

FTTH COUNCIL EUROPE

RESPONSE TO THE PUBLIC CONSULTATION ON
DRAFT BEREC GUIDELINES ON
VERY HIGH CAPACITY NETWORKS

30/04/2020



Introduction

The FTTH Council Europe welcomes the opportunity to give input on the draft BEREC Guidelines on Very High Capacity Networks 2021.

The FTTH Council Europe is an industry organisation whose mission is to accelerate ubiquitous fibre-based connectivity empowering a leading Digital Society throughout Europe and as such it shares many of the same objectives as European NRAs and Policymakers.

The FTTH Council would like to make a number of points in relation to the approach to defining equivalents to VHCN

1. The FTTH Council Europe believes that the intention of the legislators is to push investments in fibre and to bring fibre as close to end-users as possible. These Guidelines should express this basic fact more clearly.
2. The exclusion of the most performant network solutions in BEREC's analysis of VHCN equivalence results is the technical parameters for equivalence being set too low.
3. BEREC's analysis is static and the FTTH Council recommends a dynamic reassessment of the VHCN parameters over time.
4. There is a need for further clarifications on measurement systems.

Pushing Fibre Investments Closer to the User.

The FTTH Council reads the intention of the co-legislators in the EECC to push fibre as deep into the network as possible. It is of course not only fibre that is the potential network solution but fibre, and fibre performance, acts as the baseline performance against which all other network solutions must be measured.

Furthermore, the legal text is quite specific that in cases where the network is not FTTH, that it is not the end user experience against which the network performance is to be measured and judged but rather that it ought to be the network performance up to the distribution point at the serving location (i.e. to the building). What happens after that network point ought to be excluded from the assessment.

In practice two different parameters are being mixed and under the interpretation of BEREC particularly anomalous results arise. In terms of the physical attributes, the FTTH Council is aligned with BEREC's interpretation (Criteria 1 and Criteria 2) though it is worth noting that Criteria 1 includes FTTH (wholly fibre) as the first and foremost solution.

In defining what is an equivalent to the physical definition, this, in turn, is a function of the physical definition and it essentially says that a network that is as performant as a network which is 100% fibre (or at least up to the distribution point at the serving location). The measurement of similar network performance is defined across the range of parameters set out in the definition. However, this measurement is only concerned with network performance up to the serving location [the building] and not the end user. On this basis, the relevant question is whether other media (such as copper, coax copper or wireless for instance) are able to deliver comparable performance to fibre at peak-time across the six parameters stated up to the point where they connect to the building. For instance, if FTTB is then completed using ADSL within the building or it is FTTB using VDSL within the building, the measurement parameters ought to be identical in the context of measuring VHCN since it only measures the performance of the medium to the serving location. The question will be whether CATV Hybrids can be said to have a similar

performance across the parameters set out if the medium that arrives to the serving location is not 100% fibre or whether wireless backhaul can be as performant as fibre to the base station.

The FTTH Council believes that by relying on the end-user experience, BEREC is misinterpreting the legal text and drawing an equivalence between solutions that are materially different.

Measured Network Solutions exclude the most performant

Given the different interpretation of what is being measured in determining equivalence (end-user experience in BEREC’s reading of the legislation rather than the performance of the network up to the building) the threshold of what should be measured takes on an even more important consideration.

BEREC states in paragraph 28 that

The performance thresholds 1 refer to a fixed network with fibre roll out up to the multi-dwelling building (see paragraph 14a). End-user services provided by such a network are typically based on copper or coax access. Therefore, the determination of the performance thresholds 1 is based on fixed networks with fibre roll out up to the multi-dwelling building and either copper or coax-based access.

Furthermore, BEREC state in paragraph 35 that ‘...in case of fixed networks with copper access, G.fast on twisted pair’ and that for coax access, BEREC considers ‘the most advanced DOCSIS technology (e.g. DOCSIS 3.1).’

