



REPUBLIC OF SERBIA

**RATEL**

REGULATORY AGENCY FOR  
ELECTRONIC COMMUNICATIONS  
AND POSTAL SERVICES

# ANNUAL REPORT 2016



# **ANNUAL REPORT**

OF THE REGULATORY AGENCY FOR ELECTRONIC  
COMMUNICATIONS AND POSTAL SERVICES  
FOR THE YEAR 2016

Belgrade, 2017

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## 1

## WORD OF DIRECTOR



The beginning of 2016 was marked by a successfully conducted public procurement procedure for the issuance of individual licenses for radio frequency usage in 791-821/832-862 MHz radio frequency bands for the territory of the Republic of Serbia, which resulted in the payment of 105 053 111 EUR in the Treasury of the Republic of Serbia, as corresponding fees for the above frequency bands. This enabled operators Telekom Srbija, Telenor and Vip Mobile to provide to the citizens of Serbia services of broadband Internet access via the fourth generation networks (4G), on a technologically neutral basis.

New operators emerged on the electronic communications and postal markets during 2016. In the Registry of operators were thus included first virtual mobile operators in our country, such as *Mundio Mobile*, belonging to the British *Mundio Group*, followed by the company *Globaltel*, Daughter Company of domestic *Pink International* and *Proceskom*. We also got a new operator of digital media content distribution on the Serbian market, *MTS Antena TV*, founded by the Telecommunications Company *Telekom Srbija JSC*, and Public Enterprise *Broadcasting Techniques and Links*. It is also notable to mention the company *Gebrüder Weiss Transport and Logistic*, which started to provide services of collection, sorting, transport and delivery of express items on the territory of Serbia and in international traffic.

In 2016, Memorandum of cooperation in the field of quality of service and radio frequency spectrum planning was signed with regulatory authorities of Croatia, Czech Republic, Slovakia, Slovenia, Ukraine and Romania, as well as a new Memorandum of Understanding between Communications Regulatory Agency of Bosnia and Herzegovina (RAK) and RATEL. Also, a new protocol on cooperation was signed between RATEL and Regulatory Authority for Electronic Media (REM) and Agreement on business and technical cooperation with the Faculty of Transport and Traffic Engineering.

Within the frame of regulatory activities, the Agency adopted a decision on the conditions under which it is permitted to provide electronic communications services at a fixed location via public mobile network, using CLL (*Cellular Local Loop*) technology. This technology covers all settlements up to 1500 inhabitants, meaning that almost 20% of the population in the Republic of Serbia can use classic landline telephone over mobile network. RATEL has, for the first time, taken active part in the adoption of EU regulations, by joining public consultations regarding passing of a very important act defining network neutrality. Yet another important step for RATEL's work was implementation of the regional Agreement on roaming (signed by Macedonia, Montenegro, Bosnia and Herzegovina and Serbia). RATEL started publishing telecommunications market quarterly key indicators data, which makes it easier for the operators to plan their investments, while monitoring data regarding 4G development in Serbia is gathered on a quarterly basis. RATEL's system for broadband system

performance measurement was also put in operation, enabling users of fixed and mobile devices to verify and analyze quality of Internet access and speed at a chosen point of network. In the second half of 2016, rights and obligations under the licenses for mobile telephony for all three mobile operators were extended. In addition, numerous meetings took place with state, private and international organizations regarding the application of the Law on Information Security.

Second meeting of the Committee on Spatial Planning, Transport, Infrastructure and Telecommunications of the National Assembly of the Republic of Serbia, held on September 21, 2016 in the premises of the Control and Measurement Centre "Belgrade" in Dobanovci represents another highlight of good cooperation. First item on the agenda was adoption of RATEL's Report on Activities for 2015. Second item included discussion about problems of RATEL's Control Unit, resulting from the work under inadequate conditions, as witnessed by the MPs during their visit to CMC "Belgrade". Committee members concluded that CMC "Belgrade" is of strategic importance to the Republic of Serbia and accepted, by majority of vote, the initiative to build a new centre on an adequate location, with a better infrastructure, good optical visibility and protection from interference.

After the conducted public procurement procedure for business premises, in February 2016 RATEL moved to a new location, at Palmotićeveva Street 2, where more business space became available for considerably less financial resources. Like in previous years, business activities of the Agency also led to excellent financial results.

For 2017, we have defined 10 key plans, in accordance with RATEL's Plan of Activities:

1. System infrastructure improvements for the purpose of spectrum monitoring
2. Construction of sensor system for non-ionizing radiation measurements
3. New cycle of market analysis in the domain of electronic communications
4. Implementation of new cost-accounting model
5. Elaboration of new radio frequency Allocation Plan and accompanying Allotment Plans
6. Campaign of parallel measurement of quality parameters in mobile operators' networks (*benchmarking*)
7. Implementation and execution of new laws in the domain of electronic communications, postal services and information security
8. Establishment of National CERT
9. First phase of the elaboration of telecommunications infrastructure Atlas in Serbia
10. Electronic issuance of individual licenses for radio frequency usage

These plans encourage us to expect 2017 to be even more successful than the previous year, as regards the development of electronic communications and postal services, market regulation and application of regulations from the domain of information security, coupled with the internal development of the Agency itself.

*Director  
Dr Vladica Tintor*

## 2

# INTRODUCTION

As a national regulatory authority, RATEL was tasked to ensure efficient enforcement and enhancement of the telecom policy in the Republic of Serbia, aimed at further development of the telecommunications and creation of conditions for the implementation of information society.

The Regulatory Agency for Electronic Communications and Postal Services (RATEL) was established in 2005, under the name of The Republic Telecommunications Agency, in line with the Law on Telecommunications. As a national regulatory authority, RATEL was tasked to ensure efficient enforcement and enhancement of the telecom policy in the Republic of Serbia, aimed at further development of the telecommunications and creation of conditions for the implementation of information society. Following the entry into force of the Law on Electronic Communications in 2010, RATEL continued to work as the Republic Agency for Electronic Communications. With amendments to the Law on Electronic Communications and the Law on Postal Services of 2014, the Republic Agency for Postal Services (RAPUS) was merged with the Republic Agency for Electronic Communications, which, in turn, continued to work as the Regulatory Agency for Electronic Communications and Postal Services, keeping the abbreviated name RATEL.

RATEL's position in the legal system of the Republic of Serbia is stipulated pursuant to the provision of Article 137, paragraph 3 of the Constitution. In the Law on Electronic Communications (*Official Gazette of RS*, nos. 44/10, 60/13-US and 62/14) RATEL is defined as an autonomous organisation, independent of state authorities, organizations and persons performing the activity of electronic communications and separate from the existing state administration structure, in order to ensure a high level of autonomy and independence in performing the entrusted public competencies. The manner of financing is a mechanism ensuring RATEL's financial independence and RATEL's revenues stipulated by the law are not budgetary assets by their legal nature. As RATEL's work is not financed from the budgetary assets, greater level of efficiency in electronic communications activities and necessary distance from political influence are ensured.

RATEL performs public authorizations aimed at implementation of the set policies in the domain of electronic communications and postal services, fostering competition on the markets of postal and electronic communications networks and services, improving their capacities and quality, monitoring market development and protecting users' interests. As a national regulatory authority of the Republic of Serbia, responsible for the domain of electronic communications and postal services, RATEL's task is to enable successful liberalization in the sector of telecommunications and postal services, radio frequency management and spectrum control (spectrum representing a limited resource of national importance), as well as harmonization of internal regulations with the EU legal frame.

RATEL's authority in market regulation in the domain of electronic communications and postal services is:

- to decide on operators' and users' rights and obligations,
- to adopt rulebooks, decisions and other acts in its competence,
- to establish radio corridors and protection area dimensions,
- to plan radio frequency usage, to manage RF spectrum, to issue licenses for radio frequency usage, to coordinate and monitor radio frequency usage,
- to check fulfillment of operators' obligations regarding interconnection, access and ensurance of interoperability of networks and services,
- universal service,
- to analyze relevant markets, to identify operators with significant market power and set their obligations in order to prevent monopolistic behaviour and foster market development through competition,
- to manage numbering plan and adopt draft Allocation Plan and Allotment Plans,
- to monitor prescribed quality parameters of publicly available services,
- to adopt general terms and conditions for the provision of postal services, quality standards in the provision of postal services and monitor their application,
- to resolve users' complaints,
- to prescribe closer terms and conditions for license issuance, issuance and revocation of licenses and authorizations,
- to keep records of issued licenses.

Pursuant to the Law on Information Security (*Official Gazette of RS*, no. 6/2016) passed by the National Assembly on January 12, 2016, RATEL is assigned with the tasks of a National Centre for the Prevention of Security Risks in ICT Systems (National CERT), i.e. to coordinate prevention and protection from security risks in ICT systems in the Republic of Serbia, on the national level.

Former Managing Board members' term of office expired on March 31, 2016. During first 3 months of 2016, Managing Board in its former composition held 4 sessions.

