ETNO Response to the BEREC Public Consultation for the Draft Common Position on Monitoring Mobile Coverage

COMMENTS ON THE DRAFT COMMON POSITIONS [BoR (18) 132]

1. Objectives and key principles

- We fully support the **objective to enable consumers' informed choice** between different network providers' tariffs, based on reliable information on network performance.
- ETNO believes that monitoring Quality of Service (QoS) can be a positive and fruitful exercise both for European citizens and for European market players operating along the broadband value chain.
- ETNO supports cost-effective and appropriate steps to increase transparency to enable consumer choice and, by this, support network competition.
- The definition and publication of mobile coverage information should be consistent with the national requirements and mechanisms set by the NRAs. BEREC guidelines should only address those countries where no monitoring system for coverage and QoS has been implemented.
- When defining the criteria for the presentation of mobile coverage (through the display of maps), BEREC and NRAs should take into account the **existing trade-off** between the granularity of the information to be provided to the end-user and the necessary confidentiality of information about operators' network elements localisation.
- The **Open Internet Regulation** already provides for publication requirements on mobile network performance with regard to available tariffs. Further best practices apply at national level, e.g. many ISPs' publicly available coverage maps.
- The presented measures such as drive tests, coverage maps reflecting calculated performance, and even individual measurement can complement regulatory transparency requirements. However, these presented measures all have specific strengths and weakness that need to be considered.
- In addition, public information provided by third parties must not be confused with performance parameters to be published or included in the contract based on Art. 4 of the Open Internet Regulation.
- To truly enable an informed choice of consumers, the **information provided should be accurate**. This is also crucial to avoid unjustified consumer complaints of consumers with regard to potential discrepancies between inaccurate information provided by NRAs and providers' performance commitments indicated in the contract.

- This does not mean that Regulators should refrain from their objective of increasing transparency, but any instrument to provide transparency – calculated speeds in coverage maps, drive tests and individual measurement through consumers – should **require sufficiently high minimum quality standards**. This also applies to the two instruments highlighted by BEREC: (1) Estimation and prediction of coverage, and (2) Field signal and service availability in specific location/time that is measured.
- Accordingly, we do not necessarily agree that there is a value-add for consumers to publish any available information on network performance. NRAs should rather **focus only on reliable information on network performance**, to avoid confusion and misleading conclusions.
- Beyond BEREC's described objectives, mobile coverage can also be monitored simply for statistical purposes, to **facilitate comparisons among regions and countries** in the EU. Such information does not need to be published and, in that case, these exercises are not as critical commercially. The potential impact on the end-user market is therefore limited. Still, monitoring for these reasons should adhere to the same principles of accuracy, unbiasedness and relevancy. Whenever they are used to establish a hierarchy of regions, due account should be taken of differences in costs and benefits of providing mobile coverage.
- We note that spectrum agencies are tasked with designing and monitoring coverage obligations linked to spectrum rights of use. In this respect, we **encourage BEREC to pursue further harmonization on the way coverage commitments in spectrum licenses** are defined, for the following purposes:
    - Increase certainty for licensees by avoiding open obligations that are difficult to value at the time of award and can result in conflicting interpretations when evaluating compliance.
    - Facilitate spectrum trading through increased transparency of the rights and obligations attached to licenses

1.1. Context for Monitoring Mobile Coverage

- Concerning "reasons why mobile coverage monitoring would be necessary", please see our response in the previous section.
- The report mentions that two different aspects of monitoring can be considered: estimation and through the field signal. While we agree that only calculation presented by network providers can give an overview on coverage in the whole Member State, such calculations should be **complemented with measurements on the ground (including drive tests) performed by authorities or a certified independent third party** to provide additional information in specific areas, representing e.g. urban and rural areas, highways and railways. While measurement of field signal can provide a representative indication of network performance in some areas, such measurements are not sufficient with regard to providing a full overview on coverage. To have relevant results, it is very important to take into account the service availability and different

technical parameters (network load, geographic topology, distance from the base station…), the type of handsets and their sensitivity are also important.

- ETNO believes that **crowdsourcing information** should not be overestimated because by its nature it cannot guarantee the same level of statistical accuracy and reliability with respect to an independent measurement system, such as e.g. the one carried out by specific drive test campaigns in which the networks of all MNOs are measured simultaneously and with the same standards.

