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## Public Consultation on Draft BEREC Guidelines on Very High Capacity Networks

Elaborated by CMG-AE Action Group Gigabit Fiber Access - AGGFA

### 1 Our Focus

Our focus is FTTH and wholesale only business models.

### 2 Analysis

#### 2.1 Significance of one open area-wide passive fiber infrastructure – FTTH

The absolute precondition for all aspects of digitalization and for the Gigabit Society is one open area-wide fiber infrastructure, providing a fixed-line connection with fibre roll out up to all kind end user's and end points and connecting them among each other: homes, enterprises, all kind of "machines", base stations, sensors, street furniture's etc. This network serves as basic infrastructure for all digital applications. And 5G/6G is nothing more than one of these applications admittedly one the most important. This networks, therefore, can be regarded as general-purpose networks (GPN)<sup>1</sup> that enables the deployment of platforms that offer a broad range of services, traffic types, applications, content, and devices. This GPN gets more and more the character of an essential infrastructure.

#### 2.2 Interpretation of "serving location"

We think the serving location, as the term is used in 2(2) of the EECC, can only be the end user's location.

Although there is a hint in recital (13) that the serving location could be a "multi-dwelling building" or a "base station" it must be the end user's location, because

- Only there the QoS parameters make sense and benefit for the end user<sup>2</sup>
- There is no other definition in the EECC which could contradict

<sup>1</sup>[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP\(2015\)2/FINAL&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP(2015)2/FINAL&docLanguage=En)

<sup>2</sup> Recommendation ITU-T E.800, 2.2 Definition of Quality of Service (QoS): "Totality of characteristics of a telecommunications service that bear on its ability to satisfy stated and implied needs of the user of the service."

- In a multi-dwelling unit with fiber up to the end user's location the network consumes less power than additional solutions which need active elements (Green Deal)
- In a multi-dwelling unit with fiber up to the end user's location OPEX is lower than in a FTTB network using other connections than fiber from the BEP up to the dwellings (e.g. G.Fast).
- One of the overarching objectives of the EECC is "Promoting the interests of the citizens of the Union". To give the citizens the best QoS performance at his location should therefore have priority.

## 2.3 Alternative business models and their influence on the BEREC Draft Guidelines on Very High Capacity Networks

The Draft does not consider the evolvement of separation of the business layers and the appearance of new undertakings as e. g. wholesale only physical infrastructure providers, neutral network operators and service providers. In alternative business models these undertakings cooperate<sup>3</sup>.

There should be methods developed how these undertakings are handled in case of regulations and obligations imposed on them and how they can be supported and motivated since they stimulate the competition in the service market to the benefit of end users and attract investors and bank: Separation of passive fiber infrastructure from operation and service provision proves to be successful and is favored by them.

In separate guidelines these methods shall be elaborated by BEREC.

In a suggested new paragraph (12a) we include the impact of alternative business models on VHCN in the Draft.

## 2.4 Our Definition of VHCN

We base our definition of VHCN on the following insights:

- The serving location is the end user's location in fixed networks as well as in mobile networks.
- Vertically integrated networks fit to the definition in 2(2), the fiber infrastructure is part of the operator's value chain. Fiber networks can be built and owned by wholesale only physical infrastructure providers: also they shall be defined as VHCNs

Based on these arguments and of 2.1 and 2.2 we define VHCN in 3.1.4

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<sup>3</sup> <https://ec.europa.eu/digital-single-market/en/news/broadband-investment-guide> Business models

## 3 Our Suggestions

### 3.1 Paragraphs

The new texts are written in *italic*.

#### 3.1.1 Paragraphs 1 to 8, 10 and 11

No text modification necessary, in contrary they support and underline our suggestions.

#### 3.1.2 Paragraph 9:

Original text: Recital 13 established the link between these two parts of the definition of very high capacity networks in Article 2(2) by developing the concept of equivalence of network performance and providing a baseline scenario based on two different topologies: (i) fibre roll out (at least) up to a multi-dwelling building in the case of a fixed-line connection and (ii) fibre roll out up to the base station in the case of a wireless connection. This ensures the principle of technology neutrality based on the equivalence of the performance of the networks.

Modified text: *Recital 13 gives examples what can be considered to be the serving location, namely a multi-dwelling building and a base station.*

*But we interpret the serving location as the end user's location, where the performance parameters (down- and uplink bandwidth, resilience, error related parameters, latency and others according to the definition of very high capacity networks in Article 2(2)) can be compared for the best end user's benefit,*

*Therefore the baseline scenario in the case of a fixed-line connection can only be:*

- (i) fibre roll out up to the end user's location, which is FTTH,*
- (ii) fibre roll out (at least) up to a multi-dwelling building (FTTB), which is promptly upgradable to FTTH<sup>4</sup>.*

*Remark: "promptly upgradable" means that the fiber network up to the BEP in the multi-dwelling building is already equipped with the for FTTH necessary number of fibers and a in-building physical infrastructure usable for FTTH.*

*Remark: A fiber roll out up to the base station is a prerequisite for mobile networks but network performance at the end user's serving location cannot considered similar compared to a fibre roll out up to the serving location at end user's location. A mobile network cannot be a VHCN.*

*Remark: Any electronic communications network capable of delivering, under usual peak-time conditions, an equivalent network performance cannot be foreseen at the time being.*

#### 3.1.3 Paragraphs 10 and 11

No text modification necessary.