By the Decision of the National Assembly of the Republic of Serbia (*Official Gazette of RS*, no. 20/2016) of 3.3.2016, new members of the Managing Board were appointed:

1. Dragan Kovačević, Chair
2. Petar Stijović, Vice Chair
3. Danka Martić, member
4. Dr Vladimir Krstić, member
5. Prof. Dr Dejan Marković, member

The five-year term of office of the new Managing Board members started on April 1, 2016. Constitutive meeting of the new Managing Board took place on April 8, 2016.

During 2016, new Managing Board held 10 sessions, where a number of Rulebooks, Draft rulebooks to be adopted by line minister, decisions and internal acts, Plan of Activities, Financial Plan and

Procurement Plan for 2017 were passed. Managing Board adopted reports on analysis of three relevant markets subject to ex-ante regulation: market for retail access to the public telephone network at a fixed location, market for retail media content distribution and retail market for the publicly available telephone service from a fixed location.

On January 4, 2016, the Rulebook on internal organization and job systematization was passed, due to which organizational structure of the Agency was changed. During 2016, activities within the scope of RATEL's competence were performed in the following organizational units:

- Electronic Communications Sector, comprising Electronic Equipment, Networks and Services Division, Control Division and Radiocommunications Division;
- Legal and General Affairs Sector, comprising Legal Affairs Division, Material and Human Resources Division and IT Department;
- Economic Regulation Sector, comprising Market Analysis and Cost-Accounting Division, General Authorizations and Inter-Operators' Disputes Division and Fee Management Division);
- Postal Services Division;
- Cabinet.

The financial assets are provided by RATEL's revenues from the numbering fees, radio-frequency fees, fees for performing electronic communication activities, annual fees for the provision of postal services and revenues from the provision of services within RATEL's competence (issuance and extension of licenses, assessment of harmonization, performance of technical inspection). RATEL's annual financial report for 2016 was approved by the Managing Board and revised by an independent chartered auditor.

In 2016, RATEL's total revenues amounted to 1.88 billion dinars, with the total expenditures of 823 million dinars. Pursuant to Article 27, paragraph 6 of the Law on Electronic Communications, the surplus representing the difference between the revenues and expenditures laid down in RATEL's annual financial report is paid into public revenues account of the Treasury of the Republic of Serbia and the Autonomous Province of Vojvodina. These funds are dedicated to the promotion and development of electronic communications and information society and are managed by the line ministry. Funds paid into the account of the Treasury of the Autonomous Province of Vojvodina are proportional to the revenues made by the electronic communications network and service operators in the territory of the Autonomous Province of Vojvodina and are managed by the competent province body responsible for electronic communications.

On 31 December 2016, RATEL had 128 employees, 79,9% of which have a university degree, 2,3% are with college degree and 18% with secondary education. The majority of employees with university degree are graduate electrical engineers, IT engineers and transport engineers. Eight employees have a PhD degree.

During 2015, RATEL was located in the rented business premises in 8, Višnjićeva Street, in Belgrade. As of February 1, 2016, the new headquarters of the Agency are in 2, Palmotićeva Street, in Belgrade, when the complete transfer to the new location was carried out. The lessor of premises is the PE "Post of Serbia" and the rental of business premises was performed in accordance with the conducted

Public Procurement procedure. RATEL also performs its activities from two Control and Measurement Centres located in Dobanovci and Niš. RATEL is a real estate beneficiary of the premises where CMCs are located under the Agreements on the lease of state-owned property, concluded with the Republic Property Direction.

Pursuant to the provision of Article 39 of the Law on Free Access to Information of Public Importance (*Official Gazette of RS* nos. 120/04, 54/07, 104/09 and 36/10) and Instructions for preparing and publishing the report on the work of a state authority issued by the Commissioner for Information of Public Importance and Personal Data Protection, RATEL prepared its Information on RATEL's Activities for 2016, which is available on RATEL's Internet page.

All relevant information on RATEL's activities, regulations regarding electronic communications, postal services and information security, database registries from records kept by RATEL, forms and instructions for operators and users and other information of public interest pertaining to RATEL's business activities are available on Internet page [www.ratel.rs](http://www.ratel.rs).

In December 2015, RATEL's Managing Board adopted RATEL's Plan of Activities for 2016, which foresees activities needed for realization of the following objectives:

- encouragement of investments in fixed and wireless infrastructure aimed at enhancement of broadband penetration, reaching necessary data flow rate,
- fostering competition among operators,
- enhancement of postal services volume and quality development,
- creating favorable conditions for conducting equal and fair business activities of all market players, both in the sense of implemented technologies and of business-friendly environment,
- ensuring further development of markets of electronic communications and postal services using competition-enhancing mechanisms (*ex-ante*), but also applying market regulation along with all of its available instruments (*ex-post*),
- monitoring of relevant markets, aimed at creation of favorable environment for operators' business activities and possible designation of operators with significant market power (SMP),
- setting of regulatory obligations for SMP operators and monitoring the fulfillment of these obligations,
- activities regarding overall protection of interests of all market participants – operators, providers and particularly end users.

Overview of the most important activities carried out in 2016, along with their results, is presented in the following chapters of this report. In the Report on Activities the overview is made according to activity fields, rather than organizational units. All RATEL's organizational units participated in the realization of the activities foreseen in the Plan of Activities for 2016.

## 3

## REGULATORY ACTIVITY

As part of its regulatory competencies, in 2016, RATEL passed the following bylaws:

- Amendments to Numbering Plan (*Official Gazette of RS*, no. 60/16);
- Rulebook on amendments to Rulebook on establishment of tariff categories for UPS (*Official Gazette of RS*, no. 83/16);
- Rulebook on establishment of costs for permit issuance and annual fee for the provision of postal services (*Official Gazette of RS*, no. 89/16)
- Decision on amendments to Decision on designating relevant markets susceptible to ex-ante regulation (*Official Gazette of RS*, no. 106/16).

In the process of adoption of the above general acts, RATEL organized public consultations, pursuant to the Law on Electronic Communications (hereinafter: Law), inviting the experts and general public to actively participate in their adoption. All remarks and suggestions submitted within the foreseen deadline were published on the RATEL's website, following which the mentioned acts were forwarded to the line ministry for the review of the constitutionality and legality.

In addition, in 2016, pursuant to the Law, RATEL also prepared motion of the Rulebook on stipulating Radio Frequency/Location Allotment Plan for Terrestrial Analogue FM and TV Broadcasting Stations for the Territory of the Republic of Serbia (*Official Gazette of RS*, no. 102/16), adopted by the competent ministry.

In the second half of 2016, following the performed public consultation, RATEL's Managing Board adopted Rulebook on amendments to Rulebook on general terms and conditions for performing electronic communication activities under general authorization regime and Rulebook on amendments to Rulebook on quality parameters for publicly available electronic communication services and monitoring of electronic communication activity. These bylaws were submitted to the line ministry, in accordance with provisions of Article 23, paragraph 2 of the Law and Article 57 of the Law on State Administration (*Official Gazette of RS*, nos. 79/05, 101/07, 95/10 and 99/14), for the review of the constitutionality and legality. After obtaining the ministry's position, the mentioned bylaws will be published in the *Official Gazette of the Republic of Serbia*.

Beside the aforementioned, another two documents were prepared and put to public consultation – Draft on amendments to Numbering Plan and Rulebook on amendments to Rulebook on quality parameters for the provision of postal services and on the minimum quality standards for the provision of universal postal service. Adoption of these two bylaws is expected in 2017.

A number of additional separate acts were passed, as part of the implementation of the legal competences in the postal and electronic communications market regulation.

## 4

# RADIOCOMMUNICATIONS

In the area of radiocommunications, during 2016, RATEL elaborated general acts foreseen by the Law on Electronic Communications, as well as other bylaws from the domain of radiocommunications, and undertook activities pertaining to the radio frequency usage. In the domain of radio frequency spectrum management, in 2016 there were activities regarding issuance of individual licenses for the usage of radio frequencies, radio frequency coordination and notification and radio frequency spectrum control.

Based on users' requests regarding issuance and extension of individual licenses for the usage of radio frequencies, **1003** draft decisions on the issuance of individual licenses for the usage of radio frequencies were prepared. Based on these decisions, in accordance with the Law on Electronic Communications, **9370** individual licenses for the usage of radio frequencies were issued, namely:

- **8880** individual licenses for the usage of radio frequencies based on users' requests, pursuant to Article 86 of the Law on Electronic Communications;
- **39** individual licences for the usage of radio frequencies for radio stations on aircrafts;
- **77** individual licences for the usage of radio frequencies for radio stations on ships and other vessels;
- **306** individual licences for the usage of radio frequencies for diplomatic and consular representative bodies and foreign legal entities, in accordance with Articles 87 and 88 of the Law on Electronic Communications;
- **68** individual licences for the usage of radio frequencies for amateur radio stations.

In accordance with provisions of Article 95 of the Law on Electronic Communications, **409** decisions on the withdrawal of rights to use radio frequencies were prepared, whereby **6234** individual licences for the usage of radio frequencies were revoked. As an answer to users' request in a repeated procedure, based on Articles 58 and 210 of the Law on General Administrative Procedure, **41** conclusions and decisions were prepared.