The FTTH Council Europe does not understand why BEREC, with this interpretation of VHCN, are excluding the wide variety of FTTH solutions that are available to operators that run fibre all the way to the end-user and whose performance metrics would be even superior to those identified. Fibre solutions that could be applied include NG-PON2 TWDM, XGS-PON, XG-PON, G-PON (and in the future 25 G-PON and 50 G-PON) and active Ethernet solutions. These options could allow a performance which is easily better than those proposed

QoS parameter	Today	Within 5 years
a) Downlink data rate of the IP packet payload (Mbps)? ¹	1Gbps to 10Gbps	10 to 50 Gbps
b) Uplink data rate of the IP packet payload (Mbps)? ¹	1Gbps to 10Gbps	10 to 50 Gbps
c) IP packet error ratio (Y.1540) (%)?	<10e-13	<10e-13
d) IP packet loss ratio (Y.1540) (%)?	0	0
e) Round-trip IP packet delay (RFC 2681) (ms)?	<1ms (Thru OLT and ONT)	<1ms (Thru OLT and ONT)
f) IP packet delay variation (RFC 3393) (ms)?	< 1ms	< 1ms
g) IP service availability (Y.1540) (% per year)?	99.999%	99.999%

¹ If this is not possible, then provide the data rate which is possible and specify the OSI layer to which the data rate refers to and whether it refers to payload or gross bitrate.

For GPON, the first generation technology is providing a bandwidth of 2.5 Gbps down, 1.25 Gbps up. Typically, the GPON ONTs have one or more 1Gbps Ethernet ports that limit the subscriber service rates to 1Gbps in normal deployments. Looking ahead to the numerous variants of next-generation GPON, we see the following options:

- XG-PON: 10 Gbps down, 2.5 Gbps up – currently not sold in Europe but available elsewhere commercially;
- XGS-PON: 10 Gbps down, 10 Gbps up; ONTs with 10G Ethernet ports to the subscriber devices are assumed.
- NG-PON2: 10 Gbps down, 10 Gbps up per wavelength, with most initial implementations using four wavelengths (aggregate 40 Gbps down, 40 Gbps up), and a planned implementation with eight wavelengths in the future. ONTs with one or more 10Gbps Ethernet ports to the subscriber devices are assumed. Typical deployments from service providers today cap the subscriber rates to 1Gbps or in the case of businesses to 2Gbps.
- 25Gbps/50Gbps: Members are tracking the standardization efforts at this time.

Looked at from this perspective the performance characteristics being settled on by BEREC are on the low side and this is very apparent on the uplink, the error ratio, packet loss ratios and service availability.

The FTTH Council believes that the metrics should set higher thresholds for VHCN in order to incentivise operators to accelerate their transition to FTTH.


The assessment of the VHCN parameters needs a regular update.

The FTTH Council believes that any measurements used by BEREC should be more forward looking and should not be measured in a static context as the existing technology solutions will evolve over time. It is not today's performance that is relevant but to what extent a medium is likely to be capable of delivering on the parameters that will be needed in 2025 and further. What those parameters are or will be will change significantly over time.

BEREC suggest at paragraph 23 that it intends to only update the wireless equivalent portion before the end of 2025:

23. According to Art. 82 of the EECC, '*BEREC shall update the guidelines by 31 December 2025*'. Since it was not yet possible to take 5G fully into account for the release of these Guidelines, as it has not yet reached mature deployment and significant penetration, BEREC intends to update criterion 4 (performance thresholds for a wireless network) as soon as possible and not later than 2023.'

Yet that seems inappropriate since it cannot be anticipated how network performance may have evolved by 2025 even if only looking at copper/coax technological improvements. It is also not in line with the requirements of the EECC which states at paragraph 82 '*...BEREC shall update the guidelines by 31 December 2025, and regularly thereafter.*' *The FTTH Council would argue it is not appropriate to imply that fixed network performance will not be reviewed when it conducts its legally required review of network performance of fixed networks.*



BEREC should consider acting ahead of the limit requirement and indicate clearly its intention to have a regular review of the network parameters every 3 years.

Need for further clarifications on measurement systems.

Finally, the FTTH Council believe that the method used for measuring the performance of the network that is being considered for VHCN designation will be important to the measurement outcomes. In particular, the FTTH Council believes that it should be possible for third-party observers to make the measurement on a point different from the ports of the operators via a “third observer point”; this measurement should be repeatable over time, and not only during the installation. The FTTH Council would welcome guidance from BEREC indicating when and how the measurement of the different parameters will be conducted.