1.2. Key elements of mobile coverage information from consumer perspective

- We fully agree with BEREC that information have to be easy to understand not only for consumers but also for other end-users and, thus, **limited to what is most relevant**. This also means for authorities to publish not any, but only accurate information. We therefore encourage NRAs and BEREC to focus the scope on the characteristics of mobile coverage that induce an end-user to choose one provider over another.

2. Technical specifications for monitoring mobile coverage in Europe

- BEREC has identified **two possible dimensions**, while recommending the second: (1) Specifications based on the strength of the signal received (minimum power chosen by the NRA), or (2) Specifications based on the minimum probability of successful service reception.
- The first approach is quite questionable with regard to NRAs choosing the parameters, because each MNO must monitor its own technical parameters to elaborate its coverage maps, keeping the responsibility for the definition of the different levels of signal strength. For example in France, all MNOs explained this issue to ARCEP, which then agreed and let MNOs choose and use the minimum level of received signal for mapping the coverage.
- BEREC has identified two dimensions of possible thresholds, which may be binary or multilevel, while recommending **multi-level thresholds** of 3 levels (basic/good/excellent).
- At page 7, the report states that BEREC recommends NRAs to choose a multi-level thresholding approach. We consider it not disputable if the NRA does not choose each technical threshold of the signal power to produce coverage maps.

3. The use of signal predictions for mobile coverage

- BEREC finds that mobile **signal prediction** enables the estimation of mobile coverage in the whole country. Signal predictions are a statistical representation of the coverage. Predictions can be (1) generated and published by NRA, (2) obtained from ISPs and published by NRA, (3) generated and published by third party.

- Where NRAs and third parties, consumers, publish information should be informed about potential lacks of accuracy and completeness.
- Usually only ISPs have sufficient data available to provide robust coverage maps. Such data are often confidential and must not be available to the public and competitors. Accordingly, in case NRAs ask for such data, a **high level of data protection** has to be ensured.
- Many ISPs already provide mobile coverage maps, which make requests from NRAs to publish own coverage maps obsolete. Where such maps are not offered by ISPs yet, NRAs should facilitate **voluntary agreements** with ISPs.
- In any case, also very well calculations are never fully accurate and cannot consider each detail (e.g. indoor, outdoor, specific geographic circumstances…).
- It is important to note that the different elements of constraint can differ between operators – due to individual technical expertise and know-how as well as strategic choices made.

4. Ensuring the accuracy of coverage information provided to the public

- If maps are supposed to provide a reliable overview on mobile coverage, **accuracy of measurement** is of utmost importance. Accordingly, immanent weaknesses, particularly with regard to end-user's individual measurements have to be considered.
- Accordingly, in addition to BEREC's meaningful components of accuracy, the overall importance of **reliability of measurement** tools should explicitly be highlighted. Only measurements used for coverage maps that stem from reliable measurement tools provide meaningful transparency on network performance to end users.
- The establishment of coverage maps is only one element in the context of providing transparency on mobile network performance and cannot be assessed in an isolated way. Accordingly, the most accurate way to provide general and objective transparency is based on **drive-tests carried out by NRAs.** Complimentary to drive tests, many operators offer coverage maps in the internet, which provide calculated information about deployed networks in different regions.
- Given the high volatility of mobile network performance (e.g. shared medium, high dependency of the performance on the current location), "drive test measurements" can complement single measurements: a drive-test provides a benchmark at the same place at the same moment of the different operators of a country, which is a more objective way of comparing operators then crowd-sourced measurements. Drive-tests performed by an NRA provide a more robust indication of a network performance at different times and different locations. The use of this complementary transparency measure should be supported by Member States. On the other hand, crowdsourced information should not be over-relied upon as they cannot guarantee the same level of accuracy and reliability.

5. Availability and presentation of mobile coverage information

- With regard to defining the frequency of publication and the detail of the information presented, competition should be enhanced not degraded. Competition policy and economic theory conclude that unreasonably high transparency can limit competition when it allows competitors to react immediately to the deployment decisions of a particular MNO. In addition, NRAs must avoid to demand and publish data that reflect **business secrecies** – particularly, to not reveal sensitive data on how competing companies deploy their networks. This also refers to providing real-time information with extremely granular maps, for example, which could do more harm than good. BEREC's consideration about foreseeing annual updates would be adequate to avoid the described risk.

- With that in mind, we concur that is key that **end-users' confidence** be supported. Accordingly, we fully agree to inform about potential limitations in accuracy, such as information on who provides the data, whether they have been tested and which method was applied to ensure accuracy.

