



ECC Recommendation (15)03

Provision of Comparable Information on Fixed Retail
Internet Access Service Quality

Approved 23 April 2015

Amended 28 November 2018

INTRODUCTION

Publicly available, adequate, easily comparable, and up to date information on retail Internet Access Service Quality (IASQ) helps consumers to confidently make well-informed choices when selecting from numerous Internet access offers available on the market. The availability of this type of information has the potential to contribute to ensuring an overall positive experience for the end user during the selection process and this factor is very important in the broader context of broadband promotion.

In recent years, Internet Service Providers (ISPs) have established their own methods and tools to measure, evaluate and present IASQ-related information but it is common practice that, even within the same country, different ISPs measure and present information about their services in different and often misleading ways. While information on IASQ is important in order to ensure the possibility for end users to compare different Internet access services provided by different ISPs there is no formal common approach among NRAs (or other competent national authorities) on which IASQ parameters to measure and how to present the results of those measurements in order to promote transparency in the quality of Internet access services available.

Article 22 of the Universal Service Directive [1] requires Member States to “*ensure that national regulatory authorities are [...] able to require undertakings [...] to publish comparable, adequate and up-to-date information for end users on the quality of their services [...]*”. Article 22 also states that “*regulatory authorities may specify [...] the quality of service parameters to be measured*” and that “*authorities are able to set minimum quality of service requirements*”.

Paragraph 1 of Article 4 of the Regulation (EU) 2015/2120 [2] requires that ISPs shall publish “*a clear and comprehensible explanation of the minimum, normally available, maximum and advertised download and upload speed of the internet access services in the case of fixed networks...*” and paragraphs 128-134,140-151 of BEREC’s Guidelines on the Implementation by National Regulators of European Net Neutrality Rules [3] provide guidance how ISPs should present these parameters publicly.

This ECC Recommendation follows ECC Report 195 [4], the requirements of Regulation (EU) 2015/2120 and related BEREC publications [3][5][6][7][8]. The Recommendation also provides guidance to CEPT Administrations on what fixed IASQ parameters could be considered and how they could be provided publicly to establish a common or harmonised approach.

This ECC Recommendation covers retail Internet access services provided by fixed networks and/or wireless access services provided at a fixed location.

ECC RECOMMENDATION 15(03) OF 23/04/2015 ON PROVISION OF COMPARABLE INFORMATION ON FIXED RETAIL INTERNET ACCESS SERVICE QUALITY, AMENDED 28/11/2018

“The European Conference of Postal and Telecommunications Administrations,

following

- a) The adoption of ECC Report 195 “Minimum Set of Quality of Service Parameters and Measurement Methods for Retail Internet Access Services”

taking into account

- a) Directive 2002/22/EC (as amended by Directive 2009/136/EC) of the European Parliament and of the Council of 7 March 2002 on universal service and users’ rights relating to electronic communications networks and services (Universal Service Directive).
- b) Directive 2002/58/EC (as amended by Directive 2006/24/EC and Directive 2009/136/EC) concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications).
- c) Regulation (EC) No 2006/2004 (as amended by Regulation (EC) No 2006/2004 and Regulation (EU) No 954/2011) of the European Parliament and of the Council of 27 October 2004 on cooperation between national authorities responsible for the enforcement of consumer protection laws (Regulation on consumer protection cooperation).
- d) Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users’ rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union.
- e) ETSI EG 202 057-4 V1.2.1 (2008-07) Speech Processing, Transmission and Quality Aspects (STQ); User related QoS parameter definitions and measurements; Part 4: Internet access.
- f) ITU-T Recommendation Y.1540 (03/2011) Internet protocol aspects – Quality of service and network performance; Internet protocol data communication service –IP packet transfer and availability performance parameters.
- g) ITU-T Recommendation Y.1541 (12/11) Internet protocol aspects – Quality of service and network performance; Network performance objectives for IP-based services.
- h) BEREC, A framework for quality of service in the scope of net neutrality, Document no. BoR (11) 53, 2011.
- i) BEREC, Guidelines for quality of service in the scope of net neutrality, Document no. BoR (12) 131, 2012.
- j) BEREC, Report on monitoring quality of Internet access services in the context of net neutrality, Document no. BoR (14) 117 2014.
- k) BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules, Document no. BoR (16) 127, 2016.
- l) BEREC Net Neutrality Regulatory Assessment Methodology, Document no. BoR (17) 178, 2017.
- m) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions “A Digital Agenda for Europe” COM(2010) 245 final/2.

