Open Fiber answer to the public consultation on the "BEREC Guidelines on Geographical surveys of network deployments"

Open Fiber expresses its overall agreement to the draft BEREC Guidelines ("Draft") designed in accordance with article 22 of EECC. In particular, Open Fiber appreciates the technical details that characterize the whole document and the insertion of specific provisions such as the "home passed" definition.

Before answering to the specific questions proposed by BEREC, Open Fiber would like to provide some further comments about certain relevant topics not included in the questionnaire.

Firstly, Open Fiber welcomes that the forecast period to identify designated areas is three years, as for State Aid Guidelines. We strongly believe that collecting data referring to such timeframe by the operators is appropriate in order to understand their long-term broadband plans and indirectly the deployment of BB networks. Otherwise, it would be necessary to carry out an *ad hoc* analysis for State Aid, creating a double survey for the same goal.

Secondly, Open Fiber would like to express its full agreement to the definition of 'premises passed', which assumes "*an existing network or network components (i.e. fiber splitter) deployed in close proximity to the premises*". According to the provision, the operator must be able to connect technically the end user, usually within 4 weeks from the date of the request.

Regarding this provision, Open Fiber would like to stress two points:

- about the four-week period, Open Fiber considers **essential that any delays due to external factors (i.e. administrative procedures) are not to be taken into account[1],** since they are out of the operator's control. In any case, in order to overcome the problem of time uncertainty, it might be useful to add an expression such as for instance "normally reachable" to the provision;
- since FWA networks differ structurally from other fixed ones, **it would be necessary that the Draft includes a specific definition for premises passed in case of FWA networks.** The above definition, which adapts properly to the case of fixed networks, finds indeed no match in the case of FWA networks. As reported above, the identification of premises passed considers

[1] As it is properly written in note 10 at page 11 of the Draft.

that an existing network or network components are deployed **in close proximity** to the premises. The concept of 'close proximity' is not applicable in case of wireless connections. There is a basic architectural distinction between FWA and fixed networks, since the former is a wireless infrastructure whose resolution should be at least a 100mx100m grid (or equivalent polygon), while for the latter the level of resolution should be the address (as it is properly defined by BEREC in the Draft at page 13). Therefore, while fixed broadband networks present accurate information at the address level with exact geocoding (thus, the concept of "close proximity" makes sense), for wireless broadband networks data should be collected at a grid scale, as one BTS deals with a group of points in a certain area (thus, the parameter of close proximity is technically unsustainable).

From a general point of view, Open Fiber strongly believes that FWA and fixed networks are not comparable. This is the reason why, for instance, in the national tenders carried out in Italy, these architectures have been considered as two different types of networks capable of responding to a different demand as well as being able to guarantee completely different transmission speeds.

In conclusion, Open Fiber considers necessary to integrate the definition of premises passed with a specification for the FWA case, in order to make the collection of data reliable, feasible and truthful with respect to the actual development of broadband networks.

Please find below Open Fiber answers to the consultation.

Question 1.

In BEREC's current Public Consultation on the implementation of the Open Internet Regulation (paragraph 140), BEREC is requiring that the speed values required by Article 4(1) (d) of the Regulation EU 2015/202011 should be specified on the transport layer protocol payload, and not based on a lower layer protocol. Is there any reason why this layer should not be used in proving information about speeds in the context of a Geographical Survey of Broadband reach?

Open Fiber would like to understand which kind of protocol of transport layer is considered in the question above.

For instance, in case of wholesale services, the transport is on layer 2 and the wholesale operator has no access to customer's payload.

Therefore, it would be useful to have a clearer definition of the protocol mentioned in the Draft.

Differentiated wholesale models may lead to different speeds on the transport layer for the same physical network (FTTH) at the same address. With unbundled optical fiber lines and layer 2 Bitstream access models (based on Ethernet) lower layer protocols should be used to reduce unnecessary and /or conflicting data sets and to obtain a common ground more easily.

