

Introduction

This document provides information on the open Internet, in accordance with Regulation (EU) 2015/2120 of the European Parliament and the European Council. The mentioned regulation establishes measures in order to guarantee an open Internet for every user and to safeguard its accessibility by all means in a non-discriminatory manner. This document is an integral part of the contract between the Customer and POST Telecom and is applicable to all mobile offers of POST Telecom, regardless if they are still commercialised or not.

This document presents generalities regarding the quality of the mobile Internet access service, but also traffic management measures that POST may apply if needed as well as information related to settlement of disputes.

The quality of mobile Internet access service

The quality of mobile Internet access service depends on several parameters, among which the speed, latency, jitter and packet loss.

The speed represents the transmission speed of data traffic and varies with the available access technologies. Further details regarding speed are provided below

Latency is the time elapsed between the request for information and the receipt of this information. This means in simple terms that when the Customer wishes to open a Web page, the latency corresponds to the time elapsed between the moment the Customer clicks on "Enter" and the moment when the Web page actually opens. Therefore, the shorter the time, the higher the quality of the mobile Internet access service.

Jitter is the variation in latency. Indeed, information requested by the user can be delayed, for example because of the load of the network. This is an important parameter of fluidity of the mobile Internet access service and the lower the jitter, the higher the quality of the mobile Internet access service.

In information technology, information is composed of several data packets in order to improve transmission over the network. However, e. g. as a result of network congestion, some packets may not be transmitted and must be resend. The loss of data packets then expresses the number of packets that need to be sent multiple times. Thus, a low data packet loss implies a faster reception of the requested information and a better quality of the mobile Internet access service.

Although each technical parameter described above is important, it should be noted that their level of importance is not always the same for all the possibilities of use of the Internet. Indeed, latency can be important for online gaming, but it has little impact on downloading a file. The table below provides, for illustrative purposes, the importance of these parameters for different applications:

Application	Download speed	Upload speed	Latency	Jitter	Packet loss
Voice over IP	-	-	+++	+++	+++
File Download	+++	-	+	-	++
Online gaming	+	+	+++	++	+++
Video / Music streaming	+++	-	+	-	++
Web Surfing	+	-	++	-	++

Table 1: Reading instructions: "-" represents low importance and "+++" stands for high importance.

As an example of reading, the download speed is important for video or music streaming, while it is less for online gaming. However, for online gaming, the downstream speed is less important while the latency and the loss of packets are very important, the latter two parameters influencing the fluidity of the game.

Latency, jitter and packet loss are not only dependent on the mobile network, but also other equipment (e.g. servers installed on social network premises) and equipment used by the Customer (router, Smartphone, WiFi connectivity etc.). Depending on the load to be managed by these equipment elements, the technical parameters may be impacted and the mobile Internet access service slowed down. Since the ISP cannot influence all the necessary equipment, POST cannot guarantee all the quality of service levels of the parameters described above.

Traffic management measures

POST is committed to constantly improving the customer experience, which is why POST works continuously to optimize the quality of its mobile network. Despite significant investments aimed at improving and / or optimizing the networks, POST may nevertheless be required to put in place reasonable traffic management measures. These meet the criteria of objectivity, transparency, non-discrimination, proportionality and necessity. These measures may consist of a throttling (i.e. a reduction of the speed of data transmission) or a blockage (i.e. an interruption of the mobile Internet access service).

It should also be noted that data transmitted over the Internet can be categorized to allow, for instance in the event of network congestion or in order to preserve the integrity of the network, certain categories of services to be prioritized over others (especially those where slight delays in transmission impact quality of service). Thus, in case of potential congestion, the IPTV service may be prioritized over the transmission of e-mails. If implemented, these traffic management measures have an identical impact on the functioning of the applications, regardless of the terminal used by the Customer (e.g. smartphone or desktop computer).

POST ensures that such differential treatments are only applied when absolutely necessary.

