

# **Public Consultation Report on draft BEREC Guidelines on Geographical surveys of network deployments Version 2.0**

2 June 2026

## Table of Contents

<b>1</b>	<b>INTRODUCTION</b>	<b>3</b>
<b>2</b>	<b>GENERAL COMMENTS</b>	<b>3</b>
<b>3</b>	<b>COMMENTS ON SPECIFIC SECTIONS AND PARAGRAPHS</b>	<b>5</b>
3.1	Definition of “premises passed”	5
3.2	Geographical spatial resolution of data	6
3.3	Fixed broadband	8
3.3.1	Premises activated	8
3.3.2	Fixed wireless access	10
3.3.3	Technology categories	11
3.3.4	Speed categories and speed tiers for fixed broadband	12
3.4	Mobile broadband	14
3.4.1	Indoor speeds	14
3.4.2	Cell edge probability and cell coverage probability	15
3.4.3	Other comments	17
3.5	VHCN	17
3.6	Verification of information	19
3.7	Forecast specificities	20
3.8	Publication and confidentiality of data	21

## 1 Introduction

The following subsections describe the different elements of the BEREC Guidelines on geographical surveys of broadband reach to characterise the reach and performance of broadband networks.

The PC run from 9th December 2025 to 9th February 2026. BEREC received 10 contributions from the following stakeholders:

BREKO, Connect Europe, CZ Czech VNICTP Industry Association, ECTA, Fastweb, FTTH Council Europe, GSMA, NL Ministry, Open Fibre, Wind Tre.

This PC report deals with the comments following the structure of the Updated Art. 22 GS GL.

## 2 General Comments

BEREC has received three general comments to the draft Guidelines. First, **Fastweb** argues that BEREC's update is premature, given that several regulatory processes are underway. In particular, they point to the recent draft Digital Networks Act (draft DNA), the ongoing consultation on the revision of the Digital Decade Programme, and the European Commission's draft methodology for mapping 5G and FWA quality of service. Since these initiatives could significantly affect the framework for geographical surveys, **Fastweb** recommends postponing BEREC's public consultation until those processes are completed, to avoid creating uncertainty and confusion for operators.

Second, the **GSMA** and **Connect Europe** argue that the draft BEREC GL should be substantially simplified to reduce regulatory burden, ensure proportionality and align with the EU policy direction towards reducing information requests, in light of the draft DNA. According to these contributions reporting obligations must be strictly limited to what is necessary, following principles of data minimization and security. They warn that the current proposals are not ambitious enough in reducing obligations and highlight that operators already provide extensive public information regarding coverage. Overall, they call for a more agile framework that focuses only on stable, structural network characteristics relevant for monitoring rollout and supporting investment decisions.

Finally, **BREKO** and the **VNICTP Industry Association** highlight that small operators face disproportionate administrative burdens under the draft Guidelines and, therefore, need simplified reporting requirements and a stronger application of proportionality. The **VNICTP Industry Association** stresses that smaller providers lack the resources and tools to meet the detailed data demands and calls for reduced and strictly necessary obligations. **BREKO** likewise emphasises that the framework must remain workable for smaller and regional operators and urges NRAs to support them by providing standardised templates and reference tools, avoiding the need to build complex GIS systems.

## BEREC Response

BEREC acknowledges the comments submitted regarding the timing and regulatory context of the revision of the Article 22 Guidelines<sup>1</sup> but considers that this revision is justified.

First, it should be noted that the Guidelines were originally adopted in 2020. Since then, NRAs and OCAs have gathered extensive experience with their implementation. In 2024, BEREC reviewed the application of the Guidelines, identifying not only their benefits and strengths, but also the practical challenges encountered by many NRAs and OCAs in applying certain indicators, whose data collection proved inherently complex<sup>2</sup>. Thus, the revision builds on this implementation experience. On the one hand, it addresses some of the issues by providing further guidance on certain aspects. On the other, it acknowledges the difficulties explicitly, clarifying expectations and providing transparency on the limitations associated with some indicators. This approach aims to ensure a more consistent application across Member States, while reflecting operational realities.

Second, the Guidelines implement BEREC's mandate under the European Electronic Communications Code (EECC), which remains fully applicable and binding. This mandate will continue to be the relevant legal framework presumably at least for the next two years, until the entry into force of a future DNA. Therefore, BEREC considers it appropriate to ensure that the Guidelines effectively fulfil the EECC requirements, independently of discussions on potential future legislative initiatives.

Moreover, BEREC cannot and should not anticipate the outcome, content or timing of future normative or soft-law instruments that are currently under discussion or may be adopted at a later stage. Aligning its Guidelines with draft or uncertain initiatives would create legal uncertainty and undermine regulatory stability. BEREC's approach is therefore to base its activity on the existing legal framework and on current, well-established policy objectives, without prejudging or pre-empting future developments.

Third, in BEREC's view the revision is not of a substantive nature and ensures continuity of practice. The core principles, objectives and structure of the Guidelines remain unchanged, providing predictability and stability for stakeholders. Moreover, BEREC continues to monitor regulatory and policy developments and retains its ability to amend its guidance where necessary.

BEREC also notes that, to ensure complete and reliable broadband maps which provide an accurate assessment of connectivity across the territory, information requests cannot differ between larger and smaller operators. Incomplete reporting would undermine the overall quality of the geographical survey. Having said this, BEREC recognizes that smaller and

---

<sup>1</sup> BoR (20) 42 BEREC Guidelines to assist NRAs on the consistent application of Geographical surveys of network deployments

<sup>2</sup> BoR (24) 146 BEREC Implementation Report on the BEREC Guidelines on geographical surveys of network deployments.

regional operators may not have the same technical capabilities or resources as larger ones. For this reason, and as recognized in paragraph 40 of the final Guidelines, it foresees a facilitating role for NRAs and OCAs, including the provision of geographical information tools, reference grids or address databases, so as to support a proportionate implementation without requiring operators to develop complex GIS systems.