Question 2

Berec has considered several methods to calculate speed information according to the relevant fixed network. The development of these methods often requires information on the position of network infrastructure (for example, collecting the distance to the street cabinet or the switching centre). Do you consider information on location of infrastructures strictly required for the purpose of art 22? If so, what is the minimum information level related to network infrastructure that the Geographic Survey should collect and why?

Open Fiber strongly believes that the distance is a crucial parameter to calculate speed information properly according to different fixed networks.

Open Fiber assumes that the distance represents the most suitable indicator for carrying out the ultimate goal of geographical survey, which is a mapping of broadband networks. According to Article 22 of EECC: "t*he geographical survey shall include a survey of the current* ***geographic reach of broadband networks within their territory****, as required for the tasks of national regulatory and/or other competent authorities under this Directive and for the surveys required for the application of State aid rules*".

Therefore, in order to collect geographical and infrastructural data, the distance is the best objective trans-national data that does not leave arbitrariness to operators. Conversely, the speed information in itself allows operators to provide different information, since such information is provided without any coded criteria. This is evident also due to the absence of a definition of speed in the Draft! Moreover, if geographical surveys are carried out using only speed information, they could not be suitable for use for State aid purposes.

In conclusion, we believe that speed information should be provided together with distance data too.

In addition to this, Open Fiber would like to underline how distance also allows to verify speed information. In fact, there is a close connection between speed and distance. Depending on the technology used, the distance may represent a critical variable for end user's service performances (see figure below).

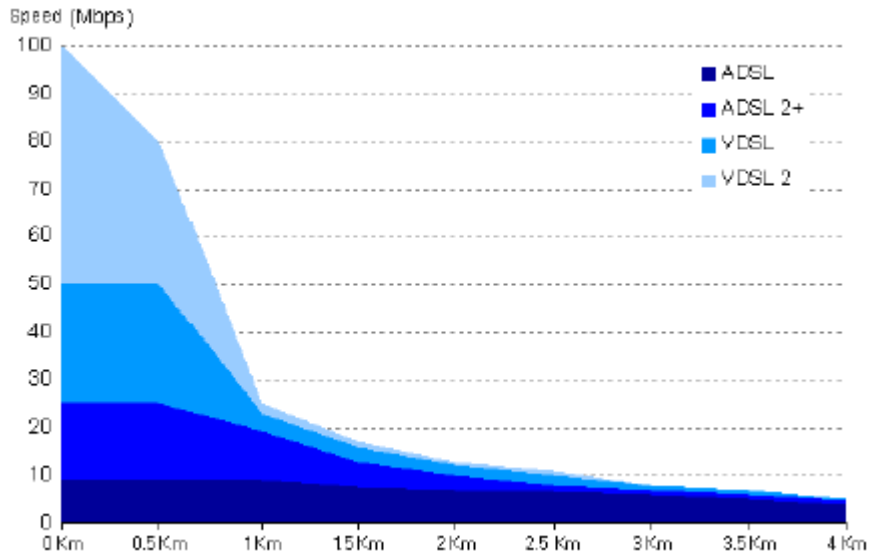
In case of FTTH networks, the real download and upload speeds reached are not influenced by distance. Thus, the upload and download speeds declared correspond to the actual ones.

For instance, Open Fiber GPON network presents a logical reach (without splitting) equal to 60km, while the real one (the distance between ONT and OLT) is on average 20km (28km in white areas; 10 km in black areas).

Conversely, in case of XDSL technologies, the high frequencies that are useful to transmit higher bit rates are strongly attenuated by the copper pair, which places severe restrictions on the achievable length and the obtainable speed. Higher speeds are only possible on short cable runs, as it is shown below.

Therefore, the actual speed of ADSL connections is affected by several factors such as the number of simultaneously open applications, the distance from the telephone exchange, the quality of cables and the climatic and electromagnetic interference.

