Guidelines that the definitions in the Open Internet Regulation are not the same as in BoR (20) 42.

⁸ Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and retail charges for regulated intra-EU communications and amending Directive 2002/22/EC and Regulation (EU) No 531/2012, <https://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=CELEX:02015R2120-20181220>.

In any event, the mere reference by BEREC to the Open Internet Regulation in paragraph 53 is used to illustrate that this is a proportionality requirement towards the operators, as data on the “available, maximum and advertised download and upload speed of the internet access services in the case of fixed networks, or of the estimated maximum and advertised download and upload speed of the internet access services in the case of mobile networks” are already under reporting obligations, as provided by a different piece of law/regulation.

Moreover, despite the conceptual differences, in BEREC’s view it is possible, to a certain extent, to use the speed information informed in contracts to verify the QoS-1 speed class declarations in the context of Article 22 as, for certain technologies, those should not be too diverging or should be within certain reasonable limits.

As established by BEREC in its “Report on the outcome of the public consultation on the draft BEREC Guidelines to assist NRAs on the consistent application of Geographical surveys of network deployments”, in practical terms, for most technologies, the choice among the two network layers should have limited impact on the classification of one address/grid in one speed class or another as required by BoR (20) 42⁹.

Changes to Guidelines:

Paragraph 59 of the final Guidelines will state: “According to Net Neutrality Rules (Regulation (EU) 2015/2120 of 25 November 2015) operators are obliged to provide speed information anyway (or at least provide such information to each end user): *“a clear and comprehensible explanation of the minimum, normally available, maximum and advertised download and upload speed of the internet access services in the case of fixed networks, or of the estimated maximum and advertised download and upload speed of the internet access services in the case of mobile networks...”* (Art. 4 (1) d). So, the provisioning of such data to regulators would not be an excessive burden for operators”.

In conclusion, paragraph 60 is added to the final Guidelines stating that: “It should be noted that the speed definitions used in the Open Internet Regulation differ from the ones provided in BoR (20) 42, as the former are speed definitions reflective of the speeds end-users could expect to receive, while the latter reflect network capabilities.”

LG questions whether the section is limiting the ability of operators to set their commercial policies as they see fit. It stresses that it is imperative that BEREC does not encourage

⁹ See BEREC Response 19 in BOR (20) 41 – https://berec.europa.eu/eng/document_register/subject_matter/berec/reports/9028-berec-report-on-the-outcome-of-the-public-consultation-on-the-draft-berec-guidelines-to-assist-nras-on-the-consistent-application-of-geographical-surveys-of-network-deployments.

authorities to implement policies which restrict operators' commercial and operational freedom.

BEREC Response 16

Providers of electronic communication services, including broadband services, are free to commercialize the offers that better suit their businesses.

The verification of QoS-1 information using existing contracts or other information on the services available on the terrain places no restriction on the offers that can be made to consumers. Therefore, BEREC disagrees that this verification exercise limits the ability of operators to set their commercial policies as they consider appropriate for conducting their businesses.

Rather, the relationship is the opposite one, whereby the operators' commercial policies are limited by the capabilities of their networks and, therefore, should be reflective of those. Because of this, the availability of services on the terrain should be consistent with the operator declarations in the context of the Article 22 surveys.

Changes to Guidelines: None required.

6.3 QoS-2 measurements

ETNO expresses that QoS-2 and QoS-3 measurements should not be used for verifying QoS-1 data, as they are different conceptual terms. QoS-1 (availability of service), QoS-2 (provisioning of service) and QoS-3 (experience of service) indicators should be treated as complementary from ETNO's standpoint. However, in some limited cases and considering the relevant intrinsic differences with QoS-1, QoS-2 measurements could be used.

LG does not agree with the use of QoS-2 (active service) information to verify QoS-1 (network capability) information, including whether QoS-1 estimates are within a reasonable margin of the active network measurements.

BEREC Response 17

BEREC acknowledges that QoS-1 (theoretical), QoS-2 (practice optimal) and QoS-3 (practice experienced) correspond to different QoS definitions and have some conceptual differences. This does not imply, however, that QoS-2 or QoS-3 cannot be helpful to verify whether QoS-1 declarations are reasonable. Several Authorities already use QoS-2 or QoS-

3 measurement campaigns in order to validate QoS-1 data¹⁰. In this regard, the Draft Guidelines advise the Authority to discuss with operators about the conditions to obtain a robust sample of measurements. Furthermore, they also advise to involve stakeholders in designing measurements campaigns.

