



REPUBLIC OF SERBIA
RATEL
REGULATORY AGENCY FOR
ELECTRONIC COMMUNICATIONS
AND POSTAL SERVICES

ANNUAL WORK REPORT

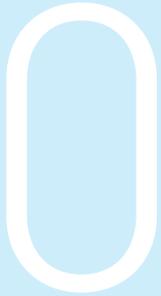
OF THE REGULATORY
AGENCY FOR ELECTRONIC
COMMUNICATIONS AND
POSTAL SERVICES
FOR THE YEAR 2018



ANNUAL WORK REPORT OF THE
REGULATORY AGENCY FOR ELECTRONIC
COMMUNICATIONS AND POSTAL SERVICES
FOR THE YEAR 2018

Belgrade, March 2019





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WORD OF DIRECTOR

In 2018, the Regulatory agency for Electronic Communications and Postal Services, as the national regulatory authority for electronic communications, postal services and information society undertook a number of activities with the aim to improve the conditions for the operators on the telecom and postal markets, foster market competitiveness, enhance the quality of service and ensure a greater degree of end user protection and, also, to promote information security in the Republic of Serbia.

The most important developments concerning regulatory activities in 2018 are given below.

The total of 15269 RF spectrum usage permits have been issued (the total number of decisions is 1333), 6295 RF spectrum usage permits have been revoked (the total number of decisions is 601) and in November 2018 the first temporary RF T-DAB broadcasting station permit has been issued thereby initiating the test phase of terrestrial digital audio broadcasting implementation in Serbia. 767 new files were opened concerning user complaints (360 of which had a positive outcome for the users), 563 certificates on conformity of R&TT equipment have been issued, 45 decisions on allocation, extension or withdrawal of numbering resources have been issued, 8 new permits for postal services provision have been issued, 156 certificates on operator entry/deletion have been made in the Register, 6444 control and measurement logs have been made in the data base and four Special CERTs have been registered. Seven rulebooks have been passed by the Managing Board.

RF spectrum monitoring infrastructure has seen additional improvements with the installation of another antenna mast and monitoring equipment, thereby extending RF monitoring possibilities in the Niš Monitoring and Measurement Centre. Also, the activities related to location acquisition for a new monitoring centre in Vojvodina have continued. By the end of 2018, construction works have been completed on 12 locations in Serbia for the purpose of remote-control mon-





itoring stations rollout: Stanišić, Vincaid, Vizić, Povlen, Veliki Šenj, Rakobarski Vis, Dubočane, Ragodeš, Stanišinci, Jabuka, Vidojevica and Barelić, and three stations have been put in operation (Stanišić, Vincaid and Vidojevica).

The network of sensors used for continuous and long-term measurement of EM level produced by electronic communications networks and equipment- EMF RATEL continues to grow and the portal <http://emf.ratel.rs> available to public is updated on a regular basis. The sensors have been placed at twenty-six sites in eleven different cities and towns. EMF RATEL project for continuous and long-term measurement of EM level has received an award from the national program "Open Data – Open Possibilities".

Market analysis has been completed for the following markets: wholesale call origination on the public telephone network at a fixed location, wholesale call termination on the public telephone network at a fixed location, wholesale call termination on the mobile and network, retail access to the public telephone network at a fixed location, wholesale local access to network elements provided at a fixed location, wholesale high-quality access provided at a fixed location and wholesale central access provided at a fixed location for mass-market products. As a result of the completed round of the market analysis, RATEL passed the Decision on designating relevant markets susceptible to ex ante regulation (*Official Gazette of RS*, no. 78/18). Also, drafting of the rulebook regulating cost-based pricing based on LRIC model has begun.

In 2018 RATEL carried out mobile network benchmarking and analysis of QoS parameters for services provided to end-user by mobile network operators for 2G/3G/4G technologies and measurement of QoS parameters for voice and data transmission and the results are available at <http://benchmark.ratel.rs>. The measurements covered 47 towns and 10,000 km of Serbian roads. During the campaign, over 6,000 voice calls and 100,000 data sessions were performed, on all mobile networks and across all available technologies.



In 2018, 119 on-site controls of electronic communications networks and service operators have been performed.

National CERT website, where users may report information security related incidents, has been available since September 2018.

During 2018, three operators switched to electronic application for individual RF permits, using e-permit and e-desk application.

Three studies commissioned by RATEL have been delivered in 2018:

- Feasibility study for the introduction of white space devices in UHF band (470-790 MHz), July 2018;
- Analysis of the impact of gradual liberalization in the postal services market in the Republic of Serbia, February 2018;
- Feasibility study for the implementation of National CERT procedures and incident reporting management.

Business Register Agency and RATEL signed a Memorandum of Cooperation, thereby enhancing the efficiency of data exchange. SMATSA and RATEL signed a Memorandum of Cooperation in the area of national regulations, RF usage individual permit issuance, detection of interference in radiocommunication and radio-navigation systems, air traffic safety, risk assessment and incident effect mitigation. Also, the Memorandum of Understanding in the area of information security was signed between the Ministry of Trade, Tourism and Telecommunications and RATEL in order to establish and promote cooperation and coordinated work in exchanging data on incidents which may significantly affect information security of essential ICT systems in the Republic of Serbia and on other incidents that are reported to the Ministry and RATEL.



In the area of international cooperation, Memorandum of Cooperation was signed between the Agency of Electronic Communications of North Macedonia (AEK) and RATEL , thereby extending the cooperation defined under the previously signed MoU to the field of protection from ICT system incidents which falls within the competences of the two national regulators.

During 2018, RATEL's director served as BEREC/IRG Vice-Chair as a non-EU country representative. Participation of in the work of BEREC Mini-Board was particularly important in 2018, since the entire year was marked by preparations for adoption and implementation of the new EU regulatory framework for electronic communications. As the new regulatory framework includes BEREC restructuring in line with the new BEREC Regulation, the activities of the mini-board required significant involvement, regular participation in the conference calls, preparing questionnaires for the needs of EWGs, attending Mini-Board meetings, plenary meetings and representing BEREC in the international conferences.

In 2018 RATEL hosted several important international meetings:

- 11th CERP Working group Policy meeting, held 23-24 May at RATEL's premises;
- Second Forum for cooperation of the regulatory authorities for electronic communication of Bosnia and Herzegovina, Montenegro, Macedonia and Serbia, held on 7 November;
- 15 the Plenary Meeting of the European Regulators Group for Postal Services (ERGP), held on 29 November along with the workshop "The Postal Framework – Views from within and outside the EU" held the previous day for a wider public.

It should be noted that the Committee on Spatial Planning, Transport, Infrastructure and Telecommunications of the National Assembly of the Republic



of Serbia unanimously adopted the 2017 Annual Work Report of the Republic Agency for Electronic Communications and Postal Services, in its 36th session held on 3 December 2018.

The results made so far and the future plans are rather reassuring when it comes to maintaining the positive development trend of the electronic communications and postal services, market regulation and implementation of rules regulating information security, and, also, the internal development of RATEL.

Director

Dr Vladica Tintor

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INTRODUCTION

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.

The Law on Information Security (*Official Gazette of RS*, nos. 6/16 and 94/17) adopted by the National Assembly of the Republic of Serbia on 26 January 2016, RATEL was entrusted with the activities of the National Computer Emergency Response Team (CERT) in charge of coordinating the prevention of and protection from the Serbian ICT system security risks at a national level.

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-Const. Court Dec. 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 administrative functions 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 the 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 monitoring (RF spectrum representing a scarce resource of national importance), as well as harmonization of the national legislation with the EU regulatory framework. Also, RATEL performs the tasks of a National Centre for the Prevention of Security Risks in ICT Systems (National CERT), involving coordination of prevention of and protection from the security risks to ICT systems on a national level.

RATEL's authority in market regulation in the field of electronic communications and postal services involves the following:

- deciding on operators' and users' rights and obligations,
- adopting rulebooks, decisions and other legal acts within its competence,
- establishing available paths for radio relay links and adequate protection zones,
- radio frequency usage planning, RF spectrum management, radio frequency usage licenses issuance, radio frequency usage coordination and monitoring,
- checking operators' fulfilment of obligations regarding interconnection, access and interoperability of networks and services,
- universal service,
- relevant markets analysis, designating operators with significant market power and their obligations, in order to prevent monopolistic behaviour and foster market development through competition,
- managing the numbering plan and adopting draft Allocation Plan and Allotment Plans,



- monitoring quality parameters set for publicly available services,
- adopting general terms and conditions for the provision of postal services, quality standards in the provision of postal services and monitoring their application,
- resolving user complaints,
- setting detailed terms and conditions for license and authorization issuance and revocation and
- keeping records of issued licenses.

By the Decision of the National Assembly of the Republic of Serbia (*Official Gazette of RS*, no. 20/2016) of March 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.

During 2018, the Managing Board held 11 sessions. In the Managing Board sessions, a number of Rulebooks, decisions, reports on relevant market analysis, internal acts, Plan of Activities, Financial Plan and Procurement Plan for 2019 were passed, along with several draft rulebooks to be adopted by line minister.



During 2018, activities within the scope of RATEL's competence were performed in the following organizational units:

- Electronic Communications Sector, comprising Radiocommunications Department, Monitoring Department, Electronic Equipment and Networks and Services Department;
- Legal and General Affairs Sector, comprising Legal Affairs Department, Human Resources, Procurement and General Affairs Department and Strategy and Planning Division;
- Market Analysis and Economic Affairs Sector, comprising Market Analysis and Cost-Accounting Department, Accounting and Finance Department and Fee Management Division);
- Postal Services Sector, comprising Postal Regulation Department, Postal market regulation and Analysis Department and Registry and Record Office Group;
- Information Security and Technologies Department, comprising Information Security Group and Information Technology Group and
- Cabinet.

The financial assets for RATEL's work are provided from the revenues made 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 (license issuance and extension, equipment conformity assessment, technical inspection). RATEL's annual 2018 Financial Report, which had been audited by an independent chartered auditor, was approved by the Managing Board.

Since 2017 RATEL's books are kept and financial reports prepared, compiled, submitted and published in line with the Law on Accounting, Rulebook on contents and form of financial reports for companies, cooperatives and entrepreneurs, Rulebook on layout of chart of accounts and the contents of the account in the layout of chart of accounts for companies, cooperatives and entrepreneurs,





International accounting standards and/or International financial reporting standards, according to the recommendation of the State Audit Institution. RATEL also submits the financial reports to the Business Registers Agency, since the publishing of 2017 financial reports.

In 2018, RATEL's total revenues amounted to 2 071 777 422.28 dinars, with the total expenditures of 840 235 793.51 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 province body responsible for electronic communications.

On 31 December 2018, RATEL had 141 employees: 115 employees (81,56%) with university degree, 3 employees (2,13%) with a college degree and 23 employees (16,31%) with secondary education. Most employees with university degree are graduate electrical engineers, IT engineers and transport engineers. Nine employees hold a PhD degree.

Since February 1, 2016, the new RATEL's headquarters are in 2, Palmotićeve Street, in Belgrade. RATEL also performs its activities from two Monitoring and Measurement Centres located in Dobanovci and Niš. 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 the Information on RATEL's Activities for 2018, which is available on RATEL's website.

All relevant information on RATEL's activities, regulations regarding electronic communications, postal services and information security, registries containing database from records kept by RATEL, forms and instructions for operators



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and users and other information of public interest pertaining to RATEL's business activities are available on the website www.ratel.rs.