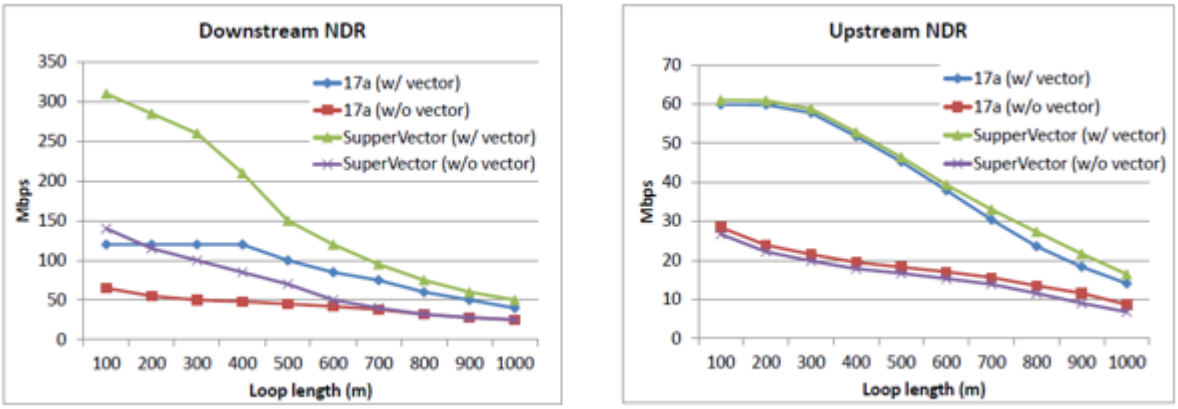
In consideration of the above, in case of XDSL networks, the nominal speed declared by the operator is almost always different from the actual speed.



As indicated in AGCOM resolution 283/13/CONS, Annex D, over the last few years some new transmission techniques (i.e. vectoring) have been developed for VDSL and VDSL2 technologies. Such upgrades are able to make significant improvements in terms of transmission speeds on Fiber to the cabinet networks (FTTC).

The application of the vectoring technique indeed has the aim of reducing interferences that are determined by the transmission of electrical signals through copper cables (the latter represent the greatest obstacle to achieving high transmission speeds and consequently a strong degradation of speed performances).

The implementation of vectoring allows to reach performances similar to those obtainable with a VDSL2 line (without crosstalk), with a downstream transmission rate that is approximately equal to 100 Mbps for a copper section length of less than 300 m (see figure below).



However, vectoring seems to work effectively only if the operator who uses it has full control of all the lines passing through the same cable. Thus, vectoring generates some competitive restrictions, as it works properly only under monopoly conditions or when multi-operator vectoring techniques, which are not available on the market yet, will be deployed.

In conclusion, for XDSL systems, the distance represents a significant parameter that can deeply influence speed performances (also in case of technical improvements such as vectoring).

For these reasons, Open Fiber believes that the information on the position of network infrastructure is essential to understand the real speed that can be achieved by a specific technology in a specific fixed location.

Lastly, Open Fiber would like to underline another important characteristic of networks that deeply influences speed performances for end users. Data rate performances of some systems (such as XDSL or FWA) depend strictly on how many end users are simultaneously served by the same "last mile" network (end users using the same cabinet for VDSL or end users using the same BTS sector for wireless networks).

Therefore, while FTTH services guarantee high speeds irrespective of the number of connected customers, in case of VDSL technologies (i.e. FTTC) network performances are deeply influenced by the number of end users connected simultaneously.

Therefore, Open Fiber suggests to indicate among the information to be provided also the maximum number of customers that can be connected simultaneously, for which a specific level of data rate is granted.

Question 4

Should BEREC seek to harmonize the assumptions made by operators and NRAs throughout Europe? Should BEREC encourage NRAs/OCAs to seek this harmonization at a national level? Which assumptions should be considered to be harmonized and how? (For example, should BEREC consider data service speed coverage calculations without cell load, considering that the network is available for at least one user at a specific location at a specific time? Or should BEREC consider network load and, if so, based on which parameters?)

Open Fiber welcomes that NRA may seek to harmonize at national level. However, it would be even more useful to achieve harmonization at European level in order to facilitate comparative analyses among Member States.