In connection with usage of radio frequency spectrum for broadcasting purposes, during the resolving of requests for radio stations' change of parameters aiming at a better service in the servicing area, the analyses of electromagnetic compatibility were performed, in the service areas the analyses of requests for removal of harmful interference were performed, as well as requests for new frequency assignments compared to current plans, requests for dislocation of FM broadcasting transmitters, requests for additional coverage of FM broadcasting transmitters, and necessary analyses for answering coordination requests (in total 203 analyses). As a result of activities regarding requests for dislocations and additional coverage of FM broadcasting transmitters, opinions were given on more than 40 users' requests.

During 2016, as part of the activities related to the coordination of radio frequency spectrum with regulatory bodies from neighbouring and other countries, the following coordination requests were answered positively:

- 9 requests for radio relay links in accordance with the Harmonisation Calculation Method (HCM) Agreement,
- 2 coordination requests for terrestrial satellite stations within the fixed satellite service,
- 1 request for functional systems,
- 1 request for FM broadcasting stations,
- 1 request for digital television DVB-T2.

As in previous years, during 2016, coordination negotiations with neighbouring countries were held. On February 22, 2016, in Zagreb, an Agreement among Croatian, Hungarian and Serbian administrations was signed, pertaining to the allotment of preferred frequencies for narrowband systems and to the rules for broadband systems coordination for 410-430MHz. Also, with regulatory authorities for electronic communications of Croatia, Hungary and Romania, border frequency coordination procedures were launched for terrestrial systems regarding provision of electronic communications services in frequency band 790-862 MHz, as well as those regarding the assignment of preferred frequencies and GSM1800 system coordination in frequency bands 1710 – 1785/ 1805 - 1880 MHz.

Within international radiocommunications activities, cooperation with the ITU Radiocommunication Bureau, regarding IFIC (*International Frequency Information Circular*): 25 circular notifications on international radio frequency coordination were examined; 23 answers on inquiries for seeking approval for satellite networks published in *Special Section AP30B* were submitted to the ITU, in accordance with relevant agreements; inquiries on special sections of Plans GE84 and GE06 were answered, in cases where other administrations' propositions hamper planned frequency assignments of the Republic of Serbia (9 answers to modifications of the Geneva Agreement 1984 and 1 answer to modifications of the Assignment Plan, Geneva 1975).

During the process of replanning of the frequency band 470-694 MHz for the purposes of digital terrestrial television, as a result from the reallocation of the frequency band 694-790 MHz, the Agency continued with its activities in the international working group SEDDIF (*Sout Eastern European Digital Dividend Implementation Forum*), by actively participating in three meetings held during 2016. The harmonized plan will entail changes in the Plan GE06 allotments/assignments for the Republic of Serbia. Inaugural meeting of the SEDDIF group took place on 1 and 2 October 2015 in Budapest, while the group will continue its work until mid-2017, which is the deadline for the preparation of final documents. The coordination agreements between member countries' administrations, based on the group's work results, are planned to be signed in the second half of 2017.

Based on RATEL's proposition, the line ministry passed the Rulebook on stipulating Radio Frequency/ Location Allotment Plan for Terrestrial Analogue FM Broadcasting Stations for the Territory of the Republic of Serbia (*Official Gazette of RS*, no. 102/16).

For the needs of the broadcasting service, RATEL issued a great number of individual licenses for the usage of radio frequencies, based on users' requests and decisions of the Regulatory Authority for Electronic Media Managing Board on the extension of license validity.

In 2016, RATEL issued individual licenses for the usage of radio frequencies for the third multiplex (MUX3) of the digital TV signal broadcasting network to the Public Enetrprise "Broadcasting Technique

and Links”, so that there are three multiplexes for digital terrestrial TV program broadcasting operating currently in the Republic of Serbia. The PE “Broadcasting Technique and Links” was issued 87 licenses for broadcasting stations under MUX3 and 12 licenses for radio relay stations.



## 5

# ELECTRONIC COMMUNICATIONS NETWORKS AND SERVICES

During 2016, the Agency continued with activities aimed at the creation of free and open markets, guaranteeing equal rights for all participants.

With the adopted regulations and procedures for the introduction of new technologies and services realized in the previous period as a starting point, in the aim of fostering competition in the Serbian market of electronic communications, RATEL undertook a set of regulatory activities in this area.

Comparative overview of the number of users and penetration level of the public fixed communications network, public mobile communications network, Internet and cable systems for the years 2014, 2015 and 2016 is given in Table 1.

**TABLE 1.**

COMPARATIVE OVERVIEW OF THE NUMBER OF USERS OF THE BASIC ELECTRONIC COMMUNICATION SERVICES IN THE LAST 3 YEARS

	2014		2015		2016*	
	Number (thousands)	Penetration* (%)	Number (thousands)	Penetration* (%)	Number (thousands)	Penetration** (%)
Fixed - lines	<b>2,715</b>	<b>38.17</b>	<b>2,603</b>	<b>36.80</b>	<b>2,492</b>	<b>35.22</b>
Mobile - users	<b>9,345</b>	<b>130.76</b>	<b>9,156</b>	<b>129.38</b>	<b>9,094</b>	<b>128.52</b>
Fixed broadband Internet - subscribers	<b>1,227</b>	<b>17.17</b>	<b>1,321</b>	<b>18.48</b>	<b>1,431</b>	<b>20.22</b>
Cable - subscribers	<b>1,497</b>	<b>20.95</b>	<b>1,596</b>	<b>22.55</b>	<b>1,654</b>	<b>23.37</b>

Source: Data delivered by the operators to the Agency in annual and quarterly reports

\*Data for the 4<sup>th</sup> quarter of 2016, gathered for 100% of mobile telephony market, 99,5% of fixed telephony market and 90% of Internet and media content distribution market (for the remaining 10% of the market, an approximation was done on the basis of historical data)

\*\* Number of inhabitants as of 1.1.2016 was used (without Kosovo and Metohija) published by the Statistical Office of the Republic of Serbia

RATEL's obligation to keep special registers, i.e. records of operators is defined by the Law and it is applied in accordance with the Decision on the manner of keeping registers, records, databases and other information within the competence of the Regulatory Agency for Electronic Communications and Postal Services and their publication on RATEL's Internet page.

**TABLE 2.**

NUMBER OF  
OPERATORS OF  
ELECTRONIC  
COMMUNICATIONS  
SERVICES ON  
31.12.2016

Service	Recorded number
Public voice service	<b>32</b>
VoIP (Voice Over IP)	<b>34</b>
Internet access service and Internet services	<b>197</b>
Media content distribution	<b>83</b>
SMS/MMS transmission	<b>20</b>
VAS (value added service)	<b>55</b>
Data transfer	<b>18</b>
Leased network resources	<b>19</b>
Leased infrastructure	<b>26</b>
Broadcasting and multiplexing	<b>1</b>
Directory	<b>1</b>
Other services	<b>2</b>

**TABLE 3.**

NUMBER OF  
OPERATORS OF  
ELECTRONIC  
COMMUNICATIONS  
NETWORKS ON  
31.12.2016

Network	Recorded number
GSM mobile network	3
UMTS mobile network	3
LTE mobile network	3
JFTM (public fixed telephone network)	3
CDMA network	2
KMP (cable access network)	90
RRMT (radio relay transport network)	11
OMT (optical transport network)	28
PI (passive infrastructure)	38
<b>BFWA (<i>Broadband Fixed Wireless Acces</i>)</b>	<b>45</b>
WAS/RLAN ( <i>Wireless Local Area Network</i> )	<b>89</b>
SM (satellite network)	1
RR – radio relay (72-76GHz)	1
Other fixed networks	1

In addition to updating the existing records and creating new ones, there were 283 changes (228 new entries and 55 deletions) to the register of operators – providers of electronic communications, during 2016:

- 14 new entries for public voice service;
- 7 new entries and 10 deletions for media content distribution service;
- 2 new entries and 3 deletions for VoIP services;
- 30 new entries and 18 deletions for Internet access and Internet services;
- 2 new entries and 1 deletion for data transmission;
- 4 new entries and 4 deletions for VAS (voice transmission, SMS, MMS);
- 11 new entries for leased infrastructure;
- 7 new entries for leased electronic communications network resources;

- 3 new entries and 2 deletions for message transmission (SMS, MMS);
- 7 new entries and 1 deletion for passive infrastructure;
- 6 new entries and 3 deletions for optical transport network;
- 15 new entries and 7 deletions for cable access network;
- 2 new entries for radio relay transport network;
- 43 new entries and 2 deletions for BFWA (Broadband Fixed Wireless Access) network;
- 75 new entries and 3 deletions for WAS/RLAN (Wireless Local Area Networks).

In 2016, for the first time, two operators were registered as virtual mobile providers – Globattel and Mundio Mobile LLC. Globattel operator started to provide services at the end of 2016 and the second operator is expected to start providing services at the beginning of 2017.