### 3 Comments on specific sections and paragraphs<sup>3</sup>

#### 3.1 Definition of “premises passed”

**BREKO** and the **FTTH Council Europe** argues that the current definition should be aligned more closely with industry standards, proposing the adoption of the FTTH Council Europe Global Alliance definition. Under this approach, “premises passed” refers to premises that an operator is capable of connecting to an FTTH/FTTB network within a service area, regardless of whether they are already connected. Service activation may require installation of the final drop connection and customer premises equipment, while excluding cases that require substantial additional network deployment (e.g. feeder or distribution cables).

**BREKO** recommends that BEREC clarify explicitly that the four-week reference should serve as a benchmark for technical availability rather than a guaranteed consumer right. They also note potential ambiguities in how terms like “standard” or “reasonable” are applied, due to differing in-house installation conditions, capacity, or civil-works constraints. **BREKO** draws parallels to definitions used in the Digital Networks Act proposal, where copper switch-off readiness is linked to fibre availability under reasonable connection conditions, including but not limited to a four-week benchmark.

Furthermore, **BREKO** and the **FTTH Council Europe** highlight a possible discrepancy between BEREC’s definition and operators’ commercial availability databases. These databases are used for retail and wholesale sales activities and are based on dedicated capacity within the deployed network, allocated to specific addresses. These databases do not distinguish between “Premises Passed” with dedicated capacity within a “normal distance” from the access network and “Premises Passed” that may require additional effort due to a greater distance to the access network or (sub)surface conditions. They recommend that BEREC clarify how this definition should align with such operational data to avoid unnecessary administrative and reporting burdens for operators.

**Connect Europe**, by contrast, questions the appropriateness of including any specific time reference in the definition. While they acknowledge that the current draft already accounts for

---

<sup>3</sup> All paragraph references refer to the final version of BEREC’s Guidelines, unless stated otherwise.

external, non-technical factors, such as user delays, administrative processes, or adverse weather, they argue that resource availability should also be recognised as a relevant limiting factor. According to this respondent, specifying a concrete time period (such as the four-week rule) risks imposing an arbitrary standard that may not reflect real network or resource conditions. They therefore propose that the four-week criterion be removed entirely from the definition.

#### BEREC Response

The definition of “premises passed” has remained unchanged compared to the version published in 2020. In BEREC’s view, this definition is sufficiently clear, widely understood, and consistently applied across Member States. Operators have been able to report data based on this definition without significant difficulties, which further supports its robustness and practical usability.

In this context, BEREC does not see a compelling justification for revising the definition at this stage. Maintaining stability in key methodological concepts is important to ensure continuity and comparability of data over time.

Moreover, any modification to the definition would likely have a direct impact on the methodologies already implemented by operators across Member States. This could introduce unnecessary complexity, require adjustments to existing systems, and potentially affect data consistency.

With regards to the potential discrepancy between BEREC’s definition and operators’ commercial availability databases, it is the responsibility of operators to align their methodologies with those set out in the Guidelines, which are designed to ensure harmonization.

In this context, operators are expected to adapt their existing systems and reporting approaches as necessary to comply with the common framework established, thereby supporting consistency and comparability across Member States.

For these reasons, **BEREC consider that the current definition of “Premises passed” should be retained.**

### 3.2 Geographical spatial resolution of data

All respondents support improved mapping quality and harmonization, however, their views differ on the appropriate level of granularity. The **FTTH Council Europe** and **Open Fiber** advocate for highly detailed, standardised datasets to enhance accuracy and policy effectiveness, whereas **WindTre** stresses the importance of maintaining efficiency and avoiding excessive complexity, particularly for mobile network mapping.

The **FTTH Council Europe** strongly supports high-resolution mapping as a key tool for effective broadband policy. It endorses address-level data as the standard for fixed networks, complemented by granular grid-based mapping (e.g. 100 m x 100 m) for mobile and Fixed Wireless Access (FWA). This level of detail is considered essential to accurately identify white and grey areas, optimise fibre deployment strategies, and prevent inefficient overbuilding of existing FTTH networks with public funding. In addition, it calls for the creation of a detailed database of premises not yet served by VHCN, with particular attention to active copper users who may be affected by future copper switch-off processes.

The **FTTH Council Europe** welcome the requirement for a unique national address database and the specification of GIS layers. Likewise, **Open Fiber** supports the establishment of a common geocoded address database, considering it fundamental for ensuring consistency and comparability of data across Member States. A unified database would also improve the reliability of operators' reporting and reduce inefficiencies.

**Open Fiber** highlights that the use of multiple databases and inconsistent approaches can lead to duplication, including the risk of allocating public funds to premises that are already covered or incorrectly identified. Therefore, strengthening the role of a single, harmonised database is seen as critical to improving data accuracy and public investment efficiency.

**WindTre** emphasises the need for efficiency and proportionality in coverage mapping exercises. It argues that mapping methodologies should rely on state-of-the-art tools already used for commercial purposes and avoid excessive computational burdens related to very large data volumes or processing times.

**WindTre** cautions that very high-resolution mapping does not necessarily improve accuracy, particularly for mobile networks, due to the inherent variability of radio signals and modelling limitations. Instead, it suggests adapting mapping resolution to population density, using lower resolution in rural areas. This approach would reduce computational complexity while providing results that better reflect real-world conditions.

#### BEREC Response

BEREC fully agrees with the importance of establishing a common geocoded address database. As stated in paragraph 39, "In the medium/long term, to ensure the reliability and comparability of the mapping project, in each Member State one common database with geocoded addresses should be used by both the NRA/OCA and, as far as possible, the operators. (...) Ideally, these address and grid codes should be at the disposal of the operators, so that they can all submit information with a common reference, although this may not be possible in all Member States."

Regarding concerns that the use of multiple databases and inconsistent approaches may lead to duplication, it should be noted that data is collected as precise points and lines, enabling NRAs/OCAs to construct an accurate representation of reality. Transformations and

aggregations can then be performed in a relatively straightforward manner using standard GIS tools (e.g. nearest location, buffer functions), requiring only basic GIS expertise.