Protection of personal data

In accordance with Article 3(4) of Regulation (EU) 2015/2120, the implementation of the reasonable traffic management measures described above does not imply any treatment of the Customer's personal data other than that provided for in the general terms and conditions of sales¹.

The mobile network of POST

Be among the fastest with POST's mobile network!

With the allocation of the licenses for using the so called "5G frequencies", POST will soon deploy its 5G network. This new technology standard allows for a theoretical maximum download speed of 800 Mbps². In conformity with the coverage obligations included in the frequency usage licenses, POST will activate at least 10 5G sites in Luxembourg/City by the end of 2020. A nearly complete coverage of the Luxembourgish territory is expected for 2024.

If the 5G network is not be available, then the customer has the possibility to use POST's 4G+ network which achieves a theoretical maximum download speed of 450 Mbps. Taking into account several factors such as, among other things, the coverage area, the compatibility and configuration of the terminal used, POST is able to offer an estimated maximum download speed⁴ of 225 Mbps and an estimated maximum upload speed of 50 Mbps. Currently, POST outdoor 4G+ coverage is 94,7 % of the population. The following table provides information on POST network coverage according to different access technologies and in different places:

Access technologies	Indoor / Outdoor	Territory	Population
2G	Indoor	72,5 %	86,5 %
2G	Outdoor	99,4 %	99,9 %
3G	Indoor	36,5 %	55,8 %
3G	Outdoor	86,1 %	89,8 %
4G	Indoor	58,4 %	76,9 %
4G	Outdoor	95,7 %	98,4 %
4G+	Outdoor	86,8 %	94,7 %

Table 2: POST network coverage of different access technologies.

The usage possibilities of POST's mobile network

Be connected everywhere with the POST mobile network! Take advantage of mobile broadband to watch the favourite movie everywhere or respond to the most urgent messages while waiting for the bus and listening to live music. The following table provides an estimate of the loading times based on the estimated maximum speeds that POST can offer on its network, taking into account the theoretical maximum rates allowed by the different technologies:

Access technologies	5G of POST	4G+ of POST	4G+	4G of POST	4G
Download speed	800 Mbps	225 Mbps	450 Mbps	100 Mbps	150 Mbps
Upload speed	80 Mbps	50 Mbps	50 Mbps	30 Mbps	50 Mbps
Download of a music album ⁵ (± 50 MB ⁶)	< 1 sec.	2 sec.	< 1 sec.	4 sec.	2 sec.
Download of a HD film ⁴ (± 1,5 GB ⁶)	15 sec.	56 sec.	28 sec.	2 min. 5 sec.	1 min. 23 sec.
Upload of 10 HD photos (± 50 MB)	5 sec.	8 sec.	38 sec.	13 sec.	8 sec.
Web Browsing (Standard Web site, ± 1 MB)	< 1 sec.	< 1 sec.	< 1 sec.	< 1 sec.	< 1 sec.
Loading of music streaming ⁷ (song of ± 3 min., ± 3 MB)	< 1 sec.	< 1 sec.	< 1 sec.	< 1 sec.	< 1 sec.
Loading of video streaming with standard quality ⁸ (video of ± 1 min., ± 4 MB)	< 1 sec.	< 1 sec.	< 1 sec.	< 1 sec.	< 1 sec.
Loading of video streaming with high quality ⁹ (video ± 1 min., ± 12 MB)	< 1 sec.	< 1 sec.	< 1 sec.	< 1 sec.	< 1 sec.

Table 3: Estimations of loading times for illustrative purposes only. Loading times cannot be guaranteed.

¹ Available on the website www.post.lu/terms

² Mbps = Megabits per second. This is a measure of the speed of the Internet access service and indicates the amount of numerical data transmitted per second.

⁴ The estimated maximum speed represents the maximum data transmission speed the Customer can achieve under optimal conditions. It corresponds to the advertised speed used in commercial communications.

⁵ Piracy hinders artistic creativity.