In November 2018, RATEL's Managing Board adopted RATEL's Plan of Activities for 2019, in line with its authority and current trends in the development of telecom and postal services and information security, taking into account the needs of the operators and end users. The Plan lays down the following nine strategic priorities for 2019:

- 1. Enhancement of the electronic communications regulatory framework**
- 2. Enhancement of the postal services regulatory framework**
- 3. 5G Roadmap**
- 4. Electronic communications and postal services user protection**
- 5. Improved efficiency of RF spectrum management**
- 6. Enhancement of competition in the electronic communications market**
- 7. Developing the system for coordination and prevention of ICT security risks**
- 8. Enhancement of RATEL's international presence**
- 9. Enhancement of RATEL's work efficiency.**

The overview of the most important activities and results accomplished in 2018 is presented in the following chapters of this report. The overview of the activities presented in the Report is divided according to different areas of work. All RATEL's organizational units participated in the realization of the activities foreseen in the Plan of Activities for 2018..



REGULATORY ACTIVITY

As part of its regulatory competencies, in 2018, RATEL passed the Decision defining relevant markets susceptible to ex-ante regulation (*Official Gazette of RS*, no. 78/18), in force as of 27 October 2018.

Rulebook on general terms and conditions for performing electronic communications activity under general authorization regime (*Official Gazette of RS*, no. 58/18), in force as of 4 August 2018, was passed.

As part of the implementation of the Law on Postal Services, the Rulebook on amendments to the Rulebook on establishing tariff categories for universal postal service (*Official Gazette of RS*, no. 98/17), in force as of 3 March 2018.

Proposal of the Rulebook amending the Rulebook on number portability on public telephone networks at a fixed location and the Proposal of the Rulebook amending the Rulebook on number portability on public mobile communication networks have also been prepared.

Proposal of the Rulebook on the manner of usage of radio stations by radio amateurs has been prepared. In line with the position of the line ministry, the final stage of the adoption procedure for this rulebook will be completed following the adoption of the new law regulating electronic communications.

Draft Rulebook on the Minimum content, level of detail and manner of publishing of reference offers has been prepared and is pending adoption.

Draft Rulebook on the content of form and the manner for submitting data on used numbers and addresses has also been prepared and is pending adoption.

In 2018, RATEL prepared the Proposal of the Radio Frequency Band Allocation Plan, and, following the completed public consultations in the period from 12 November until 13 December 2018, it was forwarded the line ministry in charge of the adoption thereof.

The agreement regulating the fee for RF usage by amateur service for 2018 was closed between RATEL and the Radio Amateur Association.





Based on the analysis made by its experts, RATEL has provided suggestions and comments pertaining to the Law on Fees for Public Goods Usage, upon participating in the roundtable which was part of the public consultation procedure carried out by the Ministry of Finance.

The analysis of the Law on Critical infrastructure has also been completed, in order to coordinate the internal application thereof in line with the conclusion of the Board of Directors.

As part of the implementation of the Law on Information Security, the Memorandum of cooperation was closed between the Ministry of Trade, Tourism and Telecommunications and RATEL in order to establish and promote cooperation and coordinated work in exchanging data on incidents which may significantly affect information security of essential ICT systems in the Republic of Serbia.

The analysis of the amendments made to the Law on Information Security was conducted for the purpose of participation and involvement of the members of the Information Security Affairs Coordination Body from RATEL in the preparatory meeting.

In cooperation with the Public Policy Office, a continuous coordination of activities took place, related to enumerating administrative procedures carried out by RATEL for the purpose of forming a Register of Administrative Procedures.

As part of exercising its legal competences, RATEL also adopted many individual acts to the end of regulating electronic communications market.

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RADIOCOMMUNICATIONS

During 2018 RATEL worked on general acts foreseen by the Law on Electronic Communications and on other bylaws from the domain of radiocommunications and undertook activities pertaining to the radio frequency usage.

In 2018, RATEL prepared the Draft Radio Frequency Band Allocation Plan, and, following the completed 30-day public consultations in December 2018, the Draft was passed by the Managing board and in January 2019 the Proposal was forwarded to the line ministry in charge of the adoption procedure thereof.

The activities in the area of radio frequency spectrum management involved the issuance of individual permits for radio frequency usage, radio frequency coordination and notification and radio frequency spectrum monitoring.

Upon user requests for the issuance and extension of individual permits for the usage of radio frequencies, **1333** 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, **15269** individual permits for radio frequencies usage were issued, namely:

- **14959** individual licenses for the usage of radio frequencies based on users' requests, pursuant to Article 86 of the Law on Electronic Communications;
- **34** individual permits for radio frequency usage for radio stations on board an aircraft;
- **83** individual permits for radio frequency usage for radio stations onboard ships and other vessels;
- **150** individual permits 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;
- **43** individual permits for the usage of radio frequencies for amateur radio stations;



In November 2018, a temporary permit for RF usage for T-DAB broadcasting station (on Avala location) was issued, thereby initiating of the test phase of the implementation of terrestrial digital audio broadcasting in Serbia.

In accordance with provisions of Article 95 of the Law on Electronic Communications, **601** decisions on the withdrawal of rights to use radio frequencies were prepared, whereby **6295** individual permits for radio frequency usage were revoked. **32** conclusions and decisions were prepared in a revised procedure.

In the area of radio frequency spectrum usage for broadcasting purposes, analyses of compatibility with the existing (national and international) allotment plans were performed when solving the requests for radio station parameter modifications in order to achieve better quality of service in the service area, in addition to the analyses of requests for removing harmful interference in the service areas, requests for new frequency assignments in view of the existing plans, requests for FM broadcasting transmitter dislocation (the total of 85 analyses and replies).

During 2018, answers were provided to the following coordination requests involving the coordination of RF spectrum usage with the administrations of the neighbouring and other countries:

- 15 coordination requests for microwave links (371 microwave links), in accordance with the Harmonisation Calculation Method (HCM) Agreement and, also, 2 coordination requests were made,
- 3 coordination requests for earth satellite stations in fixed satellite service,
- 4 coordination requests for earth stations in mobile satellite service with complementary ground component (CGC),
- 48 requests for functional systems and
- 3 coordination requests for radio location service.

Coordination negotiations with the administrations of the neighbouring countries continued in 2018, resulting in the following technical agreements on RF coordination with the neighbouring countries:

- Technical Arrangement between the national frequency management authorities of Austria, Croatia, Hungary, Romania, Serbia, the Slovak Republic and Slovenia on border coordination for terrestrial systems capable of providing electronic communications services in the 1920-1980 MHz and 2110-2170 MHz frequency bands was signed in February 2018.
- Technical Arrangement between the national frequency management authorities of Austria, Croatia, Hungary, Romania, Serbia, the Slovak Republic and Slovenia on border coordination for terrestri-



al systems capable of providing electronic communications services in the 790-862 MHz frequency band was signed in February 2018.

- Technical Arrangement between the national frequency management authorities of Croatia, Hungary, Romania and Serbia on preferential frequency allotment and coordination of GSM 1800 system in frequency bands 1710-1785/1805-1880MHz was signed in November 2018.

Based on the conclusions from the second meeting of the Forum for Cooperation of the regulatory authorities for electronic communication of Bosnia and Herzegovina, Montenegro, Macedonia and Serbia, efforts focused on harmonization and preparation of technical arrangements on border coordination of radio frequencies allocated to electronic communication services continued in 2018. The final version of the Technical agreement on RF coordination in the border areas has been coordinated with the administrations of the neighbouring and other countries. Technical agreements for the following frequency bands have been agreed upon: 800MHz, 900MHz, 1800MHz, 2100MHz and 3400-3800 MHz, and the signing is expected to take place during 2018.

As part of the international radiocommunications activities, cooperation with the ITU Radiocommunication Bureau also involved BR IFIC (International Frequency Information Circular): 19 circular notifications on international radio frequency coordination were examined and technical analysis of compatibility with planned assignments of our administrations has been made.

17 answers to the ITU requests regarding special sections of GE84, GE06 and GE06L were provided, in particular: 11 *GE84 Special Section* with answers to 98 frequency assignments, 5 *GE06D Special Section* with answers to 621 frequency assignments and 1 *GE06L Special Section* with answers to 97 frequency assignments for other preliminary services, and 26 answers to approval regarding the satellite networks published in *Special Section AP30B* and *Special Section AP30-30A*.

In 2018, RATEL issued many of individual permits for radio frequency usage in broadcasting service, based on users' requests and decisions of the Council of the Regulatory Authority for Electronic Media on the extension of permit validity. Permits for radio modulation signal delivery have also been issued. A list of permits and users is given in Appendix 2.

During 2018, four operators (Telekom, Telenor, VIP, and ETV) have applied for individual permits for RF usage, using the e-licence and e-desk application (implementation of electronic licence issuance). One third of the permits in 2018 have been issued electronically. RATEL also launched initiative for electronic application for licence issuance and, consequently, licence holders (major systems such as NIS, EPS and SMATSA) received necessary training. Increased use of e-licence and e-desk applications is, therefore expected to take place in 2019.



Public procurement for ATDI software upgrade has been launched, through extending the existing and procuring new ICS Telecom and ICS Manager licences,), procurement of new ICS Manager –IRF Allocation Editor tools (forming RF Allocation Plan Database) and public procurement of optimized propagation model for mobile radio service (for the territory of the Republic of Serbia). The final delivery is expected to take place by the end of march 2019.

The procurement of the demographic data roster for the territory of the Republic of Serbia initiated in 2017, ahs been completed in 2018.

Pilot project for implementation *ofTV White Space* (TVWS) using part of 470-790 MHz band, primarily allocated to terrestrial digital TV signal broadcasting in Serbia began in 2018, to the end of improving efficiency of RF spectrum usage.

Upon request made by the town and municipal administrations, and for the purpose of preparing urbanistic and special plans, 45 memos have been submitted defining the requirements for the protection of the existing electronic communication networks and elements, the protection area and requirements for radio paths for the relevant geo-graphic zones.

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ELECTRONIC COMMUNICATIONS NETWORKS AND SERVICES

During 2018, RATEL continued with the activities aimed at creating free and open markets, while guaranteeing equal treatment for all participants. With the adopted regulations and procedures for the introduction of new technologies and services completed in the previous period, in order to continue fostering competition in the Serbian market of electronic communications, RATEL undertook a set of regulatory activities in this area.

A comparative overview of the number of users and penetration level of the public fixed communications network, public mobile communications network, Internet, media content distribution and bundled services for 2015, 2016, 2017 and 2018 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

	2015.		2016.		2017		IV квартал 2018*	
	Number (thousands)	Penetration (%)						
Fixed - subscribers	2.60	36,80	2.55	36,08	2.48	35,25	2.42	-
Mobile - users	9.16	129,38	9.09	128,52	8.62	122,46	8.43	-
Fixed broadband - subscribers	1.32	18,66	1.45	20,50	1.48	21,03	1.56	-
Cable - subscribers	1.60	22,55	1.66	23,51	1.70	24,13	1.84	-
Bundled services - subscribers	922	13,03	1.029	14,54	1.168	16,59	1.27	-

* Assessed based on the data provided by the major operators in quarterly questionnaires or estimated based on the data provided by all operators for the previous year.