As for the suggestion to adapt mapping resolution to population density by using lower resolution in rural areas, BEREC does not consider this change necessary. To date, operators have been providing mobile data according to the defined resolution without reporting significant issues. Even if this would be considered, implementing such an approach would require a common definition of “rural area”, which is difficult to establish given the considerable geographical, demographic, economic, and policy diversity across Europe. These factors make it challenging to agree on a single, harmonised definition.

Finally, it should be noted **that the level of granularity remains unchanged compared to the 2020 version**. It is already widely used across Member States, and operators have been reporting data without difficulties, supporting its continued application.

### 3.3 Fixed broadband

#### 3.3.1 Premises activated

Several stakeholders provided comments on the new (optional) “premises activated” indicator in the Guidelines.

**Connect Europe** and **Fastweb** question the suitability of including “premises activated” in geographical surveys, arguing that activation reflects demand-side take-up rather than the supply-side availability that Article 22 EECC is intended to measure. Both emphasise that activation data is commercially sensitive, as it reveals customer numbers, competitive dynamics, and even the geolocation of individual subscribers, and therefore requires strict confidentiality safeguards. Both also highlight the operational burden involved in compiling and maintaining accurate activation datasets would require continuous updates and create significant additional workload for operators, particularly in markets where retail and infrastructure roles are separated. They further caution that publishing such information could raise privacy and competition concerns.

**BREKO** similarly warns against any “drift towards take-up or activation-linked indicators”, insisting that network reach should remain based on the supply-side concept “premises passed”, rather than on demand or final-drop execution.

The **NL Ministry** “has reservations about including the new optional parameter on Number of premises activated, since they don’t primarily reflect the reach of broadband networks”, suggesting instead “Number of premises connected” as a potentially better optional indicator.

In contrast, the **FTTH Council Europe** and **Open Fiber** strongly support the inclusion of “premises activated”<sup>4</sup>. The **FTTH Council Europe** considers the indicator essential for understanding VHCN utilisation, assessing market failure, and informing demand-side measures. They argue that activation data should not be optional and should be systematically collected. It stresses the importance of linking infrastructure data (e.g. technology and medium) with activation data to provide a comprehensive market overview. **Open Fiber** likewise supports mandatory collection, particularly in view of the draft DNA, which links copper switch-off planning to the identification of premises still relying on legacy technologies.

#### BEREC response

Article 22 EEC focuses on the “geographical reach of broadband networks” which is primarily measured through supply-side availability indicators such as “premises passed”. In line with this, the Guidelines maintain “premises passed” as the primary indicator of fixed network availability. The introduction of “premises activated” does not alter this principle. It is included solely as an optional, complementary indicator that NRAs/OCAs may use where insight into take-up is relevant for specific policy needs, such as monitoring VHCN utilisation, competition analysis, State aid assessments, or copper switch-off planning.

BEREC acknowledges the concerns regarding confidentiality and administrative burden. Any collection of “premises activated” data must respect commercial sensitivity and data-protection rules, and NRAs/OCAs should not publish data at granular premises level. Experience from several NRAs shows that, when handled correctly, such data does not allow identification of individual subscribers and should not be cross checked with personal data from other sources. **BEREC has added “Operator’s premises activated at address level” as an example of information that would qualify as business secret in paragraph 128.**

At the same time, BEREC recognises the strong policy interest, highlighted by several stakeholders, in distinguishing between availability and actual use of VHCN, particularly in the context of the Digital Decade targets, State aid assessments and the forthcoming DNA provisions on copper switch-off.

Finally, BEREC notes the suggestion to use “premises connected” as an alternative indicator. While this concept may be relevant in certain EU level monitoring frameworks, it reflects an additional technical connection information rather than a demand-side (take-up) indicator.

Given these considerations, **the BEREC Guidelines keep “premises activated” as an optional field**, leaving NRAs/OCAs discretion to use it where the benefits justify the effort, while avoiding mandatory obligations that could impose disproportionate burdens or raise confidentiality concerns.

---

<sup>4</sup> They also welcome the introduction of a “premises activated” GIS layer, as crucial for analysing network penetration and technology uptake. It encourages national authorities to use this data to produce more advanced analytical outputs, such as penetration rates by area and technology, while ensuring confidentiality.

### 3.3.2 Fixed wireless access

The BEREC GL require that for a premise to be passed by FWA, there needs to be an existing access point (typically the mast with antenna) nearby, typically with direct visibility to the end-user location and that a potential commercial offer can be accessible for end-users. Paragraph 64 in the draft Guidelines stated that “NRAs may consider issues such as network capacity for FWA networks when determining FWA coverage”.

BEREC received two comments on the definition of premises passed for FWA. The **VNICTP Industry Association** emphasised that the GL do not offer a sufficiently clear or operational definition of this concept. They explained that real-world availability depends on factors such as line-of-sight, signal quality, local capacity constraints, backhaul uplink capacity and installation feasibility at a specific location and warned that, without clear guidance, operators and public authorities would apply divergent interpretations, leading to inconsistent reporting and complicating the implementation of national subsidy programmes. The **VNICTP Industry Association** encourages BEREC to develop a harmonized, technology-neutral and operationally realistic definition through a future consultation. **Connect Europe** also commented on this definition, suggesting that it should explicitly require that the number of premises passed by FWA reflect the potential capacity of the existing access point. According to their view this would help avoid inconsistent mapping. They also recommended that NRAs verify the existence of access points using infrastructure atlases or similar databases.

BEREC also received several comments regarding paragraph 64. **Open Fiber** welcomed it, but other contributions asked for its removal, though for different reasons. **ECTA** stressed that considering FWA network capacity would require disclosing extremely sensitive business confidential information, effectively revealing the operator’s real network data. The **GSMA** argued that capacity changes over time and therefore is incompatible with the timing of the mapping exercise; operators already resolve capacity issues rapidly to protect customers. **Fastweb** questioned why the GL refers to network capacity only for FWA and warned that this could lead authorities to challenge the speeds offered by operators based on total available capacity, especially where resources are shared with mobile networks.

#### BEREC Response

BEREC acknowledges the comments received and recognizes the difficulties faced by operators and authorities when providing FWA coverage and QoS data in the context of the GS. BoR (24) 146<sup>5</sup> noted that “the calculation of the capacity of an FWA network is not trivial and could do with further guidance”.