Pursuant to the Law on Electronic Communications, **53** decisions on award, extension or withdrawal of numbering resources were issued at operators' requests:

**TABLE 4.**

NUMBER OF ISSUED  
DECISIONS FOR  
THE USAGE OF  
NUMBERING

NUMBER CATEGORY	NUMBER OF ISSUED DECISIONS		
	AWARD	EXTENSION	WITHDRAWAL
<b>GEOGRAPHIC</b>	<b>19</b>	<b>-</b>	<b>1</b>
<b>NON-GEOGRAPHIC</b>	<b>13</b>	<b>-</b>	<b>8</b>
<b>SHORT CODES</b>	<b>3</b>	<b>-</b>	<b>-</b>
<b>OTHER CODES</b>	<b>9</b>	<b>-</b>	<b>-</b>

In addition, in 2016, **10** decisions on assignment of call processing prefixes to new operators of public voice service at a fixed location and **2** decisions on assignment of call processing prefixes to virtual mobile operators.

During 2016, 7 agreements on international interconnection of telecommunications networks between national and foreign operators were signed.

The implementation of number portability on public mobile telecommunications networks, which started in July 2011, continued smoothly during the previous year, pursuant to RATEL's general act regulating number portability. During 2016, there were around 122,000 cases of ported numbers, which makes the total of over 540,000 ported numbers on mobile networks, which is more than 5% of the total number of mobile telephony users.

As of April 1, 2014, fixed telephony users have been able to keep their subscriber number after changing the operator. Number portability procedure is carried out in accordance with the Rulebook on number portability on public telephone networks at a fixed location (*Official Gazette*

of RS, no. 52/11) and the Protocol on implementation of this Rulebook, whereby the operators mutually harmonized the procedure regarding administrative questions that can arise in the process of number portability. By the end of 2016, the total of 183,000 fixed telephony subscribers changed their operator, while keeping the same number. The success of number portability in fixed telephony is partially owed to the experience gained from the number portability process in mobile telephony.

Pursuant to the Rulebook on radio equipment and telecommunications terminal equipment (*Official Gazette of RS*, no. 11/12, applied as of 1.6.2012), during 2016, RATEL, responsible for the conformity assessment of the radio and telecommunications terminal equipment (R&TT), issued:

- 798 certificates of conformity,
- 560 excerpts from the register of issued certificates.

In addition, 7 requests were forwarded to the line ministry for further procedure, whereas 161 applicants withdrew their requests.

Operators of public electronic communications networks are entitled to require shared use of other operator's or third person's communications infrastructure, if necessary, for a more competitive, cost-effective and efficient performance of the electronic communications activities.

The Rulebook on the manner of collection and publication of the data on type, availability and geographic location of the electronic communications network's capacities (*Official Gazette of RS*, no. 66/15) foresees keeping records of the electronic communications network capacities which can be subject to shared use, in the form of an aggregated Database on capacities (hereinafter: Database of Leased Capacities).

During 2016, the Database of Leased Capacities was established and Arc GIS for Desktop and Web application trainings were carried out. Currently, the Database comprises information on 1431 antenna poles of Telekom Srbija JSC, Telenor LLC and Vip Mobile LLC operators, while entries for cable canalization are expected in the following period. The Database of Leased Capacities is available to all interested operators of electronic communications networks in the form of Web – GIS application, on RATEL's website.

In 2016, a questionnaire on the use of CLL (*Cellular Local Loop*) technology in the EU was addressed to the Body of European Regulators for Electronic Communications (BEREC). In regard to this questionnaire, mobile operators were consulted, opinion of the line ministry was sought and a public call for comments of the interested parties was launched. A decision was adopted, permitting the operators of public mobile communications networks – holders of License for public mobile communications network and public mobile communications network services in accordance with GSM/GSM 1800 and UMTS/IMT-2000 Standard and holders of individual licenses issued upon conducted public bidding procedures – to use all assigned radio frequency bands for the provision of electronic communications services at a fixed location by applying CLL technology, in places with up to 1500 inhabitants, based on the official data of the Statistical Office of RS on the last census of population, households and dwellings in the Republic of Serbia.

Among the activities related to quality of service were collection and processing of network and service quality parameters offered by electronic communications operators, participation in the work of BEREC group for QoS, NNEWG, and implementation of RATEL's NetTest application. The application is made available on the Agency's Internet page.



## 6

## MONITORING OF RADIO FREQUENCY SPECTRUM USAGE AND QUALITY OF SERVICE CONTROL

RATEL performs continuous monitoring of radio frequency spectrum usage, control over the application of technical inspections and control of the quality parameters of the publicly available electronic communications services and networks, as well as monitoring of electronic communications activities performance and, in certain cases, measurement of non ionizing radiation levels.

Radio frequency spectrum usage monitoring in 2016 was performed from fixed control and measurement centres (CMCs), mobile and portable monitoring and measurement stations, and remotely controlled measurement receivers. Table 5 shows the number of monitoring and measurement entries in the database, during 2016.

**TABLE 5.**  
NUMBER OF  
MONITORING AND  
MEASUREMENT  
LOGS IN 2016

NUMBER OF LOGS FROM CMCS

**3267**

NUMBER OF LOGS OUTSIDE OF CMCS

**6499**

Despite the decreasing tendency in the usage of bands dedicated to the so-called "functional communication systems" (4 m, 2 m, 0.7 m), these bands are still in use, with gradual switchover to the transmission of digitally modulated signals. Along with the stable usage of the above bands by "big" users, such as Ministry of Interior, taxi service, public utility companies and alike, activity of radio-networks of organizations for the protection of physical and technical safety has also been identified.

A large number of technical inspections of the PE Broadcasting Techniques and Links' radio stations in the digitalized TV signal broadcasting network were performed, including both broadcasting transmitters and radio relay devices. Inspection was done by RATEL, assisted by the PE BTL representatives.

By the end of 2016, no broadcasting of analog modulated TV station was registered on the territory of the Republic of Serbia, which demonstrates a successful completion of digitalization process. During 2016, tendency of closing of certain radio FM broadcasting stations which could not endure conditions of market competition has continued. Certain broadcasters buy off other broadcaster's rights, belonging to radio stations that went insolvent, which leads to new networks emerging and broadcasting radio signal on the entire territory of the Republic of Serbia.

By means of an efficient identification of illegal broadcasting stations, followed by accompanying measures, the illegal usage of broadcasting spectrum in the band dedicated to radio signal broadcasting has considerably decreased. As a result, the number of reported interference in the reception of aircraft and airborne stations and in airborne service has also declined.

The records of unlicensed broadcasting stations identified at the end of 2016 are shown in Table 6.

**TABLE 6.**

OVERVIEW OF UNLICENSED BROADCASTING RADIO-STATIONS WHOSE ACTIVITIES WERE IDENTIFIED AT THE END OF 2016

NO.	IDENTIFICATION	FREQUENCY (MHZ)	LOCATION OF TRANSMITTER
1.	Radio Antena	<b>104.2</b>	Rakovac (Novi Sad)
2.	Radio Enigma	<b>104.3</b>	Bitovik (Prijepolje)
3.	Radio BB	<b>104.8</b>	Bački Petrovac
<b>BROADCASTING STATIONS WITH EXPIRED LICENSE BUT STILL BROADCASTING:</b>			
4.	Radio Požarevac	<b>106.2</b>	Požarevac
5.	Radio Lazarevac	<b>89.3</b>	Lazarevac
6.	Radio Brus	<b>94.1</b>	Brus
7.	Radio Sokobanja	<b>90.5</b>	Sokobanja

The number of issued licenses and performed technical inspections asserts rapid development of the mobile telephony network. Simultaneously, as a result, the number of reported harmful interference in the reception of mobile telephony base stations has risen. Significant part of RATEL's Control/Inspection Service staff and technical resources is actively involved in examining these interferences.

Digital TV signal broadcasting switchover released a part of UHF band (791-862 MHz) – so-called *digital dividend*, for the needs of mobile telephony. At the end of 2015, a public bidding procedure for the issuance of licences for usage of the mentioned frequency band for mobile operators was successfully completed. In the meantime, mobile operators finished testing of the LTE technology usage in the above frequency band and put in operation considerable number of base stations of this type.

During 2016, preparatory activities for the realization of the first overall campaign for a parallel measurement of quality parameters (*benchmarking* concept) in all mobile operators' networks were done. In 2017, a campaign including parallel measurements in larger cities and main highways is planned, followed by the publication of measurement results.

During 2016, the number of complaints regarding quality of service in mobile telephony networks examined and resolved by RATEL's Control Service on the ground slightly increased. So did the number of complaints that were resolved in administrative procedure. Apart from the number of filed complaints, RATEL is strongly dedicated to the improvement of the quality of service control equipment and procedures in cable and wireless electronic communications networks.

Based on the number of requests for identification of wireless networks in unlicensed bands of 2.4 GHz and 5 GHz, and the results of the control of these bands' usage, the increase in the number of access connection points of both old and brand new operators is evident.

Results of the measured parameters during radio station technical inspections are registered via web portal, which facilitates database update and record keeping. In 2016, 5826 technical inspections were carried out. In Table 7, three radio frequency spectrum users with largest numbers of performed technical inspections in 2016 are shown.