** Penetration has not been calculated for quarterly data.



RATEL's legal obligation to keep relevant registers, i.e. records of operators is implemented 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 website. A detailed overview is provided in Appendix 3.

In accordance with the Law, at operator' request the total of **45** decisions on allocation, extension or withdrawal of numbering resources were issued.

Table 2. Number of issued decisions for the usage of numbering

Number category	Number of issued decisions		
	Allocation	Extension	Withdrawal
Geographic	18	-	1
Non-geographic	14	-	6
Short codes	2	-	-
Other codes	-	-	4

In addition, **2** decisions on allocating prefixes for access to the central database of ported numbers and **34** notifications on numbering assignment fee were distributed.

The operators' propositions regarding improvements of the procedure for fixed and mobile network number portability were examined and based on those, as well as on the previous related work experience, the Rulebook on Amendments to the Rulebook on number portability for services provided on public mobile networks and Rulebook on Amendments to the Rulebook on number portability on public telephone networks at a fixed location were elaborated. The Rulebooks underwent public discussion, following which, the propositions and remarks were analyzed and documents and positions were prepared, along with corresponding explanations. The final propositions for both Rulebooks were submitted to the Management Board, which decided to hold the changes until the adoption of the new law.

RATEL's representatives cooperated with Office for the Coordination of Affairs in the Process of Negotiation with the Provisional Institutions of Self-Government in Priština, concerning the numbering resources issues. Public voice operators have been informed about the Agency position regarding calls made by dialling prefix 04x.

Work began on preparing Amendments to the Rulebook on number portability on public telephone networks at a fixed location and the Rulebook on number portability for services provided on public mobile networks.

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 2018, there were around 107.362 cases of ported numbers on mobile networks, which makes the total of 771.244 ported numbers on mobile networks since this service began to be available.

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. During 2018, there were around 58.524 cases of ported numbers on fixed networks, which makes the total of 296.568 ported numbers on fixed networks since this service began to be available.

Pursuant to the Rulebook on radio equipment and telecommunications terminal equipment (*Official Gazette of RS*, no. 11/12, applied as of 1.6.2012), in the capacity of a body for the conformity assessment of the radio and telecommunications terminal equipment (R&TT), during 2017 RATEL issued:

- 563 certificates of conformity,
- 215 excerpts from the register of issued certificates.

In addition, 1 request was rejected, 1 request was forwarded to the line ministry for further procedure, whereas 129 applicants withdrew their requests.

Aiming to better implement an efficient drone traffic monitoring, a meeting was held with representatives of the Civil Aviation Directorate, Customs Administration and Ministry of trade, Tourism and Telecommunications. The meeting stressed the importance to coordinate activities between RATEL and these bodies and organizations as to prevent safety risks during drone usage.

During 2018, on-site audits were carried out to check activities and service provision levels of electronic communications operators. 119 audits in total were performed, along with duly signed audit reports both by RATEL'S representatives and operators, with operators having committed to timely amend any identified malfunctions, or otherwise apply for deletion from the registry.

Operators of public electronic communication networks are entitled to require common use of other operator's or third party's electronic communications infrastructure, when necessary, for the purpose of enabling a more competitive, affordable and efficient provision of electronic communications services. 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) stipulates record-keeping of electronic communications network capacities which can be subject to shared use, in the form of an aggregated Infrastructure Database (hereinafter: Leased Infrastructure Database).



On December 31, 2018 the database contained infrastructure information on 1474 antenna towers of the operators Telekom Srbija, Telenor and Vip Mobile, PE ETV, Laser International and W-line, as well as data on 1486 optical cables and more than 200,000 elements of cable ducts of Telekom Srbija. Network operators are obligated to update changes in the network infrastructure, at least once every 3 months and, in case of new infrastructure that may be subject to shared use, the data have to be provided within 15 days after the beginning of exploitation. The Leased Infrastructure Database is available to all interested operators of electronic communications networks in the form of Web – GIS application, on RATEL's website. During 2018, there have been over 6900 website visits.

As for the application of CLL technology, whose primary objective is the provision of electronic communications services at fixed location in rural areas without adequate telecommunications infrastructure, RATEL reached a new decision in 2018, with the aim to better distribute universal telephony service in the whole territory of the Republic of Serbia, allowing the operators of public mobile communication networks, holders of licence for public mobile telecommunications network and public mobile telecommunications network services in accordance with GSM/GSM 1800 and UMTS/IMT-2000 standards, and holders of individual licences issued upon carried out public bidding procedure, to use all allocated radio frequency bands for the provision of electronic communications services at fixed location using CLL (Cellular Local Loop) technology in settlements of up to 3000 inhabitants (as published by the Statistical Office of RS in the latest population and residence census). According to the previous RATEL's decision, the use of CLL technology was allowed in populated areas up to 1500 inhabitants, and since in the period following its adoption the number of users of electronic communications services at fixed location had not increased significantly, the change in the CLL technology use terms and conditions was the only logical solution.

6

MONITORING OF RADIO FREQUENCY SPECTRUM USAGE AND QUALITY OF SERVICE CONTROL

RATEL performs continuous monitoring of radio frequency spectrum usage, control of the quality parameters of the publicly available electronic communications services and networks, independent technical inspections of radio stations and monitoring of technical inspections performed by other authorized entities. RATEL has also implemented a system for continuous measurement of the EM field level generated by electronic communication equipment in urban areas.

In 2018, radio frequency spectrum usage monitoring was performed from monitoring and measurement centres (MMCs), mobile and portable monitoring and measurement stations and remotely controlled monitoring and measurement sensor stations set up in several towns. In the second half of 2018, the first remotely controlled monitoring and measurement stations, covering significantly larger areas, have become operational and the construction of the system of this type of stations has continued, so as to enable a considerably more efficient RF spectrum usage monitoring on the territory of the Republic of Serbia.

Any broadcast detected by manual measurement is registered by entering monitoring and measurement data in the relevant data base. The routine automatic measurement performed with the equipment available in the monitoring and measurement stations generates significantly more measurement data which is analysed as necessary. The number of control and measurement logs in the data base in 2018 is given in Table 5 below.

Table 5 Number of monitoring and measurement logs in 2018

Number of logs made from MMCs	Number of logs made outside of MMCs
2692	3752





Due to efficient detection of illegal broadcasting stations, followed by appropriate measures, the illegal usage of broadcasting spectrum in the band allocated to radio signal broadcasting has been reduced to single cases. Few unlicensed broadcasting stations that had been detected at the end of 2018, were reported to the inspection of the line ministry, are shown in Table 6.

Table 6. Overview of unlicensed broadcasting radio-stations whose activities were detected at the end of 2018

Ord. no.	Identification	Frequency (MHz)	Transmitter Location
1.	Radio Zavičaj plus	104,8	Godačica
2.	Radio Enigma	104,3	Bitovik (Prijepolje)
Broadcasting stations with expired license that continued with broadcasting:			
3.	Radio Sokobanja	90.5	Sokobanja

The total number of interferences reported to RATEL in 2019 by RF spectrum users was somewhat lower compared to 2017. The same as earlier, most interferences have been reported by mobile operators. Owing to the efforts of RATEL's staff and technical resources of the Monitoring Division, all sources of reported interferences have been located and the interferences neutralized, whereas a number of interferences have been found to had been caused by malfunctional equipment or inadequate installation of equipment in the network of the user who had reported the interference.

The Figures below present the total number of interferences reported to RATEL in the past three years and the share of each broadcasting service in the interferences in 2018.

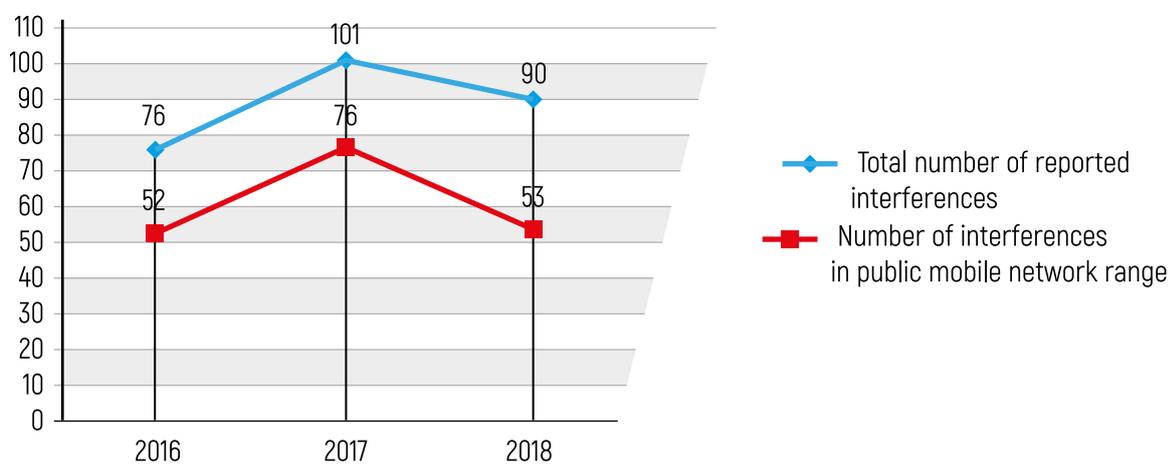


Figure - Number of interferences in the past three years

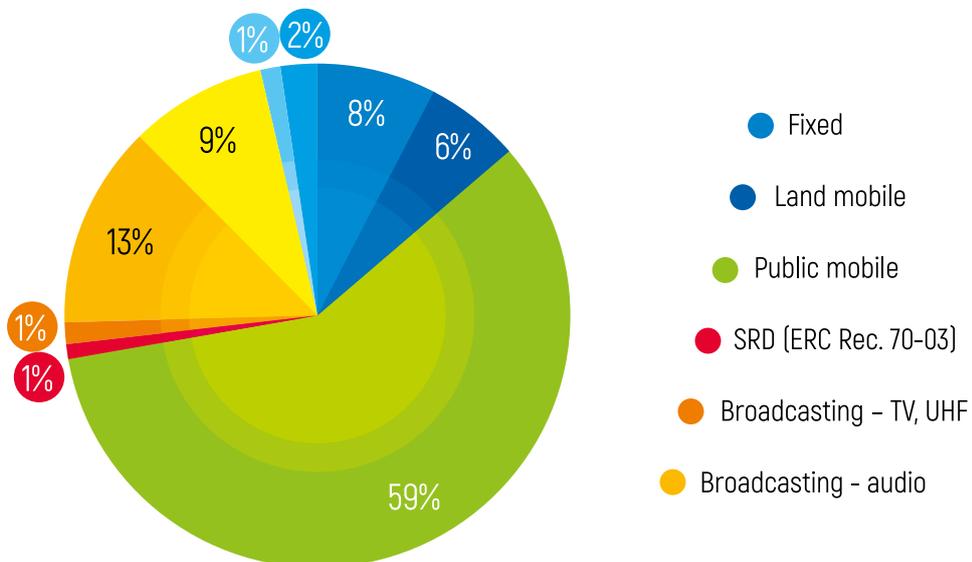


Figure - Share of each broadcasting service in the total interferences in 2018



The same as before, most interferences have been reported by a mobile network operator. The Figure below shows the number of interferences reported by each mobile operator in the past three years.