BEREC wishes to avoid situations where premises are declared as passed—or passed at a certain speed—when the available network capacity (including backhaul) does not allow such performance for all these premises, even if they are within line of sight of the access point. If,

<sup>5</sup> BoR (24) 146 Implementation report on the BEREC Guidelines on Geographical surveys of network deployments.

for example, a given speed can only be delivered simultaneously to ten premises, this limitation must be reflected in the declaration of premises passed. Modern planning tools enable operators to assess whether new FWA subscriptions can be accepted without degrading the quality for existing users.

In response to **Fastweb**, BEREC highlights that network capacity is indeed a potential constraint for all networks (wired as well as wireless). However, for FWA such constraint is more significant when collecting data about premises passed, because of the nature of wireless networks. Since there is no wired-physical medium supporting the potential reach of FWA networks and since any premises within the access point's line of sight could theoretically be considered as potentially passed, it is essential to consider available network capacity to avoid overestimating the network's actual capabilities. This consideration also applies to licensed 4G/5G bands, where the capacity may be shared between FWA and mobile traffic, which then could quickly lead to congestion. Moreover, scaling the capacity of an FWA access point typically requires either access to additional—and often expensive—spectrum or densification, i.e. increasing the number of access points or cell sites within a given area.

Therefore, **BEREC considers that the final GL should explicitly state that: “NRAs/OCAs should require operators to take into account the currently available capacity at the last node when declaring premises passed by an FWA network. Premises should not be declared as passed—or passed at a certain speed—when the available network capacity (including backhaul) does not allow such performance for all these premises, even if they are within line of sight of the access point.” and proposes replacing the text in the draft guidelines accordingly (paragraph 64).**

Responding to **ECTA**, BEREC clarifies that paragraph 64 is not an obligation for NRAs to collect network capacity data. Instead, it requires operators to consider capacity constraints when reporting premises passed by FWA networks.

Finally, regarding the **GSMA's** comment, BEREC agrees that network capacity evolves over time. However, this does not prevent operators from considering it when declaring premises passed under Article 22 geographical survey. Each geographical survey necessarily reflects the situation at a given moment in time, and capacity assessments can and should feed into that snapshot.

### 3.3.3 Technology categories

The **FTTH Council Europe** is the strongest advocate for a detailed and stable technological taxonomy. It welcomes the addition of DOCSIS 4.0 as a separate category in the fixed technology table since it “reflects technological evolution while maintaining a clear distinction between fibre, cable and copper-based technologies”. According to the **FTTH Council Europe**, over aggregating technologies in public mapping tools risks blurring “the distinction between full fibre and other technologies with different performance and upgrade profiles”.

The **FTTH Council Europe** also fully supports “the distinction between FWA in licensed and unlicensed spectrum” and highlights the importance of identifying addresses that still rely on copper and proposes creating a database for premises that do not have VHCN, that should include active copper users “who will be exposed in the event of Copper Switch Off”. A dedicated layer for active copper users is similarly requested by **BREKO**.

**Open Fiber** agrees with classifying DOCSIS 4.0 as a distinct technology category and recommends maintaining separate databases for copper, FTTH, and other VHCN technologies to ensure accurate analysis of availability and activation data, essential for assessing switch-off readiness and for coordinating investment plans. As well, **ECTA** agrees on BEREC’s approach to technology classification, particularly the proposal to require additional information when operators declare an “*other (non-classified) technology*”.

#### BEREC Response

BEREC notes the stakeholder views on technology categories. Several respondents, including the **FTTH Council Europe**, **Open Fiber** and **ECTA**, strongly support a clear and granular taxonomy, welcoming the separate classification of DOCSIS 4.0 and the maintained distinctions between FTTH/B, cable, copper and FWA. BEREC agrees that such distinctions are important for transparency and alignment with the VHCN framework, and therefore no changes have been made to the Guidelines regarding Table 2.

BEREC also acknowledges proposals for additional layers, such as **BREKO**’s suggestion for a dedicated layer for active copper users or the **FTTH Council Europe**’s call for a database of premises without VHCN. While these may be useful at national level, the Guidelines must remain proportionate. Thus, NRAs/OCAs retain full flexibility to introduce additional layers where appropriate, but these will not be mandated by the Guidelines at EU level.

Regarding “other (non-classified) technologies”, BEREC maintains the requirement for operators to provide supplementary information to ensure consistent classification across the EU. BEREC further confirms the relevance of keeping distinct categories for licensed and unlicensed FWA, as supported by the **FTTH Council Europe**, while ensuring technological neutrality.

Overall, BEREC maintains a balanced and proportionate approach, preserving a clear fixed technology taxonomy while allowing NRAs/OCAs the flexibility to add layers were justified by national needs.

### 3.3.4 Speed categories and speed tiers for fixed broadband

The revised GL proposed the optionality of maximum upload speed and expected download and upload peak time speeds information for fixed broadband. Several contributions point at a broadly positive reception to these amendments. The **NL Ministry** welcomed them, stating that the new approach strikes a better balance between effectiveness and proportionality in the geographical surveys. **ECTA** also agreed with introducing optionality, recognizing that

simplifying reporting obligations is beneficial, while noting that certain speed parameters may still be necessary in specific state-aid situations. Similarly, **Fastweb** supported the shift, emphasizing that authorities have struggled to collect these indicators in a reliable and harmonised manner, making optionality a pragmatic improvement.

A couple of contributions went further and argued that expected peak-time speeds should not be optional but rather should be removed entirely from the GL. **Connect Europe** and the **GSMA** strongly opposed including these metrics, arguing that these indicators are inherently dynamic, heavily affected by changing traffic conditions, and unsuitable for harmonized geographical mapping across the EU. They warned that metrics reflecting congestion or time-dependent performance would undermine comparability, reproducibility, and operational feasibility. According to these contributions the GS should focus exclusively on structural and technology-based network characteristics that are stable over time.