Changes to Guidelines: None required.

By welcoming BEREC's intentions to clearly pre-define the scope of QoS-2 measurements, ECTA and the confidential contributor suggest that operators' data should not only be relied upon for verification purposes but should be regarded as the primary information gathering method, to avoid multiplying costs.

BEREC Response 18

The Draft Guidelines make reference to the cost of QoS-2 measurement campaigns. They promote the reuse of existing information whenever the data are adequate for verification purposes. In this regard, operators' data could be seen as the primary source of information if assessed as appropriate for the verification exercise by the Authority, yet in principle any existing and appropriate information can be used no matter whether it was collected by the operators or by the Authority itself.

Changes to Guidelines: None required.

LG refers to the tests of a HFC network, explaining that those cannot be carried out at the CMTS or the optical node independently of other users and the operational and commercial decisions of the HFC operator. Therefore, testing would require the creation of a trial node capable of testing the capability of HFC networks in a controlled environment. However, since such nodes are costly, their replication in several locations in Europe would imply a great financial effort and would prove difficult. LG considers the creation of these test nodes neither appropriate, nor necessary or proportionate. In LG's view, an alternative to verify the status of a network as VHCN may be for HFC operators to declare that the active equipment in a particular area has been upgraded to DOCSIS 3.1 or that they are offering 1 Gbps services in the relevant area.

¹⁰ See, for instance, BEREC's Preliminary report in view of a common position on monitoring mobile coverage, document BoR (17) 186:

https://bereg.europa.eu/eng/document_register/subject_matter/bereg/public_consultations/7300-draft-bereg-preliminary-report-in-view-of-a-common-position-on-monitoring-mobile-coverage

BEREC Response 19

BEREC agrees that the cost of testing certain networks capabilities in a controlled environment might be disproportionate. Therefore, the Draft Guidelines underline that the Authorities may choose more adequate verification methods, depending on their needs and on the availability of other information sources.

Changes to Guidelines: None required.

Coming to the comments addressing specifically certain paragraphs of the Draft BEREC Guidelines, with respect to paragraph 57, VP suggests to replace the expression “the type of scanners used” with “the type of measurement equipment used”, taking into account that the metrics acquired for QoS-2 include data throughput performance (which is not technically possible with RF scanners). Therefore, according to VP a generic term for the equipment would be more appropriate.

BEREC Response 20

BEREC agrees that measurement equipment used are not limited to scanners and will adapt the Guidelines accordingly.

Changes to Guidelines:

Paragraph 64 of the final Guidelines reads as: “[...] For example, for mobile broadband and drive tests, the type of measurement equipment used, the speed of the driving, the specific geo-coordinates and times of the measurements are known. [...]”

In reference to paragraph 59, VP emphasises its support for BEREC to clearly define a common, proportional and standardized method for the scope of geographical sampling, which would facilitate the collection of more harmonious datasets and enable direct comparison of results across member states.

BEREC Response 21

Concerning VP’s comment, BEREC stresses that the scope of conducting QoS-2 measurements is “problem driven”, considering the high level of the implementation costs, being targeted to verify certain data provided in the main database. Therefore, the method used needs to fit for purpose and be appropriate to tackle the identified problem. To that end, BEREC favours flexibility and considers that each Authority should decide on the test and samples to be carried out in each specific situation. The purpose of verification is not to generate comparisons across member states.

Moreover, due account needs to be taken with respect to the fact that a generalised methodology could increase the implementation costs.

Finally, BEREC stresses that the proposal for the use of such verification methods is not to generate comparisons across member states.

Changes to Guidelines: None required.

VP requests clarification of the last phrase in paragraph 61: “[...] the Authority should expect a sufficiently large proportion of those to abide by the conditions required for the operator declaration”. At the same time, elaboration on guidance as to how NRAs are expected to set individual tolerances or thresholds is kindly required.