RF SPECTRUM USER	NUMBER OF RADIO STATION TECHNICAL INSPECTIONS CARRIED OUT IN 2016
Telenor LLC	<b>2919</b>
Vip Mobile LLC	<b>1103</b>
Telekom Srbija JSC	<b>404</b>
<b>TOTAL</b>	<b>5826</b>

**TABLE 7.**

USERS OF RADIO  
FREQUENCY SPECTRUM  
WITH THE LARGEST NUMBER  
OF PERFORMED TECHNICAL  
INSPECTIONS

In 2016, preparatory activities for the construction of remotely controlled network of monitoring and measurement stations were undertaken. This network is expected to enable radio frequency spectrum monitoring on the whole territory of the Republic of Serbia. So far, only the monitoring and measurement stations with simple configuration have been used (RF sensors), predominantly for monitoring and geolocating of sources of RF signals in urban areas. Putting in operation of more complex stations enabling monitoring in much broader geographic areas is one of the planned objectives.

In 2017, the development of 4-5 locations for mounting of this type of stations is planned, as well as putting in operation of the three already equipped stations. In the following 3 to 4 years, the completion of the remotely controlled monitoring and measurement stations in Belgrade, Niš and Novi Sad is foreseen.

Faculty of Electrical Engineering in Belgrade made, in 2016, a Feasibility Study on the Construction of Network of Non Ionizing Radiation Levels Measurement on the territory of the Republic of Serbia, for the needs of RATEL. Based on the Study results, RATEL acquired certain number of stations for continuous measurement of non ionizing radiation levels, which will be mounted at fixed locations in highly urban areas.

In 2017, construction of an Internet portal enabling the citizens to consult the results of the continuous measurement of non ionizing radiation levels, as well as putting in operation of a system with 20 stations of this type set up at various locations in Belgrade, Novi Sad and Niš are planned. In the four years ahead, expansion of the system to its full capacity as described in the Feasibility Study is foreseen, so that 100 operating stations in total are set in all major cities.



## 7

# MARKET ANALYSIS

Pursuant to the competences laid down under Article 60 of the Law on Electronic Communications, the Agency carried out analysis of the three following relevant markets:

1. market for retail access to the public telephone network at a fixed location (from December 2015 – June 2016);
2. market for retail media content distribution (from December 2015 – June 2016);
3. retail market for the publicly available telephone service from a fixed location (from June 2016 – November 2016).

The Agency carried out procedures of market analysis in order to assess the degree of competition and monitor the situation on the above markets, so as to identify any changes with respect to the results of previous analysis of these markets.

The above analyses were carried out pursuant to the provision of Article 60 of the Law on Electronic Communications, stipulating that at least once in three years RATEL should conduct the analysis of relevant markets and, if necessary, additional markets, by applying the European Union recommendations on market analysis and identification of significant market power. Upon the completed analysis, the Agency adopted reports on the analysis of relevant markets and published them on its Internet page, pursuant to Article 60, paragraph 3 of the Law.

Article 62 of the Law stipulates that when the Agency, based on the previously performed market analysis, identifies the absence of efficient competition on the relevant market (including any closely related markets), it shall designate, by a decision, an operator as having significant market power (SMP) on that market, separately or jointly with other operators. In this decision, the Agency, pursuant to the provision of Article 62, paragraph 2 of the Law on Electronic Communications, shall prescribe at least one obligation from Article 63 of the Law for the operator with SMP to carry out. SMP operators are required to comply with the prescribed obligations under the terms and conditions laid down in the relevant decision.

Following the performed analysis of the market for retail access to the public telephone network at a fixed location, it was established that Telekom Srbija JSC still had significant market power on this

market. In its decision, the Agency designated Telekom Srbija JSC as an operator with SMP and imposed an obligation for this company to provide retail services under certain conditions, namely:

- prohibition of charging exaggerated prices,
- prohibition of hampering new market entrants or blocking competition with too high or too low prices,
- prohibition of unreasonable favoring of selected end users,
- limitation of retail prices,
- obligation of acquiring the Agency's formal approval regarding formation and changing of content and price of service packages,
- setting of control measures for individual tariffs,
- obligation of cost-accounting price formation based on real costs of service provision or on the prices in comparable markets.

During the analysis of the market for retail media content distribution, based on the performed «three criteria test», the Agency determined that there were no regulatory or structural barriers on this market which could hamper the entry of new competitors and that the market would evolve and develop in the direction of a more effective competition.

The same «three criteria test» was also carried out in the analysis of the retail market for the publicly available telephone service from a fixed location, during which it was determined that this market, despite some structural barriers, would evolve and develop in the direction of a more effective competition.

Since neither of these two markets did not satisfy the requirement of all three criteria for identification of markets subject to ex-ante regulation being cumulatively fulfilled, they do not represent relevant markets in the sense of Article 59, paragraph 1 of the Law on Electronic Communications. The Agency has, therefore, adopted Decision on changes to the Decision on designating relevant markets susceptible to ex-ante regulation, based on which market for retail media content distribution and retail market for the publicly available telephone service from a fixed location ceased being relevant markets subject to ex-ante regulation (*Official Gazette of RS*, no. 106/16).

The above reports on the analysis of relevant markets, Decision on changes to the Decision on designating relevant markets susceptible to ex-ante regulation and decision on designation of an operator with SMP on the market for retail access to the public telephone network are published on the Agency's Internet page ([http://www.ratel.rs/regulativa/analize\\_trzista.539.html](http://www.ratel.rs/regulativa/analize_trzista.539.html)).

During 2016, in accordance with the provision of Article 60, paragraph 1 of the Law on Electronic Communications, the analysis of the market of broadband Internet access was performed. The adoption of this analysis' report is planned for 2017.

In the second half of 2016, the Agency started the elaboration of the Long-Run Average Incremental Cost (LRIC) model for price determination of regulated wholesale services provided by operators with SMP on the following relevant markets:

1. wholesale market for call origination on the public telephone network at a fixed location;
2. wholesale market for call termination on the public telephone network;

3. wholesale market for (physical) access to network elements and accompanying facilities (including shared and completely unbundled access to the local loop);
4. wholesale market for broadband access;
5. wholesale market for call termination on the mobile network.

Introduction of the LRIC model is foreseen in Article 5, paragraph 1 of the Rulebook on the application of the cost-accounting principle, separate accounts and reporting of an operator with significant market power in the electronic communications sector (*Official Gazette of RS*, no. 52/11) and represents next development step in the implementation of the cost-accounting principle. The importance of this implementation is reflected in the influence the model will have on the overall electronic communications market, which will mean more precision in regulated services price formation and harmonization with current legislation and practice of the EU in the domain of price control in relevant electronic communications markets. All of this will contribute to the establishment of an effective and sustainable market competition, bringing benefits for end users and encouragement of investment activities in the domain of electronic communications.

In the aim of fulfillment of the obligation of acquiring formal approval regarding formation and changing of content and price of service packages, the Agency prepared methodology and model for carrying out of the "margin squeeze test", on the basis of which the Agency will perform price control for the services bundled into packages, before the service packages are offered to end users by an operators with SMP.

"Margin squeeze test" demonstrates if the prices of wholesale and retail services offered by an operator with SMP are on the level that enables other (alternative) operators to offer the same or similar service package at competitive prices. The purpose of this test is to identify situations where an operator with SMP offers service packages with unreasonably low retail prices, which makes it impossible for other operators to offer the same or similar service package using wholesale services of the operator with SMP, whose prices are defined in the SMP operator's standard offers.

Depending on the "margin squeeze test" results, the Agency will either give its approval for the beginning of commercial placement of the package on the market, or, should the results come in negative, will ask for the price correction to the level that enables other (alternative) operators to offer the same or similar service package at competitive prices, all in the aim of preserving and fostering market competition and protecting end users.

Pursuant to the provisions of Article 62, paragraph 4 and Article 68, paragraph 1 of the Law on Electronic Communications, the Agency has been monitoring implementations of the price control obligation and cost-accounting principle, prescribed in a separate decision as obligatory measures for the operators with SMP. Telekom Srbija JSC and SBB, as operators with SMP to which the obligation of price control and cost-accounting principle was imposed in the decision, deliver regulatory reports in accordance with the Rulebook on the application of the cost-accounting principle, separate accounts and reporting of an operator with significant market power in the electronic communications sector (*Official Gazette of RS*, no. 52/11). Pursuant to Article 68, paragraph 7 of the Law, the Agency engaged an independent chartered auditor to verify harmonization level of the SMP operators' regulatory reports with the prescribed manner of the cost-accounting principle implementation. Reports of the independent chartered auditor on the mentioned regulatory reports can be found on the Agency's Internet page ([http://www.ratel.rs/trziste/izvestaji\\_revizora.519.html](http://www.ratel.rs/trziste/izvestaji_revizora.519.html)).

