

**Quality parameters of services provided by Telenor Bulgaria for the period 2018-2020 according to Appendix № 5 to art. 38 of the General requirements for provision of electronic communication:**

Quality parameters of services provided							
Network/Service	Parameter	Measurement	Value			Unit	Standard document*
			2018	2019	2020		
Fixed	Time for initial connection to the network	The time by which the fastest 80 % and 95 % of the requests are fulfilled	< 1	< 1	< 1	days	ETSI EG 202 057-1
		Percentage of requests, fulfilled to the date, agree with the client, and when the percentage is under 80% - average number of days of delay after the agreed date.	99%	99%	99%	% days	
Fixed	Share of the issues, related to the number of portability procedures**	Percentage of portability requests, completed with deviations from the normal procedure	3.72%	0.59%	4.19%	%	ETSI EG 202 057-1
Mobile			0.40%	0.30%	0.30%	%	
Fixed	Fault report rate per fixed access lines	Ratio of the number of valid fault reports, to the average number of access lines in the network	0.21%	0.14%	0.15%	%	ETSI EG 202 057-1
Fixed	Troubleshooting period	Troubleshooting period for the fastest 80% and 95% of the valid faults to the subscriber lines	2.30 hours / 4 hours	2.30 hours / 4 hours	2.30 hours / 4 hours	hours	ETSI EG 202 057-1
		Percentage of the faults dealt with in the maximum period, agreed in the individual contract	98%	98%	98%	%	
Fixed	Response time for operator services	Mean time to answer	14	13	19	seconds	ETSI EG 202 057-1
		Percentage of calls answered within 20 seconds (30 sec after 01.03.2015)	85%	85%	78%	%	
Mobile	Response time for operator services	Mean time to answer	26	23.8	32	seconds	ETSI EG 202 057-1
		Percentage of calls answered within 20 seconds (30 sec after 01.03.2015)	71%	71%	64%	%	
Fixed	Percentage of complaints regarding bills correctness	Ratio of the bills for which there are complaints filed regarding their correctness, to the total number of bills	0.0001%	0.0009%	0.0004%	%	ETSI EG 202 057-1
Mobile			0.0288%	0.0242%	0.0222%	%	
Internet Access			0.0011%	0.0016%	0.0009%	%	
Fixed	Percentage of unsuccessful calls	For national calls	1.16%	1.36%	2.15%	%	ETSI EG 202 057-2
		For international calls	0.45%	0.51%	0.53%	%	
Mobile	Percentage of unsuccessful calls	For national calls	0.39%	0.20%	0.26%	%	ETSI EG 202 057-2
		For international calls	0.45%	0.51%	0.53%	%	
Fixed	Call set up time	Average period for national dialing	1.61	1.14	1.35	seconds	ETSI EG 202 057-2
		Average period for international dialing	1.81	1.34	1.55	seconds	
Mobile	Call set up time	Average period for national dialing	3.79	3.00	3.00	seconds	ETSI EG 202 057-2
		Average period for international dialing	3.99	3.20	3.20	seconds	
Fixed	Call connection quality	Factor for assessing the voice transmission – R (R factor), in accordance with ITU-T Rec. G.109	78.8	78.8	78.8	ETSI EG 202 057-2	
Mobile			78.8	78.8	78.8		
Mobile	Ratio of unsuccessful calls	Ratio of the number of unsuccessful calls to the total number of calls for a fixed period	0.35%	0.20%	0.27%	%	ETSI EG 202 057-3
Mobile	Ratio of dropped calls	Ratio of the number of dropped or interrupted call connections after they have been successfully placed, due to network issues, to the number of connections for a fixed period	0.22%	0.18%	0.15%	%	ETSI EG 202 057-3
Internet Access	Achieved data transfer speed <sup>1</sup>	Highest achieved data transfer speed <sup>2</sup>	91 446	194 931,254	194 972,899	kbit/s	ETSI EG 202 057-4
		Lowest achieved data transfer speed	64	64	64	kbit/s	
		Average rate and standard deviation of the data transfer speed <sup>3</sup>	Average rate - 41 971 Standard deviation - 27 142	Average rate - 54 284 Standard deviation - 37 669	Average rate - 70 709 Standard deviation - 43 056	kbit/s	
Internet Access	Coefficient of unsuccessful attempts for data transfer	Percentage of unsuccessful attempts for data transfer	0.60%	0.20%	0.26%	%	ETSI EG 202 057-4
Internet Access	Data transfer delay (one way)	Average data transfer delay	40	33	24	ms	ETSI EG 202 057-4
		Standard deviation of the delay	31	30	27	ms	ETSI EG 202 057-4

\* The standard document contains a definition and information on measurement and statistics for the parameter.

\*\* The measurement and the statistics in the standard document for this parameter should consider the terms defined in the relevant functional portability specifications.

<sup>1</sup> The speed of data transfer of every customer depends on different factors among which: terrain type, buildings' location and density, the place of the consumer in the building (e.g. underground premises), terminal device's model, network congestion and others. Specific higher or lower rates for data transfer speed than specified in this document can be achieved depending on the influence of the abovementioned factors.

<sup>2</sup> The measurements of maximum speed were made with "drive test" in real mobile conditions country-wide, under usual traffic load and using specific network elements for radio access. According to ETSI EG 202 057-4, the listed maximum speed is 95% percentile, leaving out the top 5% measurements.

<sup>3</sup> Average rate and standard deviation of the data transfer speed and delay are measured under the same conditions stated in p.3.