However, a couple of contributions nuance this debate by showing that not all stakeholders oppose complex speed metrics. For example, the **FTTH Council Europe** supported allowing NRAs or OCAs to require maximum upload speeds as well as expected peak-time download and upload speeds as these indicators reflect performance dimensions relevant to VHCN definition, user experience and State-Aid assessment, especially in FTTH environments where symmetric or near-symmetric services are a key differentiator.

Similarly, the **GSMA** raised concerns regarding BEREC's proposal to make maximum upload speed optional, arguing instead that it should remain mandatory. They stressed that upload capacity is no longer a niche requirement, but a user necessity because of technological and social advancements<sup>6</sup>. According to the **GSMA** in this context making upload speed optional would be inconsistent with user needs and broader digital-policy objectives.

One contribution also addressed the verification of broadband service speed at activation. **Open Fiber** stressed the importance of permitting authorities to require maximum upload and expected peak-time speeds at activation to ensure that the performance users experience aligns with the actual capabilities of networks and support accurate verification aligned with VHCN and State-Aid objectives.

#### BEREC Response

BEREC appreciates the positive feedback regarding the changes to the speed requirements for fixed broadband and agrees that maximum upload speed, as well as expected download and upload peak-time speeds, should remain optional in the final Guidelines.

According to BoR (24) 146, collecting expected peak-time speed indicators for fixed networks at the address level is challenging for many authorities, and several have therefore opted not

---

<sup>6</sup> Widespread remote work, cloud collaboration, video conferencing, real-time backups, content creation and increasingly AI-intensive workloads.

to gather this information. This does not imply that expected peak-time speed data lacks relevance. On the contrary, it remains important for various regulatory and policy purposes, such as in the context of State aid assessments, monitoring connectivity developments across countries, or providing data for the “Broadband Coverage in Europe” studies. For these reasons, BEREC considers it appropriate to keep these indicators optional.

BEREC also acknowledges that upload speeds are becoming increasingly important for end-users for many of the reasons highlighted by the **GSMA**. However, in numerous countries, authorities collect information on upload speeds through other mechanisms, such as crowdsourcing tools or by considering the speeds specified in end-user contracts. Therefore, making maximum upload speed reporting optional can help reduce the administrative burden for authorities and operators.

Finally, BEREC finds that **Open Fiber**'s suggestion is not proportionate and raises GDPR concerns, as verifying maximum upload speeds and expected peak-time speeds “at activation” would require processing line-specific performance data linked to individual subscribers in a manner that may risk breaching the GDPR principles of data minimization, necessity, and proportionality.

Finally, regarding speed tiers, the **FTTH Council Europe** questioned the usefulness of maintaining multiple speed tiers such as 30 Mbps or 100 Mbps, arguing that the relevant policy distinction is simply whether a connection is VHCN or not, and therefore recommended reducing the classification to just two categories: 1 Gbps and above, or below 1 Gbps. **Open Fiber** supports the same simplification. By contrast, ECTA considers that no changes are needed to the current speed-class structure.

#### BEREC Response

Given the central role of the VHCN definition, BEREC acknowledges the importance of the 1 Gbps threshold for reporting speed information. However, focusing exclusively on the 1 Gbps benchmark would overlook other speeds that are also relevant for regulatory and policy purposes. BEREC considers it important that its Guidelines reflect performance metrics at different speed tiers, since these will continue to play a role in assessing service availability, user experience, and technology evolution. Therefore, **BEREC will keep Table 7 in Annex 2 of the Guidelines unchanged.**

## 3.4 Mobile broadband

### 3.4.1 Indoor speeds

**WINDTRE, Fastweb, Connect Europe, ECTA** and the **GSMA** argue that indoor mobile coverage cannot be reliably defined or measured due to the high variability of building characteristics and indoor environments and complexities which are beyond operators' control. They emphasize that such metrics would not accurately reflect real user experience

and could produce misleading results for users and public institutions. These respondents support maintaining outdoor coverage as the primary and most robust basis for mobile coverage assessment and mapping, as it provides more reliable, consistent, and comparable data.

On the other hand, the **FTTH Council Europe** considers that, while outdoor coverage should remain the baseline, the optional use of indoor coverage classes based on assumed attenuation could represent a pragmatic complement if required by regulators.

#### BEREC Response

This option provides authorities with a pragmatic way to enhance coverage maps by introducing classes (e.g., poor, good outdoor, good outdoor and indoor), to be defined by the NRA/OCA. It is not intended to model building-specific indoor coverage, but rather to offer a generalized view of indoor conditions, typically based on signal strength categories. The aim is to provide indicative, not guaranteed, information. This approach allows for more detailed information for users and regulators while maintaining flexibility and limiting additional complexity. **BEREC considers that the option to consider indoor coverage as an additional class should be retained.**

### 3.4.2 Cell edge probability and cell coverage probability

The updated BEREC GL explains that cell-area coverage probability and cell-edge coverage probability are related, noting that a 75–80% cell-edge requirement typically corresponds to 90–95% cell-area coverage. For this reason, BEREC indicates that NRAs and OCAs may use cell-edge coverage as a reasonable modelling approach when assessing mobile coverage, and may complement this with service-accessibility maps verified through QoS-2 ground-survey data

A couple of contributions point at favorable reactions to these changes. The **FTTH Council Europe** described the update as a pragmatic evolution. They stressed the importance of realistic mobile-coverage estimates to avoid overstating the substitutability of mobile broadband for fixed VHCN, particularly in dense urban and deep-indoor settings. **Wind Tre** also supported the use of a 75–80% cell-edge coverage probability, describing it as a realistic threshold.

However, other contributions expressed concerns about the change. **Connect Europe** argued that while cell-edge values can serve as a useful internal proxy for modelling, they should not become standalone regulatory objectives. They noted that cell-edge performance varies significantly with topology, spectrum and deployment density and is therefore not stable or comparable across regions. The **GSMA** raised similar objections and added references to the difficulties on verifying cell-edge probability. They also stressed that cell-edge performance

differs greatly between dense urban and rural areas due to contrasting inter-site distances and spectrum availability, making it too variable and added that cell-edge samples represent only a limited subset of measurements and may lack statistical robustness. For these reasons, they favored maintaining a global probabilistic coverage approach.