Based on SBB's regulatory report for 2015, the Agency adopted decisions on price determination regarding the service of media content distribution for the operator SBB, pursuant to the provisions of Article 68 of the Law. In addition, the Agency undertook the verification of the manner of price formation regarding other regulated services provided by SMP operators and the consistent implementation of the Rulebook on the application of the cost-accounting principle.

In 2016, the Agency followed the application of the Decision on the dynamics of the decrease of roaming service prices, adopted on the basis of the Agreement on decrease of roaming service prices in public mobile communications networks of Bosnia and Herzegovina, Montenegro, FYR of Macedonia and Republic of Serbia. As of July 1, 2016, the application of the second phase regarding the decrease of roaming service prices based on the above decision became effective. The Agency, consequently, collected quarterly data and analyzed the effects of the decrease of roaming service prices in the countries signatories of the Agreement.

## 8

# USER PROTECTION

Like in previous years, RATEL continued with the subscriber/user support services and with resolving complaints concerning the work of electronic communication operators, including analysis of the number of user complaints according to the type of services and daily communication with users by e-mail and telephone.

Subscriber or user whose complaint was rejected or left unanswered by the operator during 15 days, can turn to RATEL for the latter's mediation in an out-of-court dispute resolution. During the mediation in an out-of-court dispute resolution, RATEL has no legal authorization to lead administrative procedure during the proceedings, but can only mediate in an attempt of a peaceful settling of dispute out of court.

The number of new complaint related cases in 2016 was 877, of which 263 were resolved with the positive outcome for the subscriber/user.

The majority of complaints concerned the correctness of the bill for mobile telephony services and the quality of service, especially the Internet, whereas other complaints mainly involved number portability between different electronic communications operators' networks. As for complaints regarding due bill amount, along with the complaints concerning the standard service charges, a certain number of complaints referred to mobile telephony and/or Internet roaming service bills and value added services charges.

When processing user complaints, particular attention is paid to the protection of the rights of the disabled and the elderly, as well as the socially vulnerable.

As part of a continuous long-term monitoring of certain electronic communications operators' general acts, RATEL performed the analysis of the general terms and conditions of the electronic communications operators Telekom Srbija JSC and Vip mobile LLC Belgrade, regarding provision of service in public mobile telecommunication networks, following which RATEL sent orders and recommendations to these operators on how to align the general terms and conditions with the regulations in force. In addition, the analysis of the following operators' general acts: "Globaltel" LLC Belgrade, PE Post of Serbia – WU Post Net Belgrade and EXE NET LLC Niš was performed as well.



## 9

# POSTAL SERVICES

Postal market has undergone important changes in 2016, especially in respect of commercial services. During last year, RATEL issued 19 authorizations to postal operators (16 for the provision of express services and 3 for courier services), whereas at the same time, it revoked 14 authorizations for the provision of postal commercial services (not belonging to the UPS scope).

Within the frame of regulatory activities on the postal market in 2016, RATEL adopted Rulebook on establishment of costs for permit issuance and annual fee for the provision of postal services, Amendments to Rulebook on establishment of tariff categories for UPS and Amendments to Technical requirements for residential mailboxes (*Official Gazette of RS*, no. 2/16).

RATEL also took an active part in the public discussion regarding the draft of the new Postal Law. RATEL's propositions and suggestions were mostly accepted and are expected to become integral part of the legislation.

In the aim of harmonization of RATEL's postal regulations with those of the EU, following activities were undertaken in 2016:

- participation in the work of WGs dealing with the EU access negotiations of the Republic of Serbia, for the Negotiation Group 8 – competition policy and Negotiation Group 3 – right of establishment and freedom to provide services;
- participation in the seminar organized as part of the expert assistance from Slovenia, as preparation for taking part in Negotiation chapter 3 – right of establishment and freedom to provide services, for the domain of postal services, hosted by the line ministry on May 30, 2016.
- participation in training regarding collection and processing of postal statistic data, on November 7 and 8, 2016 in Brussels, hosted by the EC (*Grow Postal Statistics - Training on Postal Statistics*).

As far as other operational activities are concerned, RATEL has continued to work on the design and implementation of the model for the support in decision-making in the UPS regulation. In that sense, an electronic registry of postal operators' permits has been designed, created and updated, in cooperation with Section for information technologies.

RATEL chairs the Standardization Commission KS A 331 and coordinates its work. The activities of the Commission realized in 2016 are shown in Table 8.

**TABLE 8.**  
INTRODUCED  
AND REVOKED  
STANDARDS  
AND RELATED  
DOCUMENTS

STANDARDS AND RELATED DOCUMENTS INTRODUCED IN SERBIAN LANGUAGE	STANDARDS AND RELATED DOCUMENTS INTRODUCED IN ENGLISH LANGUAGE	REVOKED STANDARDS AND OTHER DOCUMENTS
SRPS CEN/TS		
SRPS CEN/TS 16919		
SRPS CEN/TS 16819		
SRPS CEN/TS19915	SRPS EN 14508	SRPS CEN/TS 15525
SRPS CEN/TS 16894	SRPS EN 14534	SRPS CEN/TS 14709.
SRPS CEN/TS 14014		
SRPS EN13724		

The most important project in this field was introduction of the National Standard SRPS A.L3.001 of address system – data exchange model, which represent the basis for elaboration of the national address registry. For that purpose, the Ministry of Public Administration and Local Self-Government has formed a working group including RATEL's representatives.

Participation in the project TR 36040 "Reengineering of the UPS operator's network with organizational synergy of state and economic resources", financed by the Government of the Republic of Serbia and carried out by the Faculty of Technical Sciences in Novi Sad has also been continued. The most notable result in 2016 was a doctoral thesis "Development of the Postal Network Access Model", strongly supported by RATEL's representatives. Crucial findings of this paper can be used for further regulation implementation and development in the domain of access to the public postal network.

Traditionally, in 2016 RATEL took part in the XXXIV Symposium on novel technologies in postal and telecommunications traffic, PosTel 2016, held on November 29 and 30, 2016, at the Faculty of Transport and Traffic Engineering in Belgrade. RATEL acted as co-organizer and representatives of the Postal Services Unit presented a paper entitled "Impact of ERGP activities on the establishment of the EU single market". At the 16th International conference on e-commerce and e-business *E-commerce 2016*, held in Palić, RATEL participated with presentation "E-business and postal market".

Within the frame of its international regulatory activities, RATEL's representatives participated in the work of ERGP (*The European Regulatory Group for Postal Services*), namely in WGs *End user satisfaction and monitoring the market outcomes* and *Cost allocation and price regulation*, including participation in the work of *Contact Network* and in the *ERGP Plenary Meeting*.

During 2016, important activities regarding cooperation with the Universal Postal Union took place. RATEL's representatives were members of the state delegation at the Session of Council of Administration in Bern and the 26th UPU Congress in Istanbul.

## 10

# INFORMATION SECURITY

The Law on Information Security (*Official Gazette of RS*, no. 6/2016) of the Republic of Serbia has stipulated measures for the protection from security risks in information and communication systems, liability of legal entities during management and use of information and communication systems and designated competent authorities responsible for the execution of protection measures, coordination between protection factors and monitoring of proper application of the prescribed protection measures.

This law also stipulates the establishment of a National Centre for the Prevention of Security Risks in ICT Systems (National CERT), which will perform tasks of coordination of the prevention and protection from security risks in ICT systems in the Republic of Serbia, on the national level. Tasks of the national CERT are assigned to the Regulatory Agency for Electronic Communications and Postal Services (RATEL). The National CERT shall collect and exchange information on security risks in ICT systems, including events threatening the safety of ICT systems and accordingly inform, warn and advise the individuals handling the ICT systems and the public in the Republic of Serbia.

This authority is primarily responsible:

- to monitor status regarding incidents on the national level,
- to provide early warnings, alerts and announcements, informing the relevant individuals about incidents and risks,
- to react upon reported or in another way detected incidents, by providing advice based on the available information to the individuals affected by the incident, and to undertake other necessary measures within its competence, based on the received data,
- to perform continuous risk and incident analyses,
- to build public awareness with citizens, companies and organs of public administration about the importance of information security, risks and protection measures, including organization of dedicated campaigns,
- to keep records of Special Centers for the Prevention of Security Risks in ICT Systems (Special CERTs).

The Law on Information Security also foresees that electronic communications operators that are registered as operators of ICT systems of special importance, deliver to RATEL reports on incidents in their systems. The Government has, in a separate Act, set the manner of data delivery process, stipulated incident types and level of importance and has defined the alert procedure addressed to the responsible body about incidents in ICT systems of special importance.

During 2016, RATEL undertook a number of steps aimed for the establishment of National CERT as an efficient and purposeful institution. In that sense, a National CERT Feasibility Study has been elaborated, dealing with questions of organization, structure, functioning and required resources, as well as an estimate of the future national CERT's costs, accompanied by a 5-year action plan.

Since the adoption of the law on Information Security, RATEL's representatives have established cooperation with parties recognized by this law as main actors in the area, took part in all relevant events in this domain and in public consultations during the elaboration of bylaws. Possibilities of international cooperation and establishment of partner relationships with corresponding bodies from other countries were discussed, as well as funding of selected activities by using different instruments of international technical and financial assistance.