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<sup>4</sup> We refer corresponding to recital (24) in the EECC

### 3.1.4 Paragraph 12

Original text: In conclusion, very high capacity networks according to Art. 2(2) are:

- a. Any network providing a fixed-line connection with fibre roll out at least up to the multi-dwelling building;
- b. Any network providing a wireless connection with fibre roll out up to the base station;
- c. Any network which provides a fixed-line connection and is capable of delivering under usual peak-time conditions a network performance equivalent to what is achievable by a network providing a fixed-line connection with fibre roll-out up to the multi-dwelling building (performance thresholds 1); and
- d. Any network which provides a wireless connection and is capable of delivering under usual peak-time conditions a network performance equivalent to what is achievable by a network providing a wireless connection with fibre roll out up to the base station (performance thresholds 2).

Modified text: In conclusion, very high capacity networks according to Art. 2(2) are:

- a. Any network providing a fixed-line connection with fibre roll out up to the *end user's location (FTTH)*;
- b. Any network providing a fixed-line connection with fibre roll out *at least up to the multi-dwelling building which is promptly upgradable to FTTH (FTTB)*.
- c. *Any network providing a fixed-line connection with fibre roll out up to the end user's location, to the multi-dwelling building which is promptly upgradable to FTTH (FTTH) and to the base station, if it is built and owned by a wholesale only physical infrastructure provider.*

*Remark: Is uneconomic to roll out different fiber networks for FTTB/H and mobile networks.*

*Remark: Very high capacity networks according to Art. 2(2) and described in 12a and 12b comprise passive physical fiber infrastructure (Layer 1), the active equipment (transponders, routers and switches, control and management servers), i. e. Layer 2 and services, Layer 3.*

*Remark: Mobile networks are no VHCNs according, although they use a passive fiber infrastructure providing a fixed-line connection up to their base stations.*

### 3.1.5 Paragraph 12/1

Original text not existing

New text: *The application of different business models evolve different undertakings in the market besides the vertically integrated ones: Physical infrastructure providers, neutral network providers, service providers. Only undertakings with vertically integrated business models, incumbents and a large part of alternative operators, can build VHCNs according to 2(2) of EECC and 12a and 12b. A Physical infrastructure provider alone can only build a VHCN according to 12c. But if he cooperates with a network provider and a service provider (3 Layer open Model) a VHCN according to 2(2) of EECC and 12a and 12b can be created.*

### 3.1.6 Paragraph 13

Original text: Very high capacity networks are of importance since they are capable of providing end-user services with a particularly high quality of service (QoS). The EECC promotes the rollout of very high capacity networks to benefit end-users (Art. 3(2)a EECC). Therefore, the equivalent performance of the baseline scenario (see paragraphs 9, 12c and 12d) is considered with regards to the achievable end-user QoS of very high capacity networks. Moreover, the EECC defines a very high capacity network as a certain type of electronic communications network and not only as a limited part of a network. Therefore, for the purposes of determining the network performance of equivalent networks, it is necessary to consider the network up to the end-user where the public network ends.

Modified text: Very high capacity networks are of importance since they are capable of providing end-user services with a particularly high quality of service (QoS). The EECC promotes the rollout of very high capacity networks to benefit end-users (Art. 3(2)a EECC). Therefore, the equivalent performance of the baseline scenario (see paragraphs 9, *12a and 12b*) is considered with regards to the achievable end-user QoS of very high capacity networks *at the end user's location*. Moreover, the EECC defines a very high capacity network as a certain type of electronic communications network and not only as a limited part of a network. Therefore, for the purposes of determining the network performance of equivalent networks, it is necessary to consider the network up to the end-user where the public network ends. *That is the reason why we interpreted serving location as end user's location.*

### 3.1.7 Paragraphs 14 to 76

The original text offers useful outlines for the performance thresholds. These threshold data are very valuable information:

- For the end-user QoS in multi-dwelling buildings with G.Fast or other interim solutions for an in-building physical infrastructure,
- For the QoS of mobile end users.

In addition the original text gives a good technical interpretation of QoS, 'available downlink and uplink bandwidth, resilience, error-related parameters and latency and its variation'.

Paragraphs 14 to 76 of the Draft should be modified by BEREC to be consistent according to the suggested modifications above.