⁶ MB = Megabyte. It is a unit of measurement of the digital data volume. 1 MB = 1024 KB (Kilobyte). 1GB (Gigabyte) = 1024 MB.

⁷ Superior quality 320 kbps (kilobits par seconds).

⁸ Standard quality 480 p.

⁹ Superior quality de 1080 p.

The speeds of the mobile Internet access service

In order to appreciate the speeds of the mobile Internet access service, it is important to understand the functioning of a mobile communications network.

A mobile network consists of a set of antennas that are installed either on the roofs of buildings, piers or even water towers. The antennas are connected to each other and to the Internet network by optical fibre cables to allow users to communicate with each other or to access the Internet.

These antennas use frequency bands, each of which has its own physical characteristics in terms of the capacity to carry traffic or the range of the waves. The connection between the antenna and the mobile terminal of the Customer (e.g. smartphone or tablet) is made by using the waves emitted by the antenna and received by the mobile terminal. From a technical point of view, this connection is made by a "carrier" which can be seen as an invisible wire carrying the signal between the antenna and the terminal. It is this signal that is processed and interpreted by the terminal so that the Customer can for example watch the favourite program while moving.

Frequencies are a scarce and limited resources. Therefore, it is important to exploit them in the most efficient way. POST is constantly working to ensure that the frequency bands allocated to it are used in the best way. To this end, POST deploys various technologies, such as *Carrier Aggregation*. This technology allows the aggregation of several carriers, i.e. to establish multiple simultaneous connections between the terminal and several antennas and thus improving the signal received by the Customer's terminal.

The optimal conditions for a good connection are defined, among other things, by the range of the signal sent by the antenna, the capacity of the terminal to receive and process it and the number of users connected. Indeed, the signal sent by the antenna can be blurred by various factors, such as the presence of buildings in urban areas, the landscape configuration in rural areas or the thickness of the walls of the building of the Customer. Furthermore, the distance between the receiving terminal and the transmitting antenna also plays an important role: the greater this distance, the more the received signal weakens. In addition, the ability of the terminal to receive and process the signal is critical to maximize the potential of a mobile network. Finally, as the mobile network covers an entire population and is shared by it, the traffic generated by all users connected at the same time is distributed in a non-discriminatory way among all. POST makes sure that the dimensioning of its network is suited to meet the needs of its Customers, but it cannot exclude temporary congestion that results in a slowdown of the mobile Internet access service.

Other usage limitation of the mobile Internet access service

POST's mobile plans are characterized by mobile Internet volume limitations. The table below gives an estimation of the usage times of a given application according to different data volumes:

	250 MB	500 MB	1 GB	5 GB	10 GB	20 GB	25 GB	35 GB
Web Browsing (± 60 MB / h)	0 d. 4 h. 10 m.	0 d. 8 h. 20 m.	0 d. 17 h. 4 m.	3 d. 13 h. 20 m.	7 d. 2 h. 40 m.	14 d. 5 h. 20 m.	17 d. 18 h. 40 m.	24 d. 21 h. 20 m.
Facebook (± 80 MB / h)	0 d. 3 h. 8 m.	0 d. 6 h. 15 m.	0 d. 12 h. 48 m.	2 d. 16 h. 0 m.	5 d. 8 h. 0 m.	10 d. 16 h. 0 m.	13 d. 8 h. 0 m.	18 d. 16 h. 0 m.
FaceTime (± 85 MB / h)	0 d. 2 h. 56 m.	0 d. 5 h. 53 m.	0 d. 12 h. 3 m.	2 d. 12 h. 14 m.	5 d. 0 h. 28 m.	10 d. 0 h. 56 m.	12 d. 13 h. 11 m.	17 d. 13 h. 39 m.
Music streaming ¹⁰ (± 150 MB / h)	0 d. 1 h. 40 m.	0 d. 3 h. 20 m.	0 d. 6 h. 50 m.	1 d. 10 h. 8 m.	2 d. 20 h. 16 m.	5 d. 16 h. 32 m.	7 d. 2 h. 40 m.	9 d. 22 h. 56 m.
Facebook Live (± 160 MB / h))	0 d. 1 h. 34 m.	0 d. 3 h. 8 m.	0 d. 6 h. 24 m.	1 d. 8 h. 0 m.	2 d. 16 h. 0 m.	5 d. 8 h. 0 m.	6 d. 16 h. 0 m.	9 d. 8 h. 0 m.
Youtube ¹¹ (± 450 MB / h)	0 d. 0 h. 33 m.	0 d. 1 h. 7 m.	0 d. 2 h. 17 m.	0 d. 11 h. 23 m.	0 d. 22 h. 45 m.	1 d. 21 h. 31 m.	2 d. 8 h. 53 m.	3 d. 7 h. 39 m.
Netflix ¹⁰ (± 1,3 GB / h)	0 d. 0 h. 11 m.	0 d. 0 h. 23 m.	0 d. 0 h. 46 m.	0 d. 3 h. 51 m.	0 d. 7 h. 42 m.	0 d. 15 h. 14 m.	0 d. 29 h. 14 m.	1 d. 2 h. 5 m.