**WindTre** warned BEREC about the limits of ground surveys which may not always be effective, especially in remote areas, and which may also suffer from under-sampling if measurements occur only at specific times.

#### BEREC Response

BEREC considers that a grid is covered by a mobile broadband technology when a broadband service of at least 2 Mbps is available in at least 95% of the grid area, with a high likelihood of successful reception<sup>7</sup>. In this context, successful reception is defined as a 95% probability of successfully receiving the service. This cell area probability (or average cell performance) corresponds to the notion of a service being available within a given area and constitutes the main concept used to assess mobile broadband availability in the Guidelines.

However, in 2024 BEREC observed that several countries applied alternative criteria to determine whether a grid was considered passed by a mobile technology<sup>8</sup>. Many of these approaches relied on cell-edge probability thresholds, rather than directly on cell area probability<sup>9</sup>.

To clarify the implications of these methodological differences, BEREC has analyzed how cell probability and cell-edge probability affect coverage outcomes. The analysis showed that, in most practical deployments, imposing a 75–80% cell-edge probability requirement would typically correspond to achieving a 90–95% cell area probability. Based on this, **BEREC is including in the final Guidelines the possibility for NRAs/OCAs to allow for cell-edge coverage thresholds as a reasonable implementation approach to obtain mobile coverage metrics.**

Importantly, this does not imply that national authorities must collect explicit figures for cell-edge probability or that cell-edge probability becomes a “stand-alone regulatory objective”. Rather, it means that applying a cell-edge threshold may serve as a sound alternative to conclude that a grid is covered by a given mobile technology under the BEREC criteria (cell-area probability). The BEREC Guidelines specify that the only data required per grid cell for determining coverage is a *binary* value (yes/no), without mandating the reporting of any detailed probability metrics.

<sup>7</sup> See paragraph 75 in BEREC GL.

<sup>8</sup> BoR (24) 146 Implementation report on the BEREC Guidelines on Geographical surveys of network deployments.

<sup>9</sup> Cell Edge Probability is relatively simple to compute as it matches the direct simulators input.

That said, BEREC acknowledges several of the difficulties associated with cell-edge probability—its sensitivity to topology, spectrum, and network density—which also affect cell-area probability, though to a lesser extent. The reason is that a cell-area probability is based on the overall distribution of service availability across the entire grid cell, rather than being determined solely by conditions at its boundaries. For this reason, BEREC considers it reasonable to allow operators to determine the exact cell-edge threshold—within appropriate bounds (above 75–80%)—in line with operational constraints and the specific parameters of their simulation environments, when deriving the resulting mobile coverage information.

### 3.4.3 Other comments

Finally, the **FTTH Council Europe** encourages BEREC to ensure that future work on harmonized cell-load estimates and mobile-speed calculation methodologies does not rely on assumptions that could overstate mobile networks' ability to deliver fixed-like VHCN performance at scale, particularly during peak-time conditions, where sustained high performance is least guaranteed.

#### BEREC Response

In the context of geographical surveys, BEREC has consistently sought to establish methodologies that deliver robust, realistic, and technically sound results, and it remains committed to maintaining this standard in future work.

## 3.5 VHCN

The draft BEREC GL proposed that speed information should be calculated on the transport-layer protocol payload rather than at the IP-packet payload level, in order to ensure consistency with updated VHCN Guidelines.

**ECTA and the FTTH Council Europe** supported this shift, noting that calculating QoS-1 indicators at the transport layer ensures consistency between VHCN qualification and mapped speed classes.

However, **Fastweb** argued that transport-layer payload may not accurately reflect fixed-network performance because variable application-level overhead (e.g., TCP headers) can mask true physical capacity. They suggested that BEREC allow fixed-network speed calculations to use either the network-layer payload or the transport-layer payload, following the same flexibility applied to mobile networks in paragraph 88, where both methodologies are accepted.

#### BEREC Response

Article 22 requires national authorities to conduct geographical surveys that identify the availability and planned deployments of VHCNs. Therefore, it is essential that the mapping methodology remains fully aligned with the VHCN Guidelines, and, in particular, regarding

speeds. Thus, the layer where speeds need to be calculated in order to deliver a speed class declaration should be the layer indicated in the VHCN Guidelines. Like this, inconsistencies between a VHCN qualification and its geographical coverage reporting would be avoided.

The 2025 BEREC VHCN Guidelines<sup>10</sup> stated that *“the thresholds data rates of performance thresholds 1 and performance thresholds 2 are data rates at the level of the transport-layer protocol payload”*. Therefore, **the final article 22 GL should adopt the transport-layer protocol payload as the reference measurement layer to guarantee methodological coherence, both for wired and wireless networks<sup>11</sup>. Thus, BEREC is amending paragraph 88 in the final guidelines accordingly.**

On the specific topic of VHCN and FWA, the **FTTH Council Europe** stressed that any recognition of FWA as VHCN should remain exceptional, strictly evidence-based and stable over time to avoid undermining fibre-investment incentives. It supports requiring FWA to meet all VHCN performance thresholds for at least 95% of addresses or grid area, using class 3 when such conditions are met. It also urges NRAs/OCAs to rigorously assess capacity, traffic load and long-term sustainability before accepting FWA as VHCN, especially when unlicensed spectrum or nomadic use may compromise fixed-like performance.

#### BEREC Response

BEREC acknowledges the comment submitted by the **FTTH Council Europe** which recalls some paragraphs of the GL, which imply that the declaration of FWA as VHCN Class 3 is evidence-based: paragraph 52 specifies that for FWA to classify as VHCN 3, all performance thresholds of Criterion 3 in the VHCN Guidelines must be satisfied, and paragraph 59, which imposes the 95% rule for grid-level declarations: to classify a grid as served by a VHCN class, the relevant thresholds must be satisfied in at least 95% of the addresses in the grid.

Finally, regarding verification, NRAs/OCAs may verify operator submitted QoS-1 data, examine congestion-related parameters, and request additional technical evidence such as backhaul characteristics and load assumptions to ensure the robustness of declared performance<sup>12</sup>. NRAs/OCAs should decide on whether and how to conduct verification based on the information which is available and their needs<sup>13</sup>.