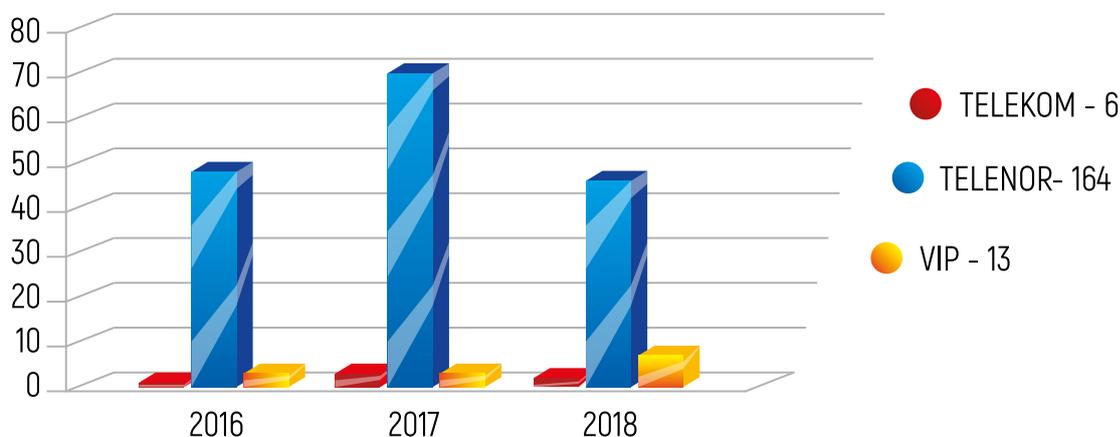


Figure - Number of interferences reported by each mobile operator in the past three years

109 technical inspections of radio stations in the digital TV signal broadcast network have been carried out, including both broadcasting transmitters and microwave devices. RATEL performed technical inspections with the assistance of the representative of the Broadcast Network Public Enterprise (ETV).

In 2018, 8840 technical inspections of different types of radio stations were reported to have been carried out. By the end of 2018, RATEL verified and registered the total of 6648 reports on technical inspections received. Reports on performed radio station technical inspections are registered via web portal, which facilitates database update and record keeping. Three radio frequency spectrum users with the largest numbers of performed technical inspections in 2018 are listed in Table 7 below.



Table 7. Radio frequency spectrum users with the largest numbers of reported technical inspections in 2018

RF spectrum user	Number of reported technical inspections in 2018
Telenor	2785
VIP Mobile	2191
Telecommunications company "Telekom Srbija", Joint Stock Co.	1102

Control of the quality parameters for publicly available electronic communication networks and services is performed based on the 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). In 2018, 221 requests for quality parameters for publicly available electronic communication networks and services have been prepared. The operators submitted reports on quality parameters for publicly available electronic communication networks and services for the previous year timely, by March 15, 2018.

In 2018, the Monitoring Division solved user complaints on the quality of service of mobile and fixed networks and responded to user inquiries regarding the assessment of the impact of mobile base stations on the environment, which involved both field and administrative work.

Broadband Access QoS Monitoring Application (RATEL NetTest)

Since May 2016, RATEL made available to the users of Internet access service on public fixed and public mobile communications networks to measure the quality of service of broadband access, via RATEL NetTest application.



Internet connections on public fixed communications networks are tested by using the application available on RATEL's website at <https://nettest.ratel.rs>.

Internet connections on public mobile communications networks are tested by using the Android or iOS free application available at Google Play Store and Apple App Store.

During 2018, significant upgrades of the application functionality have been made. The users of the application can access all measurement results – measurement results made in the past two years are available on NetTest map of Serbia and can be refined by operator, type of service and period. A new functionality has also been developed, the so-called “zero measurements”, which enables marking the locations where the Internet connection is unavailable due to poor mobile signal coverage. Loop mode is also available to users, enabling a continuous testing of the Internet connection quality in the set period and frequency of measurement.

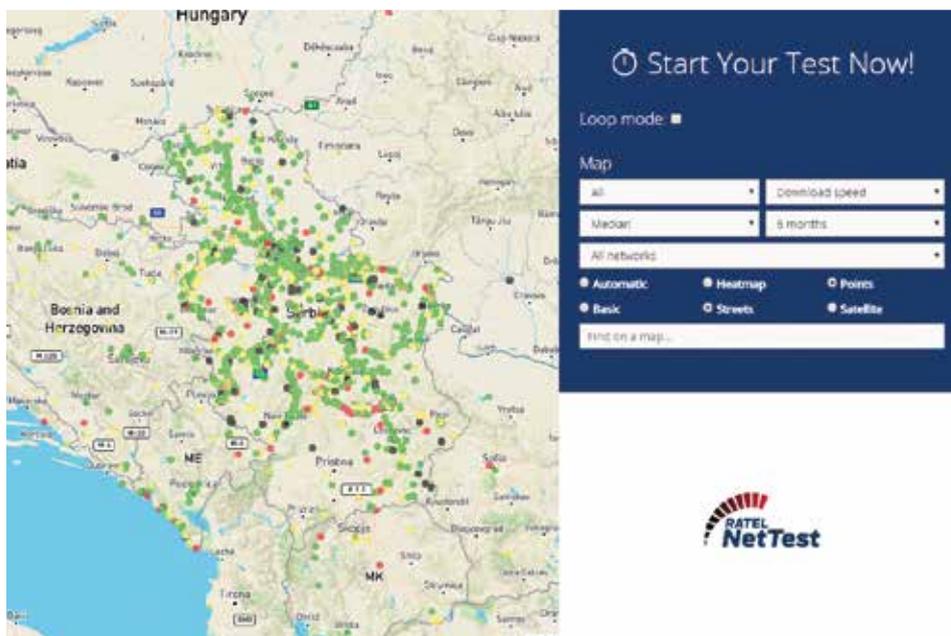


Figure 1. RATEL NetTest map of the Republic of Serbia with measurement results



All measurement results obtained through RATEL NetTest application are publicly available both on NetTest map of the Republic of Serbia and in machine/readable formats (CSV, XML and JSON) at <https://www.nettest.ratel.rs>. In late 2018, the data have been imported to the National Open Data Portal, operated by the IT and e-government Office of the Republic of Serbia.

The Monitoring Division has carried out measurement of the quality parameters and net neutrality parameters for data transmission service on mobile and fixed networks, along highways, in urban and rural areas, by using RATEL NetTest application.

Benchmarking and QoS parameter analysis of mobile network services available to end users

The strategy of RATEL is to encourage further investments and development of telecommunications market by fostering competition, cost-effectiveness and efficiency in the mobile communications, as well as to provide subscribers with fair and unbiased information about the quality of service of mobile networks in the Republic of Serbia. Therefore, in 2017 and 2018 RATEL carried out the first extensive benchmarking tests and the analysis of QoS parameters for services provided to end-user by the three mobile network operators: Telekom Srbija, Telenor and Vip mobile.

The purpose of mobile network benchmarking is to compare in an objective fashion the quality of mobile network services reflecting user experience, by measuring relevant QoS parameters. The benchmarking measurements were conducted in September and October 2018. Measurements were performed in a drive test mode, by using two vehicles moving along predefined routes, in walk test mode, at four hot-spot locations in Belgrade and in railway mode along two national railway routes. The measurements covered 47 towns and 10,000 km of Serbian roads. During the campaign, over 6,000 voice calls and 100,000 data sessions were

performed for each mobile network operator across all available technologies (2G, 3G, 4G). The measurement included:

- Measurement of QoS parameters for voice and data transmission,
- Measurement of radio parameters for 2G/3G/4G technologies (2G, 3G, 4G).

Once the measurement and analysis of mobile network benchmarking results had been completed, interactive portal for mobile network benchmarking has been upgraded (illustrated below). The portal has been upgraded using the results from the 2018 measurements and by including an additional functionality pertaining to result trend analysis. The portal is available to end users in Serbian and English at: <http://benchmark.ratel.rs>.

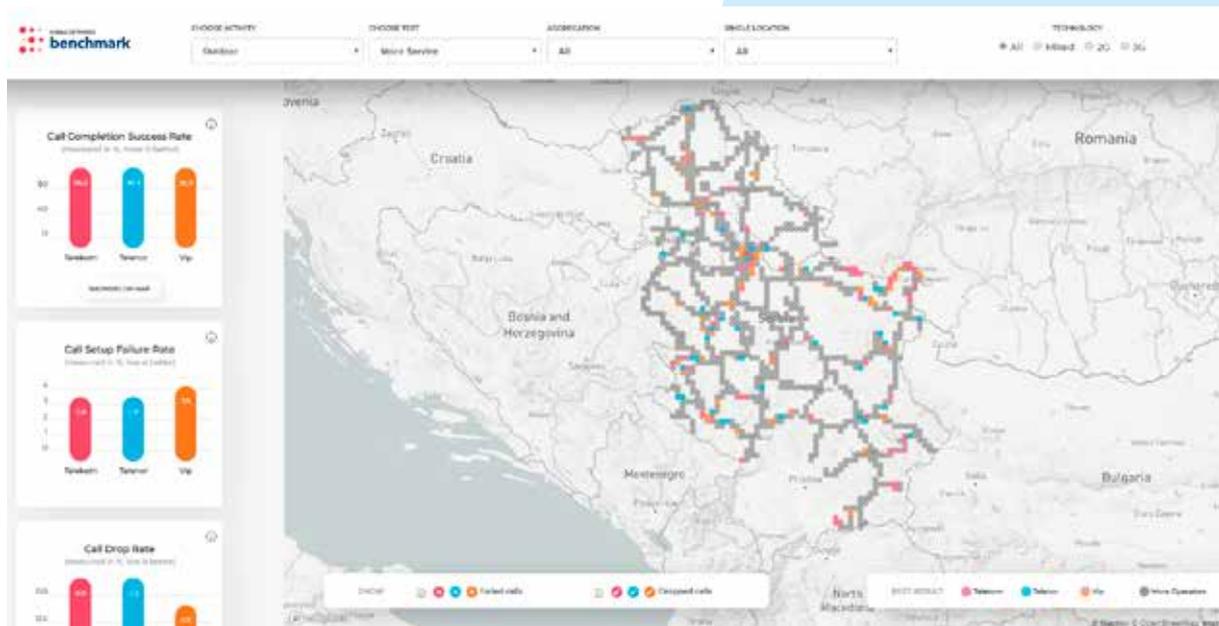


Figure 2. Benchmarking interactive portal

Roll out of the continuous EM field level measurement system on the territory of the Republic of Serbia (EMF RATEL)

For the purpose of the further roll out of the continuous electromagnetic field level measurement on the territory of the Republic of Serbia (EMF RATEL), RATEL procured 5 broadband sensors during 2018. The same year, more than 200 facilities in the "vulnerable areas" (preschool and school facilities, health institutions) in the cities of the Republic of Serbia were visited for the purpose of EM field measurement and assessment of the technical potential for sensor setup.