- In the same vein, we support the proposed measures to ensure **effectiveness of information**, which can include selecting/unselecting the available services/technologies. However, this must not be overly granular, considering also to not revealing confidential business data. Many network providers already offer publicly coverage maps that provide effective information.

- Accordingly, rather than aiming at a "maximization of coverage information", BEREC should ensure that relevant and accurate information be provided to end-user. This also refers to the proposal on **"open data".** Open data must be limited to accurate data and not reveal confidential information (see elaborations above). Otherwise, misleading and false information increasingly floating in the public, not providing reliable information and harming competition.

- The criteria listed when NRAs publish coverage maps are reasonable.

- To avoid unreasonable complaints from consumers about potential mismatches between contractually agreed performance and information included in NRAs' coverage maps, NRAs should seek dialogue with ISPs and align measurement methods.

- If measurement results are used to increase transparency for customers (e.g. interactive maps), to improve end-users' informed choice, it is of utmost importance that these data are robust, up to date and mirroring reality.

- Maps that reflect "snapshots" provided by end-user' individual measurements based on individual tariffs and which are not necessarily reliable, must not be confused with maps that include calculated data of network performance. Concerning maps based on crowdsourcing, customers' privacy should be ensured (anonymised data).

- It would also be advisable to reflect the evolution and investment effort of operators **over time**. The percentages of coverage should not be shown only in a static moment or year, it must also be shown graphically showing the evolution of coverage over the years.

- Inter-operator comparisons are commercially sensitive, and the way the information is presented can have an important impact on the reaction of the person using the tool to compare the network quality of different operators. To avoid misleading end-users, ETNO believes that the role of the Authorities should be limited to provide links to operator's coverage maps, and **facilitate agreement on minimum degree of homogeneity** on national levels.

COMMENTS ON ADDITIONAL QUESTIONS

A. Should BEREC define common metrics for mobile coverage? Please explain your answer, for example by setting out the reasons why BEREC should or should not define common metric, including views on the potential benefits and risks to consumers and other stakeholders.

- It is not entirely clear to ETNO members how far there is a need for and value in **harmonised information** on network performance across Member States:
    - First, mobile tariffs and networks used by consumers are above all national. Consumers do not compare the performance of networks in their residence country and networks in other Member States when choosing a national tariff. Therefore, consumers do not benefit from harmonised transparency and comparison of networks across different Member States.
    - Second, given that unfortunately obligations on mobile coverage linked to licences are not sufficiently harmonised between Member States (see comment below), there is no added value resulting from harmonised transparency on mobile coverage.
- As to the concepts and parameters inherent to measurement tools, ETNO also would like to highlight that close attention must be given, for the sake of accuracy, to the **characteristics of the technology** whose quality is measured and to the **specificity of national broadband markets.**
- The definition by BEREC of common parameters for mobile coverage should be consistent with the national requirements and mechanisms set by the NRA. BEREC should publish common parameters only for those NRAs who have not yet implemented any monitoring system for coverage and quality of service. Anyway, the possible definition of a single Europe-wide system designed to monitor and measure the quality of broadband on all national levels must be **sufficiently flexible** to allow an adjustment to the individual national characteristics and should always be available on an opt-in basis, allowing regulators who have already implemented their measurement systems to maintain them.

B. What service availability definition and minimum requirements would you consider appropriate? What multi-level requirements would be appropriate to represent different level of coverage? Please explain your answer, for example by detailing how your figures for minimum service availability were established and by providing evidence.

- Only a **robust monitoring system** can deliver measurements that provide transparency of an MNO's actual performance. To be robust, the system needs to exclude external factors that interfere with the MNO's performance, such as infrastructure beyond the MNO's backbone and the end-user's infrastructure.
- Metrics based on signal power have major advantages: they are comparatively easy to measure, easy to compare, and a good base for signal prediction modelling. However, specifications to determine the level of coverage for monitoring purposes should be objective, end-user oriented and therefore, easy to understand for end-users. For this reason and for enabling end-users informed choice, specifications based on signal strength are in our view inadequate and technically disputable. To have relevant results from the end-user perspective, it is very important to take into account the service availability based on the probability of connecting to the service, –which reflects, from the MNOs perspective, the effect of different technical parameters (network planning and optimisation, signal strength, network load, geographic topology, distance from the base station…). Special attention should be given to the type of handsets, noting that the Radio Equipment Directive 2014/53/EU has improved the regulatory framework applicable to all radio equipment such as mobile handsets, including new requirements concerning reception parameters. Any factors that undermine reliable information should be avoided and, if not possible, end-users should be informed about them.
- Drive-tests should take into account the service availability and consider the crucial technical parameters for voice and data (down- and upload, size of the data, time of loading the data, network load, etc.), the performance of handsets and their sensitivity are also important.
- When measuring voice, it has to be considered that, within IP-based network, voice can be provided either with ensured quality or without it.
- The **location of the consumer** should be considered as crucial. Another crucial factor to be considered is whether many other customers are using the same mobile cell capacity at the same time, which may depend on the time of the day.
- Concerning devices, not only the kind of device, but more importantly **the performance of the device** is crucial. This is an element fully under the control of the device manufacturer, and has to be considered.
- It should be sufficient to perform metrics outside buildings and not set higher requirements for outdoor conditions to make sure that mobile signal is available indoor as well. Indoor coverage is highly dependent on the type of construction, which in turn is very heterogeneous.