Table 4: Estimation of the usage time of an application used individually according to the data volume. Simultaneous use of several applications reduces the time of individual use. For illustrative purposes only. Reading instructions: With 1GB, the Customer can use Facebook for approximately 12 hours and 48 minutes.

When the Customer has exceeded the package included in the offer, the mobile Internet consumption will be billed according to the rate plan corresponding to the chosen offer¹². In order to prevent a bill shock, a ceiling of € 50 excluding VAT (€ 58.50 incl. VAT) is applied. When the Customer reaches this limit, the Mobile Internet access service will be blocked and the Customer will no longer be able to access the Internet. However, the Customer has the possibility to increase the ceiling¹³ or to unblock the Internet access service after blocking¹⁴.

The mobile Internet access service and VoIP

Voice over IP is a technology that improves the quality of telephony. VoIP, as a specialized service, requires bandwidth, i.e. a resource needed for the mobile Internet access service. VoIP requires a portion of the IP bandwidth of about 100/100 kbps (downstream / upstream) for proper functioning, although the bandwidth actually used may vary.

¹⁰ Superior quality 320 kbps.

¹¹ Superior quality de 720 p.

¹² Available on the website www.post.lu/terms

¹³ More details on the website www.post.lu/terms under «Other information», then «Mobile: modification du mécanisme préventif Roaming Control».

¹⁴ More details on the website www.post.lu/en/particuliers/mobile/scoubido, under «Options and services».

Settlement of disputes

In the event that the Customer notices significant recurring or continuous discrepancies between the performance of the POST network and the indications provided above, the Customer may contact POST via the traditional means, namely the contact form available on www.post.lu/particuliers/contactez-nous, the call centre accessible 24/7 at 8002 8004, by post or by any other means made available by POST to receive the remarks.

POST wishes to assure the Customer that it is anxious to find the cause of any incident impacting the Customer's mobile Internet access service. If, however, no solution can be found by the means described above, the Customer may:

- i) use the mediation procedure with the ILR through the downloadable form on its website <https://web.ilr.lu/Mediation/FR/Mediation/Pages/HomePage.aspx> when the dispute concerns services electronic communications;
- ii) in the event that the contract has been concluded online or by any other electronic means, the Customer may use the platform made available by the European Commission at the following address: <https://webgate.ec.europa.eu/odr/>;
- iii) in all cases other than those referred to in points (i) and (ii) above and at the initiative of either the Client or POST Telecom, the dispute may be submitted to the Consumer Ombudsman or, alternatively, to the Centre de Médiation Commerciale (<http://www.cmcc.lu/>)

Finally, if none of the aforementioned mediation procedures is initiated or leads to a settlement between the Parties in relation to a Customer claim, the courts of the Grand Duchy of Luxembourg have sole jurisdiction, except where another exclusive jurisdiction is determined under private international law.