BEREC Response 22

Paragraph 61 means that given the QoS-1 declaration made by the operator, the NRAs will analyse a sample of measurements in order to evaluate whether the measured data abides by the conditions required for the operator declaration. The sample needs to be representative and have a sufficient size in order to provide statistically significant results. For example, if an operator declares a premise/grid in a certain speed tier as required by the CORE Guidelines, it should be expected that a high proportion of the undertaken QoS-2 measurements fall within this speed tier. This can be written as a statistical test, which would need to be satisfied in order to deem the QoS-1 speed declaration as correct.

Changes to Guidelines: None required.

With regards to paragraph 62, ECTA requests that the text is changed from “*In general, it would be advisable for the Authority to discuss with operators [...]*” to a more binding wording proposal. In the respondent’s view, the NRAs/OCA should be firmly guided to discuss the methodology and the sample sizes with operators, prior to conducting verifications.

BEREC Response 23

As paragraph 62 of the Draft Guidelines states, BEREC understands that it is advisable to create a dialogue with operators when carrying out the verification of the provided data, yet there might be instances where it would not be necessary. Consequently, BEREC maintains its expressed point of view, whereby it is advisable for the dialogue to take place, but each Authority should decide on whether to consult or not with the operators.

Changes to Guidelines: None required.

6.3.1 QoS-2 for mobile broadband

Since the provisions of Article 22 of the EECC do not address explicitly the verification of data, ECTA requests that BEREC replaces the word “must” in paragraph 67.

BEREC Response 24

BEREC accepts the proposal.

Changes to Guidelines:

Paragraph 74 of the final Guidelines is rephrased to: “Additionally, the Authority should verify the operator’s information on whether a pixel is covered or not by a VHCN or a certain mobile broadband speed class.”

With regards to paragraph 79, the BMVI proposes that BEREC defines common signal strength limits and a test scenario for all available mobile technologies. The aim would be to ensure the comparability of the data throughout the EU.

BEREC Response 25

BEREC recognises the importance of the proposal to define common signal strength limits, as well as the difficulties to define those in practice, considering the work done by BEREC in the past on these issues, when BEREC developed the Common Position on information to consumers on mobile coverage¹¹.

Despite the difficulties, BEREC will continue to pay attention to both issues and other parameters relevant to harmonise the calculation of mapping of mobile coverage at EU level.

Changes to Guidelines: None required.

6.4 QoS-3 measurements

ECTA is of the view that the use of various crowdsourcing tools for QoS-3 measurements in order to evaluate the accuracy of QoS-1 reported data has to be regarded with particular

¹¹ Document BoR (18) 237

https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/common_approaches_positions/8315-berec-common-position-on-information-to-consumers-on-mobile-coverage

caution. To that end, BEREC should stress more throughout the text that QoS-3 measurements are to be considered only as potential indicators of connectivity problems, but cannot be regarded, in any event, as a measurement of the accuracy of the data provided by the operator. At the same time, ECTA is appreciative of BEREC recognizing potential limitations in using such an approach, as mentioned in paragraphs 82, 84, 86, 87 and 88, and considers that BEREC should advise NRAs/OCAs to include such disclaimers with every publication of geographic surveys' results.

Similarly, ETNO considers that by no means should QoS-3 measurements be used for the verification of QoS-1 information.

A confidential contributor calls for removal of the QoS-3 assessment, since it considers it not aligned with the provisions of the Code. In any event, QoS-3 measurements cannot be considered reliable, being by definition subjective in nature. And, finally, due account needs to be taken of the fact that QoS-1 data and QoS-3 data are not comparable.

LG concurs with BEREC that the authorities should be careful when extrapolating measurements of broadband user experiences for verification purposes, questioning the fact that such tests can be used as a tool to potentially signal inaccuracies in the data.

BEREC Response 26

BEREC has made clear in several places in its Core Guidelines that the characterization of the broadband networks in terms of speeds is to be done based on QoS-1 parameters. The QoS-3 parameters are mentioned as relevant solely in the context of the Draft verification Guidelines, as indicative of potential inaccuracies that could trigger further investigation by the Authority.

Indeed, BEREC notes that the Draft Guidelines already take into consideration the potential limitations that arise from the use of crowdsourcing data for verification purposes and advises to handle that information accordingly.

To that end, BEREC considers that paragraphs 82, 84, 86, 87 and 88 provide a balanced view on the usefulness and opportunity of using QoS-3 data for the verification of the declared QoS-1 data in the context of the provisions of Article 22, whereby BEREC has clearly and systematically highlighted the associated limitations with such intended use of QoS-3 data.