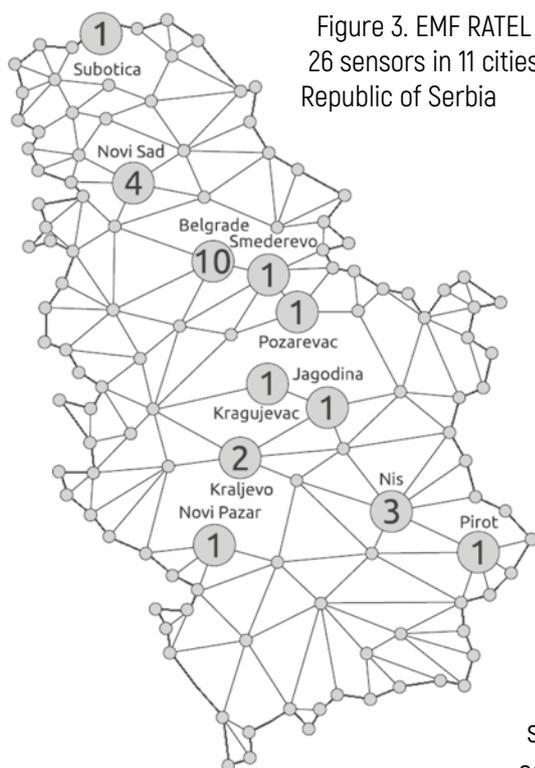


Figure 3. EMF RATEL in 2018: 26 sensors in 11 cities of the Republic of Serbia

During 2018, EMF RATEL was the object of cooperation with city administrations of the Republic of Serbia, with 44 municipalities being contacted and invited to cooperate in the process of selecting locations of interest where measurement sensors would be set up. Officials in 17 municipalities of the Republic of Serbia were of great assistance and support to the RATEL's team of experts during the acquisition of locations. Twelve business and technical agreements were concluded in 2018 with facilities in 9 municipalities of the Republic of Serbia. By the end of 2018, EMF RATEL system was composed of 26 sensors set up in 11 cities (Figure 3). Further search for optimal locations for sensor setup on relevant facilities will continue in the following years.

Improvements were made to the collection system into a database and display of the the sensor network performance results. The measurement results are presented on the portal (Figure 4), available to users in Serbian and English language at the following [link: http://emf.ratel.rs](http://emf.ratel.rs).

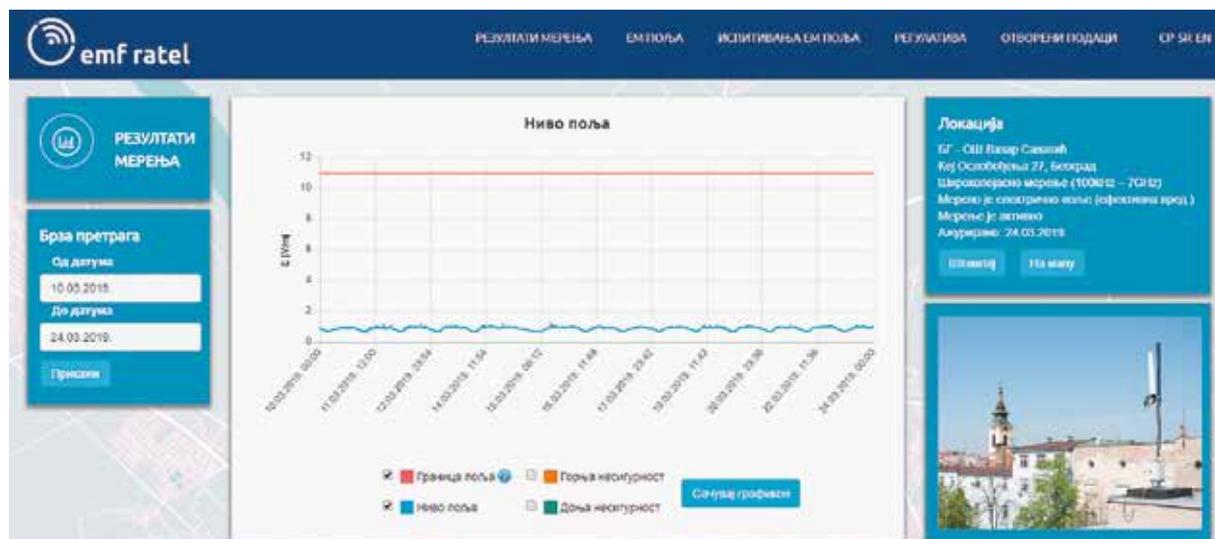


Figure 4. EM field levels for a sensor located at elementary school "Lazar Savatic" in Belgrade



EMF RATEL is the first RATEL's open data project. During 2018, all continuous EM field measurement results were also produced in machine readable formats (CSV, XML and JSON) and are publicly available on the national Open Data portal managed by the Office for information technologies and e-Government of the Republic of Serbia.

As part of the national program "Open data – open possibilities" EMF RATEL project was awarded in 2018 for significant achievements in this area.

The construction of radio frequency spectrum monitoring system on the territory of the Republic of Serbia

The construction project for fixed remotely controlled network of monitoring and measurement stations, representing the key component of RATEL's RF spectrum monitoring system, was initiated in 2017. So far, the construction works in twelve locations (Stanišić, Vincaid, Vizić, Povlen, Veliki Šenj, Rakobarski vis, Dubočane, Ragodeš, Stanišinci, Jabuka, Vidojevica and Barelić) have been completed. Three stations (Stanišić, Vincaid and Vidojevica) were put into operation during 2018, with Vidojevica operating on temporary measurement equipment configuration. In Vizić and Barelić, measurement equipment has been installed and these two stations are currently in the commissioning phase. In Vidojevica, as well as at six out of the seven remaining locations, the already acquired equipment is about to be mounted in the few following months.

RATEL's objective is to gradually build a monitoring system that will be able not only to timely detect disturbances in the aether, but also to identify the source thereof. To this effect, the network needs to be organized in such a manner that a radio signal from certain source can be measured from two or more reference points, using necessary signal/noise ratio. Only in this way can the source



of broadcasting be identified by means of AOA (Angle of arrival), TDOA (Time difference of arrival) or hybrid method. For that reason, it is necessary to establish a remotely controlled network of monitoring and measurement stations of a satisfactory density on the whole territory of the Republic of Serbia.

Based on the results of software simulations and present experience in the application of remotely controlled network of monitoring and measurement stations, an estimated number of approximately 30 stations of this type is expected to meet the necessary requirements for continuous operation monitoring of transmitters of medium and high power, which has been the original design of the system.

By reaching an acceptable share of the territory covered by this system, conditions will be met for further deployment of remotely controlled network of monitoring and measurement station subsystems in urban areas. In this manner, gradual monitoring of low-intensity broadcasting, typical for urban areas mostly, will be established, representing a brand-new layer or natural system upgrade. Each settlement with over 20,000 inhabitants would have a remotely controlled sensor station, while larger cities would have a network of at least three such stations, in order to geolocate the source of broadcasting. By building an integrated hybrid system comprised of fixed stations in rural areas, fixed stations in urban zones and mobile stations alike, an all-encompassing monitoring system enabling full functional coverage of the entire territory of the Republic of Serbia will be achieved.

7



PREGLED TRŽIŠTA
TELEKOMUNIKACIJA I POŠTANSKIH USLUGA
U REPUBLICI SRBIJI U 2017. GODINI

TELEKOMUNIKACIJA I POŠTANSKE USLUGE U REPUBLICI SRBIJI U 2017. GODINI

MARKET ANALYSIS AND PRICE CONTROL

During 2018, in accordance with the Commission Recommendation on Relevant Markets (2014/710/EU) initiated in 2017 including public consultations for the following markets, a market analysis was completed:

1. retail access to the public telephone network at a fixed location;
2. wholesale call origination on the public telephone network at a fixed location;
3. wholesale call termination on the public telephone network at a fixed location;
4. wholesale local access to network elements provided at a fixed location (corresponds to wholesale access to network elements including shared and full unbundled access to local loop, according to the Commission Recommendation on Relevant Markets (2007/879/EC));
5. wholesale call termination on the mobile network;
6. wholesale central access provided at a fixed location for mass-market products (corresponds to wholesale broadband access market, according to the Commission Recommendation on Relevant Markets (2007/879/EC)) and
7. wholesale high-quality access provided at a fixed location (corresponds to wholesale leased lines market, according to the Commission Recommendation on Relevant Markets (2007/879/EC))

Decision on designating relevant markets susceptible to ex ante regulation (*Official Gazette of RS*, no. 78/18), in accordance with the Commission Recommendation on Relevant Markets (2014/710/EU), entered into force on October 27, 2018. This Decision marked deregulation of retail access to the public telephone network at a fixed location, wholesale call origination on the public telephone network at a fixed location and wholesale high-quality access provided at a fixed location (former wholesale market of leased lines), consequently abolishing decisions on designating operators with SMP on the aforementioned markets.



Based on the carried out market analyses, decisions on designating operators with SMP on wholesale call termination market on the public telephone network at a fixed location, wholesale local access to network elements provided at a fixed location and wholesale call termination on the mobile network were adopted.

At the Agency's request, reference offer for wholesale broadband access of Telekom Srbija was changed, thus enabling the use of wholesale broadband access based on VDSL, VDSL2 and VDSL vectoring technologies, including establishment of separate logical channels for IPTV and VoIP. The new Standard offer contains single price per Mbit/s and cancels implied link aggregation for traffic delivery. The new Standard offer entered into force on May 1, 2018.

Based on the ruling of the Administrative Court, a new decision on designating operators with SMP on wholesale call termination market on the public telephone network was passed.

In late 2017, RATEL completed the LRIC (long run incremental cost) development project model for determining the prices for regulated wholesale services offered by SMP operators on relevant wholesale markets. 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 by the SMP operator in the electronic communications sector (*Official Gazette of RS*, no. 52/11) and represents next 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, ensuring a higher accuracy in the pricing of regulated services. Also, it will enhance the harmonization with the current EU legislation and practice concerning the price control in relevant electronic communications markets, which will contribute to the establishment of effective and sustainable market competition and benefits for end users. In order to establish the manner of LRIC model application, RATEL will prepare a new Rulebook on cost-accounting, according to LRIC principle.

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 the implementation of the price control obligation and cost-accounting principle, prescribed in a separate decision as obligatory measure for SMP operators. Telekom Srbija and SBB, as SMP operators on which the obligation of price control and cost-accounting principle was imposed in the decision, deliver regulatory reports in accordance with the Rulebook on application of the cost-accounting principle, separate accounts and reporting by SMP operator in the electronic communications sector (*Official Gazette of RS*, no. 52/11). Pursuant to Article 68, paragraph 7 of the Law, the Agency tasked an independent chartered auditor to verify the compliance of 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 are available at RATEL's website



(<https://www.ratel.rs/cyr/page/cyr-izvestaji-revizora>). RATEL examined the pricing of regulated services offered by SMP operators and consistent implementation of the relevant Rulebook.

In 2018, RATEL continued to monitor the application of the Decision on gradual reduction in roaming fees, adopted pursuant to the Agreement on the Reduction in Roaming Fees on Public Mobile Communication Networks, signed between Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia. On July 1, 2017, began the application of the third and the last phase of reducing the roaming service prices based on the decision. RATEL consequently applied to collect quarterly data and analyse the effects of the decrease of roaming service prices in the countries signatories to the Agreement. The work of the coordinating body, consisting of representatives of the regulators from the signatory countries continued and an initiative to the Ministry of Trade, Tourism and Telecommunications was launched for signing of a new agreement on regional roaming with Bosnia and Herzegovina, Montenegro and North Macedonia, aiming to a further reduction of roaming prices and harmonization with new regulations on the EU level. A few meetings with RCC and EC representatives were held to this end in Brussels, where modalities of drafting the new agreement on roaming price reduction on the territory of the Western Balkans were discussed.