C. What signal power thresholds would you consider appropriate for different mobile technologies? What multi-level thresholds would be appropriate to represent different level of coverage? Please explain your answer, for example by providing rational for such thresholds and by detailing how they were derived, including assumptions made and how they are linked to minimum service availability.

- If NRA chose the **level of received signal**, the mapping from MNOs would be under strong constraints, jeopardizing the reliability of the results and disengage MNOs from their responsibility. Moreover, a received signal power is not sufficient to elaborate maps.
- The **minimum probability** of successful service method appears to be more relevant. In France, it is promoted by ARCEP and used by the French MNOs: it is based on a "reliability rate" which is a percentage value to measure if the service is available in a declared in-covered area, using a large number of measurements in order to provide reliable statistical results.
- As far as **thresholds** are concerned, it is of utmost importance to have them chosen by the operators themselves, at least the first level when the "layers system" applies. (For example, in France, MNOs choose their minimum level of coverage then apply reduced signal strength levels (ex : -10 dB) chosen by the ARCEP for other layers of coverage :"good coverage" / "very good coverage" (including indoor coverage).
- It should be considered that **overly ambitious thresholds are not** always **conducive**, as higher signal power does not necessarily lead to better quality or better consumer experience.

D. What might be the practical implications associated with selecting thresholds such as the impact of factors outside of the control of the mobile network operators (for example please see the discussion on key elements for monitoring mobile coverage from the consumer perspective as set out in the consultation)

- Only a robust monitoring system can deliver measurements that provide transparency of an ISP's actual performance. To be robust, the system needs to **exclude external factors** that interfere with the IAS's performance, such as infrastructure beyond the ISP's backbone and the end-user's infrastructure. Comparison of KPIs using a VPN may also be influenced by factors outside the carrier's network as well as general differences in the carrier's network without any influence from traffic management. Network differences such as peering relationships and other factors outside the carrier's network (such as embedded adverts) may also impact the web page load time. Success rates may also be more of a factor related to the external content. Accordingly, a robust monitoring system needs to measure only the performance between a server within an ISP's backbone and the Internet access point.
- When measuring data services on the basis of using **third party offerings**, it has to be taken into account that the experienced quality does not only and mainly depend on the ISP's network but also on the third party's services, e.g. the server capacity. Low performance of e.g. an emailing

service may be out of the ISP's control. It is more objective to measure data services against a measurement server in a controlled environment.

E. Given the rapid evolution of mobile data consumption, how often do you consider that common metrics should be reviewed to remain fit for purpose or useful for consumers in the future?

- The frequency of publication and the detail of the information presented should enhance competition, not degrade it. Competition policy and economic theory conclude that **transparency can limit competition** when it allows competitors to react immediately to the deployment decisions of a particular MNO. Providing real-time information with extremely granular maps, for example, could do more harm than good.
- Some coverage information provided by operators to regulators may be confidential and may have competitive value, and so would need to be treated correspondingly. Clearly, any coverage monitoring solutions need to be consistent with the ownership and confidential status of the data being used.
- Having said this, we agree that BEREC's common position needs to reflect the technological state of the art and, thus, has to be **frequently updated**. Only an up to date metrics that ensure reliable information truly enables end-users informed choice between different national operators.
- Equally important is to keep any burdens and obligations for operators proportionate and frequent updates must not undermine required planning security for operators.
- The rapid evolution of mobile networks, services/offers, data consumption habits, and the geographical diversity of many European countries imply that an early review of the metrics might be appropriate. However, it is difficult to identify in advance how often common metrics should be reviewed in every country. Therefore, flexibility should be left to NRAs in the review of the common metrics whenever they are no longer suitable.