<sup>10</sup> BoR (25) 35, paragraph 21(d).

<sup>11</sup> In BoR (20) 41, BEREC noted that for wired networks, measuring peak-time speed at Level 3 (IP) or Level 4 (TCP) gives similar results because packet loss and retransmissions have minimal effect. Therefore, the chosen layer rarely changes the speed class of an address or grid. For FWA, however, this choice can significantly alter the declared speed class. For instance, an FWA service marketed at 150 Mbit/s may fall in the 100–300 Mbit/s range when measured at IP level, but only 30–100 Mbit/s when measured at the TCP layer.

<sup>12</sup> See BoR (21) 82, BEREC Guidelines on Geographical surveys of network deployments. Verification of information, and, in particular, paragraphs 35 to 37.

<sup>13</sup> See paragraph 12 in BoR (21) 82.

### 3.6 Verification of information

Respondents express mixed views on the proposed verification requirements in the Guidelines, particularly regarding the introduction of a minimum 95% accuracy threshold and its interaction with the existing BEREC verification framework (BoR (21) 82).

**Connect Europe** raises concerns about a potential inconsistency between this new requirement for broadband maps and the existing verification guidelines.

The **GSMA** expresses concerns about the rigidity and potential misuse of these requirements. It argues that verifications should remain optional for national authorities and opposes allowing thresholds above 95%, warning that stricter requirements could be unrealistic given existing network conditions. It also highlights that QoS-2 and QoS-3 test results may be significantly affected by factors beyond operators' control, such as devices and building conditions, which could distort outcomes and undermine the validity of such metrics.

In contrast, the **FTTH Council Europe** strongly supports the introduction of explicit reliability requirements, including the 95% success rate for QoS-2 tests, arguing that this significantly strengthens the robustness of mapping results. It emphasizes that reliable verification is essential where coverage data is used for regulatory decisions, such as defining investment areas or allocating State aid, and encourages even stricter thresholds or complementary evidence in such cases.

**ECTA** supports BEREC's proposal, noting that referencing the verification guidelines reinforces the need for verified broadband maps and that the reliability requirement promotes consistency of QoS-2 testing.

#### BEREC Response

BEREC considers that assessing the quality of the data provided by operators is an inherent part of the obligations of NRAs/OCAs under Article 22 of the EECC. However, as paragraph 12 of BoR (21) 82<sup>14</sup> notes, authorities have discretion to choose among several optional methods for data verification, one of which is QoS-2.

Thus, the new paragraph which introduces a minimum target threshold for map reliability does not conflict with BoR (21) 82. While simulations provide a theoretical basis at any location, real-world measurements can be used to adjust them and ensure alignment with observed data. This requirement applies only with respect to QoS-2 data specifically intended for map verification purposes (not to crowdsourced QoS-3 data). Applying a higher reliability threshold is optional and may be appropriate for large-scale datasets (e.g. national coverage) and/or in relatively flat, sparsely populated areas. For example, an NRA/OCA could set an overall reliability target of 98% across the entire surveyed area (e.g. 10 000 km<sup>2</sup>), while maintaining

<sup>14</sup> BoR (21) 82, The BEREC Guidelines on geographical surveys of network deployments- Verification of Information.

a minimum of 95% over each subdivision of 100 km<sup>2</sup>, ensuring that discrepancies are not concentrated in a single location. If the area being surveyed is mostly composed of dense urban environments (with many obstacles) or in mountainous regions, keeping an overall minimum of 95% accuracy is appropriate.

**BEREC believes that the requirement does not need to be altered, but including further clarification is relevant. Footnote 46 in the final Guidelines provides this clarification: “Target accuracy may be adjusted locally depending on terrain type, such as dense urban environments with numerous obstacles or mountainous regions particularly in cases of low QoS-2 sampling.”**

### 3.7 Forecast specificities

Paragraph 101 (b) emphasizes that, in state-aid proceedings, detailed and updated broadband forecasts (under Article 22) may help authorities anticipate operators’ future rollout plans and complement what (state-aid) public consultations reveal. Such forecasts can assist in identifying areas lacking broadband availability and preventing public funding from crowding out private investment.

However, **Connect Europe** and the **GSMA** oppose any suggestion that authorities should conduct such forecasts and argue that they increase bureaucracy and contradict the EU Commission’s objective of reducing administrative burden. Instead, these stakeholders support relying solely on voluntary information gathered through public consultations in areas where the public intervention is envisaged.

Furthermore, **Connect Europe** and the **GSMA** argue that mobile forecasts have little value, given near-universal mobile coverage and continuous NRA monitoring. **Wind Tre** highlights reliable mobile forecasts are difficult due to market complexity, regulatory fragmentation across Member States, and constraints such as strict EMF exposure limits, which create uncertainty and hinder predictable planning and upgrades.

#### BEREC Response

Article 22 of the EECF establishes that the broadband map may include a forecast of the reach of broadband networks, including VHCNs, for a period determined by the relevant authority. Paragraph 98 clearly establishes that the collection of forecast data under Article 22 is not mandatory but optional. State aid proceedings are one of the areas where forecast information is indispensable, yet authorities have flexibility to organize the data retrieval process regarding forecasts in the way they see fit, given the specific circumstances and taking into consideration their needs for information and the costs of its provision.

BEREC disagrees with the description of Article 22 forecasts as merely “increasing bureaucracy”. For example, in its response to the public consultation on the draft revised

European Commission Guidelines on State Aid for broadband networks<sup>15</sup>, BEREC noted that if “sufficient and relevant data about future deployment plans is available in the GSs, at the level of credibility and detail requested by the Draft SAG, there is no need to require (again) the information. In such cases, the public consultation should be focused only on the validation of the readily available results concerning the planned ahead deployments”.

Finally, BEREC recognizes that producing reliable forecasts for certain indicators—particularly those linked to speed and QoS—remains challenging, especially for mobile broadband. Different uncertainties can affect predictability and complicate long-term planning models for regulators and operators alike.