The second meeting of the Cooperation Forum of Regulators from Serbia, Bosnia and Herzegovina, Montenegro and North Macedonia took place in Belgrade, where discussions were held on the dynamics of reduction of international termination rates in the region and the new roaming agreement. In addition, two expert meetings were organized in Skopje and Belgrade, regarding the manner and dynamics of reduction of international termination in the region.



Република Србија
РАТЕЛ
Регулаторна агенција за
електронске комуникације
и поштанске услуге

РАТЕЛ

ИНТЕРНЕТ ШАЛТЕР

РЕГИСТАР



Овај симбол обележава услуге Интернет шалтера за које је препоручена регистрација и приступ паметном картицом



ПРИСТУП

Како приступити Интернет шалтеру паметном картицом?

Добродошли на интернет шалтер Регулаторне агенције за електронске комуникације и поштанске услуге

Интернет шалтер Регулаторне агенције за електронске комуникације и поштанске услуге је место на коме Агенција пружа услуге грађанима и корисницима путем интернета, елиминирајући потребу за доласком у Агенцију. Одаберите одговарајућу услугу са списка.

Услуге за грађане



Приговор на рад оператора у области електронских комуникација

Избором ове услуге, бићете у могућности да попуните формулар са детаљима вашег приговора на рад оператора у области електронских комуникација.

Услуге за операторе и емитере



Упитници

Слање упитника РАТЕЛ-у.



Технички преглед радио-станице

Избором ове услуге моћи ћете да закажете технички преглед радио-станице, пошаљете електронски извештај са техничког прегледа или промените датум заказаном техничком прегледу.



Положајне дозволе за коришћење радио-фреквенција



РЕПУБЛИКА СРБИЈА
РАТЕЛ
РЕГУЛАТОРНА АГЕНЦИЈА ЗА
ЕЛЕКТРОНСКЕ КОМУНИКАЦИЈЕ
И ПОШТАНСКЕ УСЛУГЕ

О АГЕНЦИЈИ | НОВОСТИ | РЕГУЛАТИВА | РИ СПЕКТАР | МРЕЖЕ И УСЛУГЕ | ТРЖИШТЕ | ПОШТАНСКЕ УСЛУГЕ | ИНФОРМАЦИОНА БЕЗБЕДНОСТ



Ћирилица Latinica English

ЗА КОРИСНИКЕ

Приговори

Информације/Саопштења

Преглед цена

Пренос броја

Савети корисницима
поштанских услуга

Алати за кориснике

Оператори електронских
комуникација

Универзални сервис

Пријава штетних сметњи

USER PROTECTION

Like in previous years, RATEL continued to provide support to subscribers and users through daily communication by e-mail and telephone, by resolving complaints concerning the work of electronic communication operators and analysing the number of user complaints according to the type of services.

Subscriber or user, whose complaint was rejected or left unanswered by the operator after 15 days, can turn to RATEL for mediation in an out-of-court dispute resolution. During the mediation in an out-of-court dispute resolution, RATEL has no legal authority to conduct administrative procedure during the proceedings, but can only serve as a mediator in the attempt of a peaceful out-of-court settlement.

The number of new complaint related cases in 2018 was 885, 502 of which were resolved with a positive outcome for the subscriber/user.

The majority of complaints concerned the bills for mobile telephony services and the quality of service, especially the Internet. As for the billing complaints, in addition to those concerning standard service charges, many complaints concerned bills for questionable usage of value added services.

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

Following the order of the Ministry of Trade, Tourism and Telecommunications pertaining to early termination of an agreement, operators TELENOR d.o.o. Beograd and TELEKOM SRBIJA a.d. Beograd submitted changed and amended General Terms and Conditions of service provision in public mobile communications network. In addition to that, ORION TELEKOM d.o.o. Beograd, along with operators ORION TELEKOM TIM d.o.o. Beograd and ORION TELEKOM WIFI d.o.o. Beograd also provided changes and amendments to their General Terms and Condition.





POSTAL SERVICES

In postal regulation in 2018, RATEL adopted Rulebook on establishment of tariff categories for UPS, *Official Gazette* no. 14/2018 of Feb. 23, 2018, where tariff categories up to 50g for non-standardized letter, as well as small parcel, in domestic and international postal traffic were introduced.

The analysis of UPS provision was performed based on the data provided by the PPO in its Annual Report on the quality of UPS provision. The analysis offers a comparative overview of the 2018/2017 data, including the number of complaints filed by users of the PPO and other postal providers' services. Based on key indicators from the ERGP (European Regulators group for postal services) Report, a comparative overview of postal markets in the EU was made possible.

For the purpose of commencing the independent measurement of transmission times for letter-post items, i.e. the application of SRPS EN 13850 standard, cooperation with the PPO was intensified, which resulted in a test measurement carried out in December 2018.

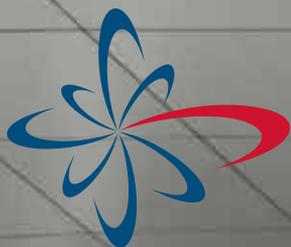
In addition, an analysis of consumer satisfaction levels was performed, based on the QoS report delivered by the PPO.

In 2018, RATEL issued 2 authorizations, whereas 3 authorizations for the provision of postal commercial services were revoked.

In terms of monitoring postal operators' business activity and taking measures prescribed by the Law, the following actions were taken:

- quarterly verification of postal operators' status at the Business Registers Agency,
- cooperation with the line Ministry: in 2018, RATEL made request for 12 extraordinary inspections,
- monitoring of postal operators' activities as a result of users' complaints, with lack of compensation being the most frequent reason for addressing to inspection services,
- regular cooperation with postal operators.





REPUBLIC OF SERBIA
RATEL
REGULATORY AGENCY FOR
ELECTRONIC COMMUNICATIONS
AND POSTAL SERVICES







A Sector representative, as a member of CEN – Technical Committee 331 Postal Services, participated in the 44th CEN Plenary meeting in Zagreb, on June 7 and 8, 2018.

The employees of the Sector, as members of the Commission for standards and related documents CS A331- postal traffic, initiated in 2018:

- elaboration of guidelines/ standards redefining and systematizing terms and expressions used in postal traffic.
- elaboration of standard EN 14534 Quality of service - Measurement of the transit time of end-to-end services for bulk mail for publishing in Serbian language.

For the purpose of an efficient analysis of postal markets, during 2018, quarterly reports were collected, analyzed and integrated, and subsequently published on RATEL's website. Data regarding number and type of complaint procedures and indemnifications by postal operators were gathered via relevant questionnaires.

In 2018, for the first time, a comparative and comprehensive overview of EU postal markets was given based on key indicators from an ERGP report: ERGP (17) 36 B – Flash of the ERGP Report on core indicators for monitoring the European postal market.

The study „Analysis of the impact of gradual liberalization on the postal market in the Republic of Serbia“ was used as a source for the Annual Report, which helped better understand the situation on the postal market of the Republic of Serbia vs. comparable markets in the EU member countries.

In 2018, RATEL took an active part in the activity of ERGP working groups, by writing, by means of questionnaires and by submitting the required documents and material. The Postal Services Sector has participated in the activities of the following ERGP WGs:

- ERGP WG on future of postal regulation and implementation and evolution of the universal service obligation;



- ERGP WG on e-commerce cross-border parcel delivery services;
- ERGP WG on regulatory accounting and price regulation;
- ERGP WG on end-users satisfaction and market monitoring;
- ERGP WG on end-to-end competition and access regulation;
- Grow Postal Statistics.

The most significant RATEL's postal regulation related activity in 2018 was hosting of the 15th ERGP Plenary meeting and ERGP open workshop in Belgrade, in November 2018. This was the first time for a non-EU country with an observer status to organize a plenary session.

RATEL was a co-organizer of the XXXVI Symposium on the new technologies in postal and telecommunications traffic, PostTel 2018, held on December 4 and 5, 2018, at the Faculty of Transport and Traffic Engineering in Belgrade. Representatives of the Postal Services Sector published and presented the paper titled "Key indicators of the EU postal market and their possible implementation in the Serbian postal market analysis".



10

Национални ЦЕРТ Републике Србије
СРБ-ЦЕРТ
Детаљније

ОБАВЕШТЕЊА

Корисници оперативног система Windows 7 ће имати подршку до 14. јануара 2020. године

Компанија Microsoft ће наставити са креирањем нових верзија и закрпа (eng. Patch) за отклањање рањивости оперативног система Windows 7 све до 14. јануара 2020. године, након чега би корисници овог опе...

16. Јул 2019

Фејсбук саветује своје кориснике да преузму последњу верзију WhatsApp апликације

Компанија Фејсбук је открила рањивост своје апликације WhatsApp. Откривена рањивост омогућава нападачима да инсталирају малициозни софтвер (spyware) у мобилни уређај корисника, путем функције за позив...

15. Мај 2019

Међународни дан лозинки

Поводом Међународног дана лозинки Национални ЦЕРТ Републике Србије подсећа грађане о важности избора лозинки које представљају најосновнији облик заштите у дигиталном свету. Према истраживању Национа...

3. Мај 2019

ЈОШ ОБАВЕШТЕЊА

ПРЕПОРУКЕ

Упозорење

Cisco је објавио нова безбедносна ажурирања

18. Јул 2019

Критично

Ogacle је објавио критична ажурирања за јул 2019

17. Јул 2019

Упозорење

Google је објавио ново ажурирање за Chrome

16. Јул 2019

Упозорење

Cisco је објавио нова безбедносна ажурирања

11. Јул 2019

ЈОШ ПРЕПОРУКА

АСОЦИЈАЦИЈЕ



АКТУЕЛНО

- Препоруке
- Регистар Посебних ЦЕРТ-ова
- Вести
- Корисни линкови

ДОКУМЕНТА

- Регулатива
- Публикације
- Често постављана питања
- Архива

КОНТАКТ

- Преузимање ПГП кључева
- Услови коришћења и заштита приватности
- Контакт телефон



Регулаторна агенција за електронске комуникације и поштанске услуге

Детаљније



INFORMATION SECURITY

The Law on Information Security designated RATEL as the National Centre for the Prevention of Security Risks in ICT Systems (National CERT) of the Republic of Serbia, to coordinate the prevention and protection from security risks in ICT systems at the national level. National CERT shall collect and exchange information on security risks in ICT systems, including events threatening the safety of ICT systems, and inform, warn and advise entities managing ICT systems and the general public in the Republic of Serbia thereof. The National CERT is primarily responsible for:

- monitoring national level incidents,
- providing early warnings, alerts and announcements, informing relevant entities about incidents and risks,
- reacting upon reported or otherwise detected incidents, by providing advice, based on available information, to the entities affected by the incident, and undertaking other necessary measures within its competence, based on the received data,
- performing continuous risk and incident analyses,
- raising public awareness among citizens, companies and public administration bodies about the importance of information security and about risks and protection measures, including the organization of dedicated campaigns,
- keeping records of autonomous incident handling teams (Special CERTs).

The Law on Information Security also stipulates that electronic communications operators, considered as operators of ICT systems of special importance, are obliged to report all incidents threatening the functionalities of their systems to RATEL. A relevant bylaw adopted by the Government stipulates data reporting form, lists types of incidents and the degree of their relevance and defines the procedure for informing the competent authority about the incidents occurred in ICT systems of special importance.

During 2018, RATEL undertook a number of steps aimed at efficient establishment of the National CERT.