considering

- a) That the importance and relevance of the Internet and networks using Internet Protocol are increasing.
- b) That the number of applications and services relying on a sufficient Internet Access Service Quality (IASQ) is growing.
- c) That, with a degree of trust, information relating to the performance of a network should be stated in a transparent, comparable and understandable form in order to help consumers to make well-informed choices from the numerous Internet access services available on the market.

- d) That the ongoing transformation of national level electronic communications markets to a European Single Market leads to a need for harmonised tools and measurement methods among the different CEPT countries.
- e) That the policy objectives included in the Digital Agenda for Europe in relation to capacity need to be evaluated and verified.
- f) That Transmission Speed is the most important parameter for the majority of end users regarding the technical characteristics of retail IASQ.
- g) That the set of technical parameters such as Transmission Speed, Delay, Delay Variation and Packet Loss Ratio provides sufficient information for assessing fixed retail IASQ¹.

recommends that CEPT Administrations should, where appropriate, set guidelines or regulations for the provision of comparable information on fixed retail IASQ in accordance with the following principles:

- 1) That the following terms and definitions should be used:
 - a) **Minimum transmission speed** is the lowest transmission speed that the ISP providing fixed network IAS undertakes to deliver to the end user, according to the contract. The actual transmission speed should not be lower than the minimum transmission speed, except in cases of interruption of the IAS or other service issues.
 - b) **Maximum transmission speed** is the speed that should be practically achievable for end users and which they could expect to receive at least some of the time (e.g. at least once a day).
 - c) **Normally available transmission speed** is the transmission speed that an end user could expect to receive most of the time when accessing fixed IAS. The normally available speed should be available during the specified daily period (e.g. 95% over a 24 hour period).
 - d) **Advertised speed** is the speed an ISP uses in its commercial communications, including advertising and marketing, in connection with the promotion of IAS offers. This Recommendation does not entail a requirement for ISPs to advertise speeds.
 - e) **Delay** is the roundtrip time it takes for a data packet when sent over the network to the measurement node and back (mostly using ICMP, UDP or TCP protocols), presented as average value expressed in milliseconds (ms)
 - f) **Delay variation** For a given pair of IP packets, Delay Variation represents the difference between the delay in one direction, measured for two consecutive packets, presented as average value in ms. [ITU-T Recommendation Y.1540 Clause 6.2.4 with a calculation method being based on ITU-T Recommendation Y.1541 Annex II]
 - g) **Packet loss ratio:** Packet loss ratio is the ratio of total lost IP packet outcomes to total transmitted IP packets in a population of interest, presented as average value in $\times 10^{-3}$. [ITU-T Recommendation Y.1540 Clause 6.4]
- 2) That at least the QoS parameter values for **minimum, maximum, normally available and advertised transmission speeds** in numerical values in Mbit/s or kbit/s should be provided as the data transmission rates that are achieved separately for downloading and uploading.
- 3) With regard to these parameters the measurement methods described in section 3.1.1 of BEREC BoR(17) 178 between a measurement-server and a user's terminal should be used as basis for determining the according values allowing the user to compare the measurement results with the information provided by the ISP.
- 4) That the QoS parameter measurement values **delay, delay variation** and **packet loss ratio** could be presented in addition to **transmission speeds** in order to achieve a better overview on the offered fixed retail IASQ:

¹ Additional information (like blocked TCP/UDP ports, quality of voice or video over internet access services, transparency of the connection (e.g. middle box detection), content modification (e.g. resizing of images), DNS manipulation, performance of websites retrieval etc.) would be beneficial for end users for assessing their Internet access service quality.