However, BEREC firmly disagrees with the notion that “near-universal coverage” eliminates the need for mobile broadband forecasts. On the contrary, forecasts remain essential in several regulatory and policy contexts. For example, when assessing state aid measures aimed at expanding 5G or deploying 5G standalone (SA) networks, accurate forecasts should identify underserved areas and ensure that public intervention is proportionate and targeted. While basic 5G layers may be widely available, 5G SA and high-capacity mid-band coverage are far from universal. Forecasts therefore continue to play a critical role in anticipating investment needs, supporting efficient public spending, and ensuring that connectivity objectives are met where commercial incentives alone are insufficient.

### 3.8 Publication and confidentiality of data

Respondents generally recognise the importance of providing information to end users but stress the need to balance transparency with proportionality and the protection of commercially sensitive data.

**BREKO** supports the availability of user-friendly information tools on service availability but strongly emphasises that publication must not disclose sensitive infrastructure or rollout data. It argues that public outputs should be limited to the minimum level of detail necessary for consumer decision-making, for example through maps or address look-up tools. Bulk disclosure of address-level datasets or operator-specific information should be avoided, as this could reveal competitive strategies and undermine market dynamics. **BREKO** also highlights inconsistencies between the proposed definition of coverage and operators’ commercial databases, which are based on dedicated capacity.

Both **Connect Europe** and the **GSMA** question the necessity and proportionality of expanding publication requirements. They note that end users already have access to sufficient information through operators’ websites and comparison tools. In their view, additional regulatory publication obligations risk duplication without clear added value and should take into account existing market-based solutions, as required by the regulatory framework.

---

<sup>15</sup> BoR (22) 16 BEREC response to the public consultation on the draft revised European Commission Guidelines on State aid for broadband networks

The **FTTH Council Europe** and **Open Fiber** support enhanced publication and communication tools, highlighting the growing importance of broadband maps for consumers, businesses, and policymakers. They stress that published information should accurately reflect differences between technologies, particularly to promote informed migration to fibre networks. The **FTTH Council Europe** further recommends clearly distinguishing FTTH/B from other technologies and, where possible, including performance indicators such as peak-time speeds, while maintaining consistency with underlying survey definitions and classifications.

**WindTre** emphasizes the need to clearly separate mapping for policy purposes from information provided to end users. It cautions that overly detailed or complex data may mislead consumers, particularly in mobile networks where performance depends on multiple variable factors. Instead, it supports simpler, more understandable information, such as the availability of different technology generations (e.g. 2G–5G), complemented by standardized pre-contractual performance information.

Regarding paragraph 120, **WindTre** suggests to add at the end “In addition, it supports better-informed decision-making by consumers, *providing information on the technologies available in any pixel ( 2G , 3G, LTE, 5G...)*”. This is because it is important to bear in mind that user expectations are also largely shaped by various non-technical factors, including price, promotions, customer support, service packages, etc. Consequently, publishing network data on “quality of service” beyond radio access technology (2G, 3G, 4G, 5G) would add significantly more complexity with very few benefits and could lead to more disputes and litigation.

**WindTre** also stresses confidentiality concerns (paragraphs 123, 127 and 128), arguing that sensitive data, such as network configurations, deployment plans, and modelling methodologies, must be protected. They suggest adding “configuration” as another example of information that could qualify as business secrets (paragraph 128). Public data should be aggregated and anonymized to prevent identification of individual operators. **WindTre** considers that CSV or API tools that allow for the effortless collection of massive datasets for competitive analysis do not constitute viable solutions for safeguarding confidentiality. It therefore proposes adding the following sentence at the end of paragraph 123: “Nevertheless, a multi-publication approach also seems to be a good practice as publications can be complementary and can improve dissemination of information between end users, associations, public entities, and civil society, *provided that are not exposing operators to the risk of confidential information data leaks.*” Additionally, it highlights the importance of NRA-managed simulation tools and harmonized methodologies to ensure consistent and reliable coverage information.

#### BEREC Response

This section remains unchanged compared to the 2020 version. In Section 2.8 of the Guidelines, BEREC demonstrates a clear commitment to safeguarding confidentiality and business secrets.

The Guidelines provide illustrative examples of the types of information that could qualify as business secrets and may be deemed confidential in the context of geographical surveys (paragraph 128), as well as examples of information that may not be considered confidential (paragraph 129). These examples are not intended to constitute an exhaustive list.

Moreover, as stated in paragraph 127, it is highly recommended that operators substantiate their claims for confidentiality, and that NRAs or OCAs assess such claims based on clear and non-discriminatory criteria. The determination of whether specific information constitutes confidential information should be conducted on a case-by-case basis by the relevant authority, taking into account the nature of the information and the specific circumstances.

Regarding the proposal by **WindTre** to add the following sentence at the end of paragraph 123 of the Guidelines:

“Nevertheless, a multi-publication approach also seems to be a good practice as publications can be complementary and can improve dissemination of information between end users, associations, public entities, and civil society, ***provided that they do not expose operators to the risk of confidential information data leaks***”

**BEREC considers that this addition can be accepted, as it reinforces the importance of security considerations.**

Also reflecting security considerations, BEREC introduces new paragraph 124: **“When publishing operator specific data at highly granular level (e.g. premises passed per individual address or small grids), NRAs/OCAs should ensure that access is limited to one address at a time and provided through controlled mechanisms, such as interactive address-based search tools. These tools should incorporate technical safeguards-including rate limiting, CAPTCHA challenges, and automated query monitoring- to effectively prevent automated scraping, bulk queries or large-scale extraction of operator specific data.”**

Concerning the comments on distinguishing FTTH/B from other technologies and, where possible, including performance indicators, paragraph 121 already addresses this aspect by stating that “along with the available speed class, the available technologies in a specific area provide important information for consumers.”

With regards to mobile networks and the comment by **WindTre** on publishing network data on “quality of service” beyond radio access technologies (2G, 3G, 4G, 5G), the assessment of such an approach should be left to the discretion of the relevant NRA at national level.

As for the publication of data per operator, coverage data should be aggregated by geographic area, in line with Section 2.8.4., which provides for making available information tools enabling end users to determine the availability of connectivity in different areas, while respecting the confidentiality provisions set out in Section 2.8.3.