A Protocol on cooperation between RATEL and the Ministry of Trade, Tourism and Telecommunications (MTTT) was signed in order to enhance prevention and coordination activities in incident handling in the domain of information security. As part of this cooperation, National CERT's representatives took an active part in developing an application solution for reception and exchange of notifications on reported incidents, located in MTTT.

Public procurement for the National CERT's Internet presentation was launched and realized, since this represents one of the compulsory steps in formation of a National Centre for the Prevention of Security Risks in ICT Systems. By means of this presentation, the National CERT is able to publish all important notifications and recommendations from the segment of information security intended for all companies, public administration bodies and the public of the Republic of Serbia. It comprises the overall records of the Special CERTs and is available to all users, as of beginning 2018, at www.cert.rs. An online form and e-mail form were created in order to enable incident reporting. All reported incidents are to be sent to: info@cert.rs.

During 2018, the National CERT received and handled incidents reported from the territory of the Republic of Serbia and from international CERTs, in accordance with Article 15 of the Law on Information Security. From January 1, 2018 till December 31, 2018, 38 (thirty-eight) incidents in total were reported to the National CERT.

Pursuant to Article 15 of the Law on Information Security, the National CERT added four Special CERTs in the Register of Special CERTs in 2018. Since the adoption of the Law on Information Security in 2016, six Special CERTs have been listed in this Register.

For the purpose of awareness raising, RATEL carried out a poll titled "Opinion survey on digital literacy and knowledge about information security". The results of the poll are publicly available on the National CERT's website.

In accordance with the "Feasibility study on establishment of National CERT's procedures and management of the incident report system", procedures were set for the National CERT on how to receive information on incidents, how to handle them, i.e. to analyze the received data and store the processed data, and



how to inform the public or concerned entities on the modalities of risk management and post-incident recovery.

The National CERT is included in the Trusted Introducer international CERT team list. As a member of this internationally recognized platform, RATEL (i.e. the National CERT) has been able to monitor, collect and exchange timely and reliable data on information security incidents and risks. Through its active participation in international meetings and workshops, RATEL has contributed to the international community's activities in ICT systems security risk prevention. National CERT of the Republic of Serbia is recognized as a unique national hub for incident reporting by international CERT organizations and as a reliable partner for incident handling as far as information security on the territory of the Republic of Serbia is concerned.

RATEL cooperates with the European Union Agency for Cybersecurity (ENISA), within the activities of the expert group of electronic communications regulators for network and service integrity and security, defined in Article 13a of the Directive 2009/140/EU of the European Parliament and of the Council.

In order to improve information security and RATEL's information system, the employees have undergone necessary training, with additional technical and technological measures being introduced. The employees performing information security tasks under the National CERT's responsibility, completed appropriate specialized TRANSITS courses and seminars designed for implementation and practical use of safety and protective measures in the domain of information security and management.

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COOPERATION WITH OTHER INSTITUTIONS AND ORGANIZATIONS

In carrying out activities from the scope of its responsibility, RATEL cooperates with a number of institutions and organizations, such as:

- Ministry of Trade, Tourism and Telecommunications, line ministry for the activities in the area of electronic communications, information society, information security and postal services;
- Office for Information Technologies and e-Government;
- Regulatory Authority of Electronic Media;
- Ministry of Interior, Ministry of Defence, Security Information Agency and Serbian Armed Forces;
- 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;
- Commission for Protection of Competition;
- Serbian European Integration Office;
- Association of radio-amateurs of the Republic of Serbia, regarding the issuance of licenses for radio-amateur operators and work licenses for radio-amateur stations;
- the Office for the Coordination of Affairs in the Process of Negotiation with the Provisional Institutions of Self-Government in Priština, regarding implementation of the Action plan for telecommunications;
- Commissioner for information of public importance and personal data protection;
- Republic Geodetic Authority;
- Bodies responsible for space planning and environmental protection and
- other bodies and organizations

During 2018, RATEL continued to maintain permanent contact and consultations with all stakeholders in the telecommunications and postal sectors. Numerous meetings were held with operators, providers, distributors, manufacturer organizations, scientific and educational institutions and users' associations. Representatives of the Agency participated in relevant public discussions, panel discussions and round tables, in an effort to exchange technical information and expert knowledge regarding up-to-date topics.



During 2018, representatives of RATEL participated in the activities of Expert Council and Assembly, as well as Commissions for standards NETSI, CS N210 and CS A331 working within the Institute for Standardization of Serbia (ISS), but also in the activities of technical committees of the European organizations for standardization ETSI, CENELEC and CEN. Pursuant to the decision of the Government of Serbia on designation of the Chair and members of the Management Board of ISS, RATEL's representative was elected as a member of the Management Board. The contribution of RATEL's experts in technical committees represents an additional support to the implementation of the EU regulations in the national legislation and to growing the reputation of the Agency and the Republic of Serbia in expert circles.

Pursuant to its information security competences, RATEL initiated cooperation with institutions and organizations responsible for this area. Representatives of the Agency took part in all the meetings of the Coordination body for information security activities in the Republic of Serbia. During the sessions, current topics on information security nationwide and changes and amendments to the Law on information security were discussed.

In 2018, RATEL contributed to the elaboration of the following documents and regulations:

1. Changes and amendments to the Law on information security;
2. Cyber crime strategy 2019-2023;
3. Action plan 2019-2020 for the Cyber crime strategy implementation.

RATEL has actively participated in the work of WGs engaged in the negotiation process for the EU accession of the Republic of Serbia, in connection to the following negotiation chapters:

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

In the segment referring to its competences, RATEL participated, during 2018, in the elaboration of Serbia's Draft Negotiating Position for the Intergovernmental conference on the accession of the Republic of Serbia to the EU, regarding the negotiation chapter 10 "Information Society and Media". Also, selection and preparation of documents for the Annual Progress Report – chapter 10 "Information Society and Media" were made, as well as the answers to the European Commission questions regarding the Negotiating Position for chapter 10 "Information Society and Media" in the segment "Institutional frame."

On December 27, 2018, it was announced that the Republic of Serbia fulfilled the criteria for Negotiating Group 3, following which the European Commission invited the Republic of Serbia to submit its Negotiating Position. Pursuant to its competences, RATEL, along with line Ministry, took part in the activities of NG 3, primarily through the reports on implementation of the National program for adoption of the EU *acquis communautaire*.



During 2018, RATEL's representatives took part in numerous meetings, where many papers, projects and results were presented. Working visits to telecommunications and postal operators were organized, so that the Agency's employees would get to know better these companies' organization, new technical solutions and activity plans, including problems encountered and ways of overcoming them.

At the beginning of the year, a protocol on cooperation was signed with MTTT, aimed at the development and coordination of activities pertaining to data exchange regarding incidents with potential significant impact on information security of the ICT systems of special importance in the Republic of Serbia, including other incidents reported to the Ministry and Agency.

Protocols on cooperation in the domain of information security were also signed between RATEL and North Macedonian Telecommunications Agency (AEK), as well as with Serbia and Montenegro Air Traffic Services (SMATSA).

Along with SMATSA, RATEL (through its National CERT) prepared a scenario for the air force exercise „CYBER2018“ held in Brussels, at the beginning of 2018.

Along with the Serbian Armed Forces, RATEL took an active part in preparation and realization of a military exercise „CyberTesla 2018“ in Gornji Milanovac. As of December 2018, RATEL participates as an important partner in realization of a military exercise „CyberTesla 2019“, which gathers also representatives of the private sector, as well as Special CERTs.

As part of the project "Improvement of cyber security management in the Western Balkans" organized by DCAF, several workshops were held in the second half of 2018. In October, Dysart Solutions company organized a workshop aimed to build future human resource capacities for incident management in ICT systems. The same month, RATEL hosted a workshop which gathered several government bodies and where different incident scenarios were addressed through simulation. The workshop was moderated by an expert IT security team from the Institute for software engineering of the Carnegie Mellon University.

RATEL's representatives took part in a three-day workshop titled "Strengthening CERT capacities in the Republic of Serbia", organized by OSCE Mission to Serbia and Share Foundation, held in December 2018 in Petnica. "The Petnica Group" gathers several government and private institutions with particular role in promoting and enhancing information security.

Meetings with telecommunications operators were held, where problems pertaining to the law implementation and reporting to RATEL on the type and level of incidents were discussed.

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

RATEL pays particular attention to cooperation with educational, scientific and research institutions, in the course of which, students were given the possibility to visit monitoring and measurement centres in Belgrade and Niš, during 2018.



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Regulatorna agencija
za elektronske komunikacione
i poštanske usluge



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 carries out 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.

As a regulatory authority, RATEL took an active part in the work of the International Telecommunication Union (ITU), the European Conference of Postal and Telecommunications Administrations (CEPT) and the European Telecommunications Standards Institute (ETSI).

Within activities of the International Telecommunication Union – ITU, RATEL participated in the work of the following WGs: *ITU-T SG2 - Operational Aspects of Service Provision and Telecommunications Management*, *ITU-T SG15 - Networks, Technologies and Infrastructures for Transport, Access and Home and ITU-T SG 20 - IoT and its Applications Including Smart Cities and Communities*.

As part of cooperation with the European Conference of Postal and Telecommunications Administrations, – CEPT, RATEL has participated in the activities of *Electronic Communications Committee – ECC*. During 2018, RATEL's representatives took part in *WGFM 22 - Working Group Frequency Management - Monitoring and Enforcement*, *WG SE - Working Group Spectrum Engineering and SE24 - Spectrum Engineering*.

RATEL has taken part in *Radio Spectrum Policy Group - RSPG*, which is an expert counseling body to the European Commission in developing the RF spectrum management policy. Serbia has an observer status within this group, therefore RATEL is in the position to closely monitor and follow the strategy of the RF spectrum management in Europe, both in the short and long run.

RATEL is also a member of REDCA (*Radio Equipment Directive-Compliance Association*), an association gathering organizations dealing with compliance



of radio equipment, designated bodies, consulting companies, manufacturers and administrations in the EEA and in countries having a mutual recognition agreement with the EU. The importance of a REDCA membership is reflected in the access to crucial information in the area of radio equipment and in the exchange of experience regarding implementation of the Directive on radio equipment 2014/53/EC.

In 2018, as well as in previous years, RATEL took an active part in the activities of the Body of European Regulators for Electronic Communications – BEREC and Independent Regulators Group – IRG. During 2018, director of RATEL also acted as a Vice Chair of BEREC and IRG, as a representative of a non-EU country. Participation in BEREC Mini Board was of a particular importance in 2018, since it was marked by preparations for adoption and implementation of a new regulatory frame in the field of electronic communications on the EU level. Since the new regulatory frame introduces reorganization of BEREC according to a new EU regulation, activities within the Mini Board were intensive, including regular conference calls, preparation of questionnaires, presence at the meetings, plenaries and representation of BEREC at expert gatherings. In 2018 as well, RATEL's representative was elected a co-Chair of an expert group for wireless network development.

RATEL's representatives took part in the activities of BEREC Contact Network in Bonn in February, Riga in May, Dublin in September and Luxembourg in November. RATEL's delegation attended BEREC plenary meetings held in Bratislava in March, Gdansk in June, Portorož in October and Prague in December.

