GSMA Response to the BEREC public consultation on the draft Guidelines on Very High Capacity Networks

30 April 2020

The GSMA would like to provide the following comments to BEREC's public consultation on the draft BEREC Guidelines on Very High Capacity Networks.

The EU institutions and Member States grant a key role to the concept of VHCN, placing it at the core of the EU's ambition towards a Gigabit Society, and making the promotion of "connectivity and access to, and take-up of, very high capacity networks" possibly the main task for those in charge of the regulation of our sector[1]. At the same time, widespread deployment and take-up of the latest mobile technologies is also at the forefront of the goals and ambitions of GSMA and its members.

For GSMA, these BEREC guidelines are an opportunity to get more clarity on the extent to which wireless technologies will benefit from the inherent advantages of being qualified as a VHCN. In our view, beyond the technical discussions on latency or throughput, the Guidelines will have an impact on investment incentives and on the development of a 5G ecosystem that benefits all EU businesses and consumers.

The working definition of a 'Very High Capacity Network (VHCN)', as set out in the EECC, is in our view correct but further clarification would be valuable, particularly with regards to wireless networks. We welcome BEREC's efforts towards that aim and hope our comments below can be considered.

Comments

- **Being overly ambitious in the definition of VHCN can lead to inefficient deployments in challenging areas.**

  The definition of VHCN that stems from the BEREC guidelines will not only set the level of ambition of EU policymakers. It will also impact the QoS expected from communications networks. While the draft BEREC Guidelines are not intended to be the reference for public measures (see point 24 of the draft Guidelines), deployments undertaken with Public support will nonetheless be linked to the concept of VHCN, and public perception of the quality of connectivity will be influenced by coverage maps published by NRAs differentiating areas and operators with or without VHCN. It is not realistic to believe that both the European Commission and public authorities at national level will not refer to the BEREC guidelines in upcoming policy decisions.

[1] See Article 3 of the EECC

Setting ambitious objectives is a good and necessary recipe against complacency, but a balance needs to be struck between costs and benefits. For end users to have the best possible technologies, mobile operators need to make a great investment effort, sometimes supported with Public funds. Investment needs are higher in areas with low population density, and a mix of technologies is required to reach end users in a sustainable way. Narrowing the set of options available to meet the criteria that define a VHCN could therefore call for the deployment of economically infeasible solutions in challenging areas, resulting in delays or unnecessarily high requirements of Public support.

- **The methodology used to define the criterion 4 should be replaced by a technological approach based on backhaul performances similar in practice to those of a fibre connection to the base station.**

  According to the provisions in the EECC, an electronic communications network which consists wholly of optical fibre elements at least up to the distribution point at the serving location is considered a VHCN (part 1 of Art 2(2)). Any electronic communications network capable of delivering, under usual peak-time conditions, an equivalent network performance is also considered a VHCN (part 2 of Art. 2(2)).

  In order to assess that "equivalent network performance" BEREC chooses to focus on end user quality of service (available downlink and uplink bandwidth, resilience, error-related parameters and latency and its variation) and provides a number of performance thresholds that should be met cumulatively. In our view, this approach is challenging from a compliance monitoring perspective, and slightly inconsistent with the desire of legislators to define wireless VHCN based on the backhaul technology. Indeed, backhaul technologies are, in our view, more stable than radio access network technologies, and therefore provide a better benchmark for setting future-proof definitions. It might be challenging, for example, for an investment made today in LTE to qualify as compliant with criteria 4 from the first day. However, that investment has an evolutionary path that leads to compliance in two or three years. It is important that, when benchmarking this investment against others, that possible evolution is considered at the time the investment is made. Looking at the capacity and functionality built in the backhaul provides a reasonable means. Consequently, it would be better in our view to assess "equivalent performance" by looking at whether the backhaul deployed is able to provide a similar QoS to that requested in practice, at each point in time, from an optical fibre installation up to the base station.