Having in mind that during 2016 the prohibition of further public employment was still in force, RATEL was not able to immediately start hiring professionals for the positions under the National CERT's authority. Pursuant to Ordinance on the procedure of provisioning approval for new employment and additional hiring at users of public resources (*Official Gazette of RS*, no. 113/2013), RATEL asked approval for hiring necessary number of experts of different profiles. However, since the jobs required for these positions in the domain of information security are highly specific and this profile's IT experts are hard to find, apart from getting the approval for hiring, RATEL is also faced with challenge of finding the adequately qualified staff on the market.



## 11

## COOPERATION WITH OTHER INSTITUTIONS AND ORGANIZATIONS

In carrying out activities from the scope of its responsibility, RATEL has cooperated with a number of institutions and organizations.

Regular cooperation is maintained with:

- Ministry of Trade, Tourism and Telecommunications, line ministry for the activities in the area of electronic communications, information society and postal services;
- Regulatory Authority of Electronic Media;
- Ministry of Interior, Ministry of Defense, Security Information Agency and Serbian Armed Forces, in accordance with the Law on Electronic Communications;
- Serbian Armed Forces and Serbia and Montenegro Air Traffic Services, regarding radio frequency data used by aircrafts and notifications thereof to the International Telecommunication Union;
- Serbian European Integration Office;
- Association of radio-amateurs of the Republic of Serbia, regarding the issuance of licenses for the operation of radio-amateur operators and work licenses of radio-amateur stations;
- Office for the Coordination of Affairs in the Process of Negotiation with the Provisional Institutions of Local Self-Government in Priština, regarding implementation of the Action plan for telecommunications;
- Republic Geodetic Authority;
- Bodies responsible for space planning and environmental protection.

Within the cooperation with the Committee on Spatial Planning, Transport, Infrastructure and Telecommunications of the National Assembly of the Republic of Serbia, RATEL hosted second meeting of this committee, held outside of the National Assembly headquarters, in the premises of the Control and Measurement Centre "Belgrade" in Dobanovci. The agenda of the meeting included discussion about RATEL's Report on Activities for 2015 and Information on the situation of the CMC "Belgrade", while an initiative was launched on the construction of a new control and measurement centre. MPs, members of the Committee, had the opportunity to get acquainted with control and monitoring activities and with the equipment used for that purpose.

For a better cooperation and coordination of activities between regulatory bodies for electronic media and electronic communications, Protocol on cooperation between Regulatory Authority

of Electronic Media (REM) and Regulatory Agency for Electronic Communications and Postal Services (RATEL) was signed. This Protocol will promote rational, economic and efficient use of radio frequency spectrum and consequent application of regulations governing the areas of electronic media and electronic communications.

In 2016, RATEL has continued to maintain permanent contact and consultations with all stakeholders in the telecommunications and postal sectors: operators, providers, distributors, manufacturer organizations, scientific and educational institutions and users' associations, as well as all postal services stakeholders. Representatives of RATEL have participated in relevant public discussions, panel discussions and round tables, in the effort of reaching professional and objective conclusions to specific and current topics.

With newly acquired competencies in the domain of information security, following the adoption of the Law on Information Security, RATEL started to cooperate with institutions and organizations which abide by this law. RATEL's representatives participate in the work of the Coordination body for information security affairs in the Republic of Serbia.

RATEL has actively participated in the work of WGs tasked with the negotiation process activities regarding the EU accession of the Republic of Serbia, for the following negotiation chapters:

1. Chapter 1 – Free Movement of Goods, in regard of the regulations pertaining to radio equipment and telecommunications terminal equipment;
2. Chapter 3 – Right of Establishment and Freedom to Provide Services, regarding postal services and markets;
3. Chapter 8 – Competition, in connection with competition in the domain of electronic communications and postal services;
4. Chapter 10 – Information Society and Media, regarding regulatory frame in the domain of electronic communications.

During 2016, RATEL's representatives took part in a number of various meetings, among which the most notable are presentations on invitation and participation in panel discussions at the Conference "Digital World" hosted by Cable Operators Association of Serbia (PUKOS), 24<sup>th</sup> Telecommunications Forum TELFOR and XXXIV Symposium on novel technologies in postal and telecommunications traffic, PosTel.

During 2016, RATEL's representatives organized working visits to operators Telekom Srbija, Vip Mobile, Telenor, SBB and Orion Telekom, in order to better understand these companies' organization, new technical solutions and activity plans, but also problems they encounter and ways of overcoming the challenges.

Regarding cooperation with business entities, permanent communication has been established with Foreign Investors Council (FIC) Telecommunications Committee in the domain of telecommunications market development, domestic and European regulation and presentation of future activity plans.

In its work, RATEL also invests in cooperation with educational and scientific and research institutions. During 2016, an Agreement on business and technical cooperation with Faculty of Transport and Traffic Engineering was signed, whereas various modes of cooperation with other high educational institutions as well as the Institute "Mihajlo Pupin" were discussed.

## 12

## INTERNATIONAL ACTIVITIES

Cooperation with international organizations, regulatory authorities and other expert institutions is carried out in the aim of a continuous follow-up of the electronic communications and postal services development, changes in the domain of market regulation and international acts regarding our country, as well as introduction of new services based on new technologies.

RATEL fulfills international cooperation through its participation in the work of international institutions, organization of bilateral and multilateral meetings with regulatory authorities from other countries, especially from the region and the European Union.

In May 2016, RATEL became member of REDCA (*Radio Equipment Directive-Compliance Association*), which gathers organizations assessing harmonization of radio equipment, designated bodies, consultant companies, manufacturers and administrations within the EEC and countries signatories of the Agreement on mutual recognition with the EU. The importance of REDCA membership is reflected in the access to important information in the domain of radio equipment and exchange of experience in the application of Radio Equipment Directive 2014/53/EC.

As of October 2016, RATEL started to participate in the work of *Radio Spectrum Policy Group – RSPG*, which represents advisory body on a high expert level, assisting the EC in the development of radio frequency spectrum management policy. Serbia was accepted in this group as an observer, which enables RATEL to track more closely the European strategy of radio frequency spectrum use in near and far future.

RATEL has continued to participate actively in the work of the *Body of European Regulators for Electronic Communications (BEREC)* and *Independent Regulators Group (IRG)*. RATEL is one of the 37 independent regulatory authorities – members of IRG, whereas in BEREC it has an observer status. During 2016, RATEL representatives followed all activities of these two organizations' Contact Networks and Boards of Directors, with important impact on the participation in the process of public consultation regarding Guidelines on the application of European regulations on the network neutrality by national regulators, as well as analysis of the new regulation proposition in the domain of electronic communications at the EU level.

As a regulatory authority, RATEL actively participates in the work of the *International Telecommunication Union (ITU)*, *European Conference of Postal and Telecommunications Administration (CEPT)* and *European Telecommunications Standards Institute (ETSI)*.

Within ITU activities, RATEL representatives participated in the work of the group for numbering standardization *ITU-T SG2 - Operational Aspects of Service Provision and Telecommunications Management*, group for transport networks *ITU-T SG15 – Networks, Technologies and Infrastructures for Transport, Access and Home*, group for Internet of things and their application *ITU-T SG 20 - IoT and its Applications Including Smart Cities and Communities*, group for radio broadcasting *ITU-R WP6A - Terrestrial Broadcasting Delivery* and expert group on ICT indicators (*EGTI*). RATEL's Director was invited by ITU to participate in the ITU Telecom World panel forum, where he talked about the research of new possibilities for the shared use of frequency spectrum.

As part of the cooperation with CEPT, RATEL takes part in the activities of the *Electronic Communications Committee (ECC)*. In 2016, RATEL representatives participated in the work of group *WGFM 22 - Working Group Frequency Management - Monitoring and Enforcement* and Project Team for radio spectrum engineering *SE24 - Spectrum Engineering*.

In the area of postal services, RATEL has participated in the work of the *European Regulatory Group for Postal Services' (ERGP) Contact Network and Board of Directors* and the *26<sup>th</sup> Universal Postal Union (UPU) Congress*.

RATEL continued with its successful bilateral cooperation with regulatory bodies from the region and EU. Management of the Communications Regulatory Agency of Bosnia and Herzegovina, its Director and members of the Council, visited RATEL in July 2016. This was the occasion for bilateral talks regarding the experiences in market regulation, as well as the visit to the control and measurement center in Dobanovci. Also, a new Agreement of understanding between the two agencies was signed.

Within cooperation with agencies from neighbouring countries, members of Managing Board and RATEL's Director visited the Agency for Electronic Communications and Postal Services of Montenegro headquarters and its new control and measurement center on Dajbabska gora near Podgorica.

During the year, a closer cooperation was established with the *Regional Cooperation Council (RCC)*, which enabled RATEL representatives to take part in RCC projects regarding regional roaming and broadband access development, as well as the consultation process regarding priority areas of the South East European Strategy 2020.

As part of the delegation of the Republic of Serbia, RATEL representatives participated in the work of the Subcommittee for Research, Innovation, Information Society and Social Policy within the Committee for the implementation of the Stabilization and Association Agreement.