Changes to Guidelines: None required.

On the publication of QoS-3 values, even if averaged, ETNO draws the attention that they should better not be published, given their limitations in the mapping context.

BEREC Response 27

BEREC stresses that the mapping of QoS-3 values is out of the scope of the current Guidelines.

The Guidelines deem appropriate the use of QoS-3 values as another element of the verification toolkit to allow NRAs/OCAs to investigate the accuracy of the QoS-1 information gathered from operators.

Changes to Guidelines: None required.

Regarding the Authorities' sponsored tools to retrieve the information, with reference to paragraph 89 of the Draft Guidelines, the BMVI considers that NRAs should play a role in fostering the development of tools to perform measurements.

BEREC Response 28

Paragraph 90 in the Draft Guidelines already includes examples of procedures used by some NRAs in order to improve the reliability of QoS-3 tools, including the possibility of developing the tool itself (for instance, as BNetzA already does).

Changes to Guidelines: None required.

Finally, ECTA suggests that BEREC removes the reference to the development of an API to be included in the ISPs set-top boxes included in paragraph 90 of the Draft Guidelines. Such an approach may not be justified for implementation in all member states and could result in disproportionate burdens to be placed on smaller operators.

BEREC Response 29

BEREC acknowledges ECTA's remark on paragraph 90 and would, nonetheless, clarify that this paragraph merely cites known examples of ways to improve the reliability of tools used for QoS-3 measurements. It is not BEREC's intention to promote any particular example, but only to explain that such practices are possible to deal with measurement problems.

Changes to Guidelines: None required.

7 Other comments

ECTA suggests that all BEREC guidance relating to Article 22 should be consolidated in a single document. In ECTA's view, each set of guidelines should be "systematically and

explicitly connected with the corresponding underlying legal provision in the EECC, and subject to transparency and accountability requirements”.

BEREC Response 30

Firstly, BEREC stresses that each of the guidelines which have either been adopted or are underway in the adoption process, in accordance with the provision of Article 22 (7) of the EECC, mention the legal basis on which they are built, referencing the exact paragraphs of the article.

The three documents¹² are complementary and together build the full picture on the consistent implementation of Article 22 obligations envisaged by the EECC. BEREC considers that the fact that the various aspects in Article 22 have been treated in separate documents does not, by any means, undermine the scope for which they were developed, and the messages transmitted.

Secondly, from a practical standpoint, since the guidelines were developed and approved by the Board of Regulators at different points in time, BEREC considers publishing a handbook whereby the final versions of the three documents would be put together without any change.

Changes to Guidelines: None required. Following the approval of the final Verification Guidelines, BEREC will deliver the aforementioned handbook.

¹² BoR (20) 42 – BEREC Guidelines on Geographical surveys of network deployments, BoR (21) 32 – BEREC Guidelines on Geographical surveys of network deployments Article 22(2), 22(3) and 22(4) and BoR (21) 82 – BEREC Guidelines on Geographical surveys of network deployments. Verification of information.

Annex - Glossary of terms

API – Application Programming Interface
CMTS – Cable Modem Termination System
CPE – Customer Premises Equipment
DPU – Display Processing Unit
DOCSIS – Data-Over-Cable Service Interface Specification
DSL – Digital Subscriber Line
DSLAM – Digital Subscriber Line Access Multiplexer
EECC – European Electronic Communications Code
EU – European Union
FTTH – Fiber to the Home
FTTP – Fiber to the Premises
GIS – Geographic Information System
HFC – Hybrid Fiber Coax
IP – Internet Protocol
ISP – Internet Service Provider
MS – Member State
NRA – National Regulatory Authority
OCA – Other Competent Authority
OLT – Optical Line termination
ONT – Optical Network termination
POP – Point of Presence
QoS – Quality of Service
QoS1 – Quality of Service 1 – Calculated availability of Service – Theoretical network performance of existing infrastructure
QoS2 – Quality of Service 2 – Measured provision of Service – Measurements via panel probes or drive tests, excluding end user’s environment
QoS3 – Quality of Service 3 – Measured experience of Service – Measurements using internet access service including end user’s environment, for example via online speed tests
VHCN – Very High Capacity Networks