  Recital (13) of the EECC is very clear on the fact that variation's in the end user experience due to the wireless access network (i.e. the medium by which the network connects the service point to the network termination point) should not be taken into account:

  > (…) *In the case of wireless connection, this corresponds to network performance similar to that achievable based on an optical fibre installation up to the base station, considered to be the serving location. Variations in end-users' experience which are due to the different characteristics of the medium by which the network ultimately connects with the network termination point should not be taken into account for the purposes of establishing whether a wireless network could be considered as providing similar network performance.* (…)

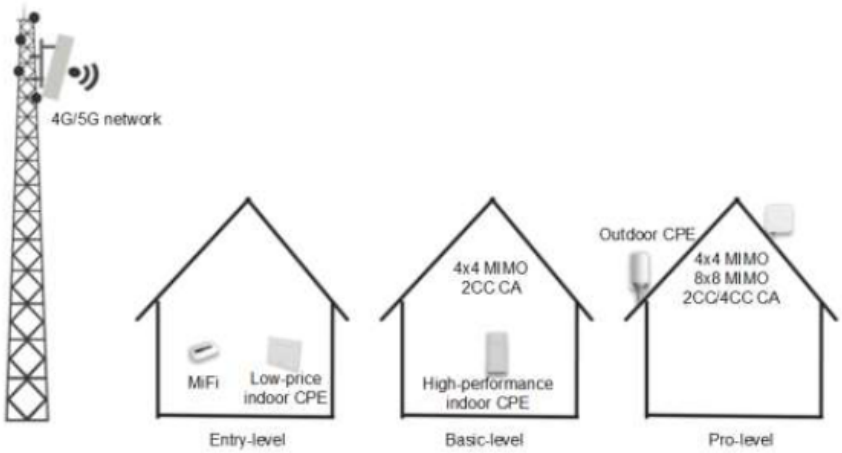
When defining the thresholds for criterion 4, BEREC is exactly looking at the performances of the end user lines at the network termination point. From recital (13) thus derives that the way BEREC is determining criterion 4 is not in line with the framework and needs to be changed.

The latest technology of wireless backhaul, for example, can deliver in rural areas a similar QoS to that experienced on average in cells located in densely populated areas, where fibre backhaul is more readily available. Backhaul links using the V-band or the E-band are actually well suited to supporting 5G due to their 10 Gbps to 25 Gbps data throughput capabilities, and microwave and E-band technologies are developing rapidly, with innovations that include ACM, high order QAM, XPIC, compression accelerators, and MIMO, all aimed at increasing bandwidth on the link[2].

- **Wireless solutions capable of delivering fibre-equivalent solutions, and in particular 5G FWA, should be considered VHCN and included under the criterion 3.**

  In our view, Fixed Wireless Access solutions based on cellular technologies (4G/5G) can satisfy in the most efficient way the main service requirements of home broadband,[3]:

  - Basic-level FWA: Primarily used to migrate low-speed copper-based fixed broadband services. High-performance CPEs (with 4x4 MIMO and 2CC CA) can provide a peak rate of up to 600 Mbit/s at the near point. and an average rate of 10–20 Mbit/s (40 MHz spectrum) during busy hours. Basic-level broadband can satisfy the main service requirements of home broadband (HBB), including standard definition (SD) and high definition (HD) video.
  - Fibre-like -level FWA: High-performance outdoor CPEs (with 4x4 MIMO and 4CC CA or 8x8 MIMO and 2CC CA) can provide a peak rate of up to Gbit/s and an average rate of 50 to 100 Mbit/s during busy hours. Outdoor CPEs provide more stable wireless broadband connections than indoor devices, particularly at the cell edge. This is designed to meet the requirements of large families, delivering Full HD (FHD)/4K TV, augmented reality (AR), and virtual reality (VR).



[2] Source: GSMA (2018). https://www.gsma.com/spectrum/wp-content/uploads/2019/04/Mobile-Backhaul-Options.pdf

[3] Source: GSMA (2020). https://www.gsma.com/futurenetworks/resources/network-experience-evolution-to-5g/

These performances can in our view be considered equivalent to the QoS enjoyed today, in practice, by many end users serviced by optical fibre installations up to a multi-dwelling building. Most relevantly, they are also a much more cost-efficient way to reach remote rural areas.

FWA being considered by BEREC as a fixed network in these circumstances, it would be desirable, therefore, for criterion 3 to be more flexible and allow FWA supported by the latest wireless technologies to be included as a VHCN fixed-line connection.