Regarding postal cooperation, RATEL hosted two important international meetings in 2018, CERP "Working group Policy", held on May 23 and 24 at RATEL's premises and 15th ERGP Plenary, held on 29 of November. The Agency was a co-organizer of an open workshop dedicated to a wider audience titled "Postal framework – views from and outside of the EU".

In addition, RATEL's representatives took part in the following ERGP meetings:

- first ERGP CN, held in Lisbon in May,
- second ERGP CN, held in London in October,
- ERGP Plenary, held in Oslo in June, including participation in the workshop Future regulatory needs,
- ERGP EEMM WG (Sub-group on end-users satisfaction and monitoring of market outcomes) and
- ERGP WG for cost accounting.

During 2018, RATEL's representative, also acting as a Vice Chair of CERP, contributed to drafting of an industry related strategic document, which was supported at the plenary meeting held on June 19, 2018 in Copenhagen. The Vice Chair of CERP took part in several international gatherings and web meetings.

RATEL's representative took part in an international conference in Moscow, (Skolkovo 2018, IV Annual International Conference Antimonopoly Policy: Science, Practice, Education "Competition: Modern. Digital. Cross-border"). On that occasion, a paper titled "Analysis of gradual liberalization in the postal market of the Republic of Serbia" was presented.



During 2018, RATEL's representatives established professional collaboration with ENISA (European Union Agency for Network and Information Security). The cooperation has included participation in the activities of an expert group dealing with the analyses and implementation of measures enabling network integrity and continuity of service provision by electronic communications operators and digital infrastructure operators, including the assessment of safety risks and reporting of incidents in electronic communications operators' systems and networks, on the national level.

RATEL's activities in the area of information security are:

- participation in TF-CSIRT conferences, where a presentation on the National CERT was made and the team was introduced;
- participation in the meetings of the group of electronic communication regulators for network and service integrity and security, whose activities are defined in Article 13a of Directive 2009/140/EC of the European Parliament and of the Council, organized by ENISA;
- holding of a work meeting with the National CERT of South Korea in March 2018, in Belgrade;
- participation in the work of an international Cybersecurity Challenge conference, held by the Ministry of traffic, information technologies and communications and the State agency for e-government of Bulgaria, in March 2018;
- participation in the work of the regional expert workshop and conference titled "Countering online radicalization in the context of cyber security", organized by the Regional Cooperation Council, in April 2018;
- participation in the regional workshop "Criminal law statistics in the area of cyber crime and digital evidence", iProceeds project, in May 2018;
- participation in a three-day workshop on information security in civil aviation management, organized by the Civil Aviation Directorate of the Republic of Serbia and European Organisation for the Safety of Air Navigation (EUROCONTROL), in May 2018;
- participation in the work of „Annual AEC International Regulatory Conference 2018“ organized by the Agency for electronic communications of North Macedonia, with the National CERT presentation, June 2018;
- participation in regional conference „Cybersecurity: Cooperation and Information Exchange“, with the National CERT presentation;
- participation in the meeting of the Western Balkan countries, where future plans for the development of the National CERT were presented, October 2018;
- participation in the ITU Cyber Drill-Alert training, November 2018;
- participation in a George C. Marshall Center for Cyber Security Studies Center training, December 2018.



In 2018 as well, RATEL continued its successful multilateral and bilateral regional cooperation.

RATEL hosted the second meeting of the Cooperation Forum of regulatory bodies for electronic communications of Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia, held on November 7 in Belgrade and attended by the four NRAs' directors and associates. On the agenda were the key topics for the regional cooperation, concerning primarily application of regulated prices in regional roaming, analysis of international termination prices, harmonization of coordination agreements on RF spectrum management and joint projects likely to be funded by the EU. This type of cooperation and exchange of information proved to be very useful and efficient and problem resolving for all the participants in the Forum. On this occasion, a Protocol on cooperation between the Agency for Electronic Communications of the Republic of North Macedonia (AEK) and Regulatory Agency for Electronic Communications and Postal Services of the Republic of Serbia (RATEL) was signed, for the purpose of extending the area of mutual cooperation defined in the present Memorandum of Understanding, to the domain of prevention of incidents in ICT systems, which lies in the competence of both of the NRAs.

The cooperation with the Regional Cooperation Council (RCC) has continued as in the previous year, with the representatives of RATEL being included in the RCC projects and the consultation process regarding the priority parts of the South East Europe 2020 Strategy.

RATEL also continued its activities pertaining to the negotiations on Serbia's EU accession, including the activities of the Subcommittee for research and innovation, information society and social policy, within the Committee for stabilization and accession. In accordance with its competences in the segment of electronic communication networks and services (information society), RATEL's director took part in the above mentioned committee's meeting, held on June 27 and 28, 2018 in Belgrade, as part of the monitoring process of the Stabilisation and Association Agreement implementation.



APPENDIX 1

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*, nos. 59/11 and 106/16)
- 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, 64/13 and 60/16)
- 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)
- Decision on the manner of keeping registers, records, data bases and other information within the competence of the Republic Agency for Electronic Communications and Postal Services and publishing thereof on RATEL's website (adopted on 29.9.2017 by RATEL's Managing Board, available at www.ratel.rs)
- Decision on designation of operators with the universal service provision obligation (*Official Gazette of RS*, nos. 15/10)



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

- 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*, nos. 146/14 and 98/17)
- 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, 21/14 and 83/16)
- 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)
- 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 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)

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)



LIST OF BYLAWS PASSED BY THE GOVERNMENT OF THE REPUBLIC OF SERBIA, PURSUANT TO LAW ON INFORMATION SECURITY

(Official Gazette of RS, nos. 6/16 and 94/17)

- Decision on formation of Coordination Body for Information Security Affairs (*Official Gazette of RS, nos. 24/16, 53/17, 79/17 and 112/17*)
- Ordinance on children security and protection during use of ICT (*Official Gazette of RS, no. 61/16*)
- 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*)

LIST OF BYLAWS PASSED BY THE MINISTRY RESPONSIBLE FOR INFORMATION SECURITY, PURSUANT TO LAW ON INFORMATION SECURITY

(Official Gazette of RS, nos. 6/16 and 94/17)

- Rulebook on specific requirements for being listed in the Register of autonomous incident handling teams (Special CERTs) (*Official Gazette of RS no. 12/17*).

APPENDIX 2

INDIVIDUAL PERMITS ISSUED FOR RF SPECTRUM USAGE FOR THE PURPOSES OF BROADCASTING SERVICE IN 2018

RADIO SIGNAL COVERAGE – COMMERCIAL SERVICE – NATIONAL COVERAGE

Ord. no.	Name and seat of the radio station owner	Broadcasting station permits	Microwave station permits
1	Play Radio d.o.o. Beograd-Zemun	19	0
2	Radio difuzno preduzeće "B 92" akcionarsko društvo	5	0
3	Društvo sa ograničenom odgovornošću za emitovanje radio programa RADIO HIT FM BEOGRAD - Vračar	3	0
4	PRIVREDNO DRUŠTVO ZA PROIZVODNJU I EMITOVANJE RTV PROGRAMA INDEX DOO BEOGRAD	1	0

RADIO SIGNAL COVERAGE – COMMERCIAL SERVICE – REGIONAL COVERAGE

Ord. no.	Name and seat of the radio station owner	Broadcasting station permits	Microwave station permits
1	INFORMATIVNI I MARKETINŠKI CENTAR LUNA PRESS DOO UŽICE	2	4
2	DRUŠTVO ZA PROIZVODNJU, PROMET I USLUGE MARTEKS TMT DOO LOZNICA	4	0
3	PREDUZEĆE ZA RADIO DIFUZNU DELATNOST I PRUŽANJE USLUGA TDI RADIO TELEVIZIJA DOO, BEOGRAD (VRAČAR)	1	0
4	RTV M DOO KNJAŽEVAC	1	0
5	AVALON DOO ZA PROIZVODNJU I TRGOVINU, ODŽACI/Sombor, MEDIJSKI CENTAR BLUE DOO SOMBOR, Trg Svetog Trojstva 1	3	0
6	Privredno društvo RADIO-TELEVIZIJA KRAGUJEVAC doo Kragujevac	3	0



RADIO SIGNAL COVERAGE – COMMERCIAL SERVICE – REGIONAL COVERAGE
(BELGRADE)

Ord. no.	Name and seat of the radio station owner	Broadcasting station permits	Microwave station permits
1	RADIO JAT DRUŠTVO SA OGRANIČENOM ODGOVORNOŠĆU ZA RADIODIFUZIJU BEOGRAD (VRAČAR)	1	0
2	BUM BUM 2007 DOO BEOGRAD	1	0
3	DRUŠTVO ZA RADIOTELEVIZIJSKU DELATNOST, MARKETING I KONSALTING RTV CENTAR DOO BEOGRAD (PALILULA)	1	2
4	Srpska pravoslavna crkva - Arhiepiskopija beogradsko-karlovačka	1	2

RADIO SIGNAL COVERAGE – COMMERCIAL SERVICE – LOCAL COVERAGE

Ord. no.	Name and seat of the radio station owner	Broadcasting station permits	Microwave station permits
1	Udruženje "RTV BUM018"	1	0
2	JAVNO PREDUZEĆE ZA INFORMATIVNU DELATNOST RADIO-TELEVIZIJA OPŠTINE KOVAČICA, KOVAČICA	1	0
3	May Media doo Aleksinac	1	0
4	RADIO I TELEVIZIJA KANAL-M, DRUŠTVO SA OGRANIČENOM ODGOVORNOŠĆU, PARAĆIN	1	0
5	PRIVREDNO DRUŠTVO SREMSKI RADIO DOO ŠID	1	0
6	DRUŠTVO SA OGRANIČENOM ODGOVORNOŠĆU RADIO 014 VALJEVO	t1	0
7	DAK PREDUZEĆE ZA RADIO-TELEVIZIJU I DRUGE DELATNOSTI DOO ČUPRIJA	1	0
8	DRUŠTVO ZA RADIO I DIFUZIJU TIM RADIO DOO PRNJAVOR	1	0
9	DRUŠTVO SA OGRANIČENOM ODGOVORNOŠĆU RADIO HOMOLJE ŽAGUBICA	1	0
10	ANI PRESS DOO PIROT	1	2
11	PREDUZEĆE ZA RADIODIFUZNU DELATNOST TODOROVIĆ I DRUGI DOO, LOZOVIK	1	0
12	SPA 106 DUŠKO ĐUKIĆ PR KOSJERIC (VAROŠ)	1	0

Ord. no.	Name and seat of the radio station owner	Broadcasting station permits	Microwave station permits
13	Ivanjički radio DOO, Ivanjica	1	0
14	RADIO BAČKA DOO BAČ	1	0
15	RADIO TV PODRINJE D.O.O. LOZNICA	1	0
16	TRGOVINSKO INFORMATIVNO PREDUZEĆE DOUBLE E DOO NOVI PAZAR	1	2
17	PRIVREDNO DRUŠTVO ZA RADIO DIFUZIJU HIT DRUŠTVO SA OGRANIČENOM ODGOVORNOŠĆU POŽAREVAC	1	2
18	MEDIJSKI CENTAR RADIO KOMETA-KLIK d.o.o. BOR	1	0
19	PRIVREDNO DRUŠTVO BRAVO DOO, POŽAREVAC	1	2
20	RADIO SUBOTICA - SZABADKAI RADIO DOO SUBOTICA	1	0
21	DRUŠTVO ZA RADIO I DIFUZIