

BYLAW OVERVIEW

QoS PARAMETERS FOR ELECTRONIC COMMUNICATIONS SERVICES AND NETWORKS AND MONITORING ACTIVITIES

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SEE Regulatory Forum 1
Tirana, Albania
September 27, 2011

LEGAL BASIS

- **Electronic Communications Act (Official Gazette of the Republic of Serbia, no.44/10) – *particularly Article 109***
- **Technical standards and specifications – international (ETSI, CEN, CENELEC, IETF-RFC, ITU recommendations and decisions, ISO standards, IEC, CEPT) and national standards**

SCOPE OF REGULATION

- **Quality of service parameters of**
 - publicly available electronic communication services
 - electronic communication networks
- **Controlling and monitoring activities of service providers and operators**

QoS PARAMETERS

Services

- Publicly available telephone service on fixed location – fixed telephony
- Publicly available services in mobile network
- Publicly available voice transmission services over the Internet – VoIP
- Broadband services
- Media content distribution – CATV (analog and digital) and IPTV

Networks

- Electronic communication networks under general authorization regime
- Electronic communication networks subject to public bidding procedure

SCOPE OF QoS INDICATORS

- **General and technical (network performance indicators) QoS parameters**
- **All QoS parameters of interest are listed, predefined (with its threshold values) and described in detail in a special table (as addition to the Rule)**
- **Way of data gathering is defined (operator's report, measuring or recommendation) in the Quality Parameters Table**
- **QoS shall be clearly and unambiguously determined and publicly available (website, info channel, selling points,...)**

QoS INDICATORS – EXAMPLES (1)

Fixed telephony

Parameter	Subject of measuring	Way of measuring	Minimum value
Fault Rate per Access Line	100 lines per year	Operator's report	15 per 100 lines or 15% of total number

Mobile telephony

Parameter	Way of measuring	Minimum value
CSSR (Call Setup Success Rate)	On end user's side according to TS 102250-2; On network's side: operator's report	> 98% on network level

VoIP

Parameter	Way of measuring	Minimum value	
		Class 0	Class 1
IP Packet Transfer Delay	In accordance to Recommendation ITU-T Y.1541	100ms	40ms

QoS INDICATORS – EXAMPLES (2)

Broadband

Parameter	Description of Parameter	Way of measuring	Minimum value
Service activation/provisioning	Time taken to provide service from time of request or date of application to time service is activated for 95% of requests	Operator's report	8 days
Packet Loss		Test PC (at end user's side) - server (at ISP's side)	Detailed values in table F.2 and F.3 in Annex F ETSI EG 202 057

CATV and IPTV

Parameter	Way of measuring	Minimum value
Subjective assessment of picture and sound quality of TV signal	In accordance to Recommendation ITU-R BT 500-12 (09/09)	4
Number of billing complaints	Operator's report	≤ 1% per 100 bills
Channel Zapping Time	Measuring Instrument	400 ms (average value)

Electronic communication networks subject to public bidding procedure

Parameter	Way of measuring	Minimum value
GSM coverage	EEC Report 118	> -95 dBm (defined in License)
Handover rate (for GSM and UMTS) in peak hour	Operator's report (network's statistic)	≥ 95%

MONITORING ACTIVITIES (1)

- **Control of operator activities pursuant to Electronic Communications Law through**
 - Operator's reports (yearly, quarterly, on demand)
 - Measurements of network performance parameters
- **Special department in RATEL will be responsible for conducting the whole procedure of control and measurement**
- **Control shall be performed**
 - regularly (at least once a year)
 - irregularly (based on end user/consumer's complaint, or if should it be found not to be in line with the regulations)

MONITORING ACTIVITIES (2)

- **Controlling and monitoring of QoS indicators shall be in line with threshold values listed in Quality Parameters Table (as mentioned above)**
- **All measurements shall be performed in accordance with international and national standards and/or technical specifications and other regulations that are in compliance with EU standards and technical specifications**

Thank you for your attention

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