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# LIST OF BYLAWS

## LIST OF BYLAWS WITHIN RATEL'S COMPETENCE (ELECTRONIC COMMUNICATIONS)

- Rulebook on the manner of collection and publication of the data on type, availability and geographic location of the electronic communications network's capacities (*Official Gazette of RS*, no. 66/15)
- Rulebook on content and manner of notification of international interconnection agreements (*Official Gazette of RS*, no. 104/14)
- Rulebook on number portability for services provided via public mobile communications networks (*Official Gazette of RS*, no. 101/14)
- Rulebook on fee calculation for the provision of services within the competence of the Republic Agency for Electronic Communications (*Official Gazette of RS*, no. 34/13)
- Rulebook on the manner of radio frequency usage under general authorization regime (*Official Gazette of RS*, no. 28/13)
- Rulebook on the terms and conditions for access to and usage of the data from a public directory (*Official Gazette of RS*, no. 84/11)
- Rulebook on obligations of value added services provider (*Official Gazette of RS*, nos. 76/11 and 91/11-corr.)
- Rulebook on quality parameters for publicly available electronic communication services and monitoring of electronic communication activity (*Official Gazette of RS*, nos. 73/11 and 3/14)
- Rulebook on the minimum content, level of detail and manner of publication of reference offers (*Official Gazette of RS*, no. 70/11)
- Rulebook on the scope and content of the minimum set of leased lines (*Official Gazette of RS*, no. 70/11)
- Rulebook on the amount of annual fee for the use of numbering (*Official Gazette of RS*, no. 67/11)
- Rulebook on the manner of radio stations usage on the national and foreign aircrafts, locomotives, ships and other vessels (*Official Gazette of RS*, nos. 60/11 and 68/11-corr.)
- Rulebook on the manner of monitoring the radio frequency spectrum usage, technical inspection procedure and protection from harmful interference (*Official Gazette of RS*, nos. 60/11, 35/13 and 16/15)
- Decision on designating relevant markets susceptible to ex-ante regulation (*Official Gazette of RS*, no. 59/11)
- Rulebook on manner of amateur radio station usage (*Official Gazette of RS*, no. 52/11)

- Rulebook on the application of the cost-accounting principle, separate accounts and reporting of an operator with significant market power in the electronic communications sector (*Official Gazette of RS*, no. 52/11)
- Rulebook on number portability on public telephone networks at a fixed location (*Official Gazette of RS*, no. 52/11)
- Rulebook on general terms and conditions for performing electronic communication activities under general authorization regime (*Official Gazette of RS*, nos. 38/11, 44/11-corr. and 13/14)
- Numbering Plan (*Official Gazette of RS*, nos. 32/11, 35/12 and 64/13)
- Rulebook on application form for the issuance of licence for the use of numbering (*Official Gazette of RS*, no. 32/11)
- Rulebook on application forms for the issuance of individual licence for the use of radio-frequencies (*Official Gazette of RS*, nos. 8/11 and 2/14)
- Rulebook on fees for the performance of electronic communications activities (*Official Gazette of RS*, no. 93/10)
- Rules on radio-frequency usage fees (*Official Gazette of RS*, nos. 93/10 and 15/15)
- Statutes of the Republic Agency for Electronic Communications and Postal Services (*Official Gazette of RS*, nos. 125/14 and 30/16)
- Decision on the dynamics of roaming price reduction (adopted on 25.12.2014 by RATEL's Managing Board, available at [www.ratel.rs](http://www.ratel.rs))
- Decision on keeping registers, records, data bases and other information within the competence of the Republic Agency for Electronic communications and publishing thereof on RATEL's website (adopted on 11.02.2011 by RATEL's Managing Board, available at [www.ratel.rs](http://www.ratel.rs))
- Decision on designation of operators with the universal service provision obligation (*Official Gazette of RS*, nos. 15/10)

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## **LIST OF BYLAWS WITHIN RATEL'S COMPETENCE (POSTAL SERVICES)**

- Rulebook on establishment of costs for permit issuance and annual fee for the provision of postal services (*Official Gazette of RS*, no. 89/16)
- Rulebook on application form for the issuance of permit for the provision of postal services (*Official Gazette of RS*, no. 65/15)
- Rulebook on quality parameters for the provision of postal services and on the minimum quality standards for the provision of universal postal service (*Official Gazette of RS*, no. 146/14)
- Rulebook on manner and conditions for the access to the public postal operator's postal network (*Official Gazette of RS*, no. 146/14)
- Rulebook on the methodology of UPS Price Formation (*Official Gazette of RS*, no. 100/11)
- Rulebook on establishment of tariff categories for UPS (*Official Gazette of RS*, nos. 34/10, 58/10, 2/11, 65/11 and 21/14)
- Rulebook on requirements for the provision of UPS (*Official Gazette of RS*, no. 28/10)
- Rulebook on general terms and conditions for the provision of postal services (*Official Gazette of RS*, nos. 24/10, 58/10, 2/11, 13/11, 65/11, 93/13 and 97/15)

- Decision on establishment of limits per weight and per price for the reserved postal services (*Official Gazette of RS*, no. 9/11)
  - Technical requirements for residential mailboxes (*Official Gazette of RS*, nos. 95/10 and 2/16)
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## **LIST OF BYLAWS PASSED BY THE LINE MINISTRY AND THE GOVERNMENT OF THE REPUBLIC OF SERBIA AT RATEL'S PROPOSAL PURSUANT TO LAW ON ELECTRONIC COMMUNICATIONS**

- Regulation stipulating the Radio Frequency Band Allocation Plan (*Official Gazette of RS*, no. 99/12)
  - Rulebook stipulating the radio frequency allotment plan for work in the 1710-1785/1805-1880 MHz frequency bands (*Official Gazette of RS*, nos. 112/14 and 125/14)
  - Rulebook stipulating the allotment radio frequency plan for work in frequency bands 791-821/832-862 MHz (*Official Gazette of RS*, no. 94/14)
  - Rulebook on analogue to digital TV programme broadcasting switchover and access to multiplex (*Official Gazette of RS*, nos. 86/14, 18/15, 30/15 and 50/15)
  - Rulebook stipulating the Radio Frequency Allocation Plan for public electronic communication service provision – broadband wireless access (BWA) systems, mobile/fixed communication networks (MFCN) in the frequency bands 3400-3600 MHz and 3600-3800 MHz (*Official Gazette of RS*, no. 10/14)
  - Rulebook stipulating the Frequency/Location/Area Allocation Plan for terrestrial digital TV broadcasting stations in UHF band for the territory of the Republic of Serbia (*Official Gazette of RS*, no. 73/13)
  - Rulebook on radio equipment and telecommunications terminal equipment (*Official Gazette of RS*, no. 11/12)
  - Rulebook on Universal Service (*Official Gazette of RS*, no. 24/12)
  - Rulebook on requirements in terms of staff, equipment and premises of an undertaking, company or other legal entity authorized for measuring and testing the operation of electronic communications networks and services, associated facilities, electronic communications equipment and terminal equipment (*Official Gazette of RS*, no. 13/12)
  - Rulebook on stipulating Radio Frequency/Location Allotment Plan for Terrestrial Analogue FM Broadcasting Stations for the Territory of the Republic of Serbia (*Official Gazette of RS*, no. 102/16)
  - Rulebook on the manner and conditions for the determination of the zone of the electronic communications infrastructure and associated facilities, protected areas and obligations of investors during the construction of buildings and premises (*Official Gazette of RS*, no. 16/12)
  - Rulebook on the technical and other requirements when building associated infrastructure necessary for installing electronic communication network, associated facilities when constructing commercial and residential buildings (*Official Gazette of RS*, no. 123/12)
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## **LIST OF BYLAWS PASSED BY THE GOVERNMENT OF THE REPUBLIC OF SERBIA, PURSUANT TO LAW ON INFORMATION SECURITY**

- Decision on formation of Coordination Body for Information Security Affairs (*Official Gazette of RS*, no. 24/16)

- Ordinance on children security and protection during use of ICT (*Official Gazette of RS*, no. 61/16)
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### **LIST OF BYLAWS PASSED BY THE GOVERNMENT OF THE REPUBLIC OF SERBIA, AT THE PROPOSAL OF THE LINE MINISTRY (RESPONSIBLE FOR INFORMATION SECURITY AFFAIRS), PURSUANT TO LAW ON INFORMATION SECURITY**

- Ordinance on detailed content of the special importance IC systems security act, manner of verification and content of reports on special importance IC systems security checks (*Official Gazette of RS*, no. 94/16)
- Ordinance on detailed design of special importance IC systems security measures (*Official Gazette of RS*, no. 94/16)
- Ordinance on establishment of the List of jobs in areas where activities of general interest are carried out and where special importance IC systems are used (*Official Gazette of RS*, no. 94/16)
- Ordinance on provision procedure regarding data, lists, types and importance of incidents and information procedure regarding incidents in special importance IC systems (*Official Gazette of RS*, no. 94/16)



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