- 5) That a description of the QoS evaluation methodology should be provided together with the QoS parameter measurement values also considering the impacting roles on the measurements results validity and comparability of terminal equipment configuration (for instance of the PC) and home networks that are both outside the control of ISPs.
- 6) That the evaluation of the above-mentioned QoS parameter measurement values should be done based on data transmission between the end user's equipment and one or more measurement-servers directly connected to major or national Internet Exchange Point(s) (IXP(s)) with regard to the scenario described in Annex 1.
- 7) That the QoS parameter measurement values should be published taking into account possible variations in IASQ. For example, due to different loads during the day (e.g. working hours, non-working hours, peak hours) or different geographical locations of end users. This should be clearly described in the QoS evaluation methodology.
- 8) That the QoS parameter measurement values should be publicly provided in a clear, comprehensive and easily accessible format. Annex 2 provides an example. All elements presented in the forms in Annex 2 should be provided.
- 9) That, for service providers offering multiple Internet Access Services, the QoS parameter measurement values should be published separately for each of those services as described in Annex 2. In the case where an offer consists of different access technologies, details of the technology should also be provided.
- 10) That the published QoS parameter measurement values should be periodically updated ensuring that information on QoS of new or modified fixed retail Internet access service offers is available.
- 11) That each user should also have the possibility to measure and verify, at any moment, the above-mentioned QoS parameter values in a reliable and comparable way.

ANNEX 1: LIST OF REFERENCES

This annex contains the list of relevant reference documents.

- [1] Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive) – March 2002.
- [2] Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union – November 2015.
- [3] BoR (16) 127 - BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules – August 2016.
- [4] ECC Report 195 - Minimum Set of Quality of Service Parameters and Measurement Methods for Retail Internet Access Services – April 2013.
- [5] BoR (11) 53 - A framework for Quality of Service in the scope of Net Neutrality – December 2011.
- [6] BoR (12) 131 - BEREC Guidelines for quality of service in the scope of net neutrality – November 2012.
- [7] BoR (14) 117 - Monitoring quality of Internet access services in the context of net neutrality BEREC report – September 2014.
- [8] BoR (17) 178 - BEREC Net Neutrality Regulatory Assessment Methodology – October 2017.

ANNEX 2: QoS EVALUATION OF ACCESS TO A SINGLE (SET OF) NATIONAL REFERENCE POINT(S)

In the QoS evaluation of the access to a major or national Internet Exchange Point (IXP), the measurement-server is directly connected to one or more major or national IXPs. This scenario will allow comparing the QoS access to the IXP of the different ISP in a specific country, taking into account a set of parameters specified by the NRA (or other relevant national institutions).

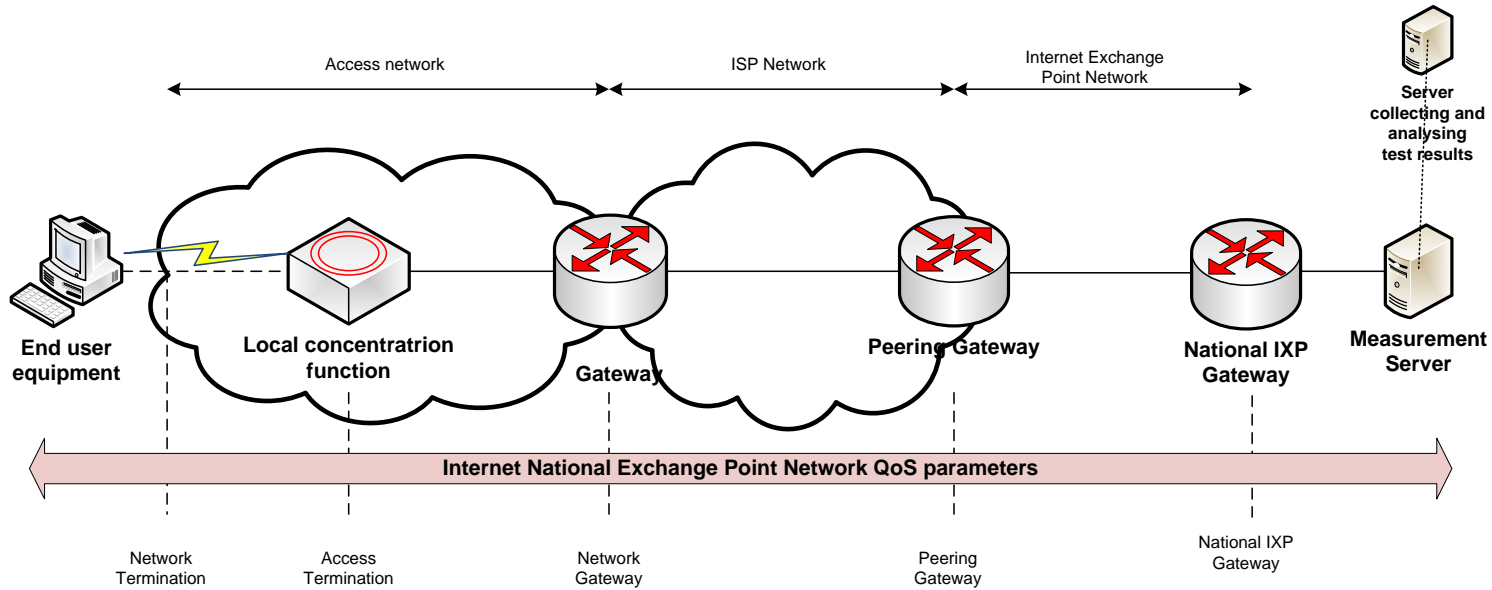


Figure 1: QoS evaluation of access to a major or national IXP

ANNEX 3: RECOMMENDED PUBLISHING FORMS FOR PROVIDING INFORMATION ABOUT FIXED RETAIL IASQ

Table 1: Recommended publishing form for providing required – minimum information about QoS

Name of ISP:		Date of Publication:		
	Advertised download/upload transmission speed [kbit/s] or [Mbit/s]	Maximum download/upload transmission speed [kbit/s] or [Mbit/s]	Minimum download/upload transmission speed [kbit/s] or [Mbit/s]	Normally available download/upload transmission speed [kbit/s] or [Mbit/s]
Offer "1"				
Offer "2"				
Offer "n"				

Notes:

*Offer name and description which could include access technology.

** A description of the QoS evaluation methodology should be provided together with the QoS parameter measurement values.

ANNEX 4: RECOMMENDED PUBLISHING FORMS FOR PROVIDING DETAILED OVERVIEW OF FIXED RETAIL IASQ

Table 2: Recommended publishing form for providing required – detailed information about QoS

Name of ISP:				Date of Publication:			
	Advertised download/upload transmission speed [kbit/s] or [Mbit/s]	Maximum download/upload transmission speed [kbit/s] or [Mbit/s]	Minimum download/upload transmission speed [kbit/s] or [Mbit/s]	Normally available download/upload transmission speed [kbit/s] or [Mbit/s]	Delay (Mean) [ms]	Delay variation(Mean) [ms]	Packet Loss Ratio (Mean) [$\times 10^{-3}$]
Offer "1"							
Offer "2"							
Offer "n"							

Notes:

*Offer name and description which could include access technology

** A description of the QoS evaluation methodology should be provided together with the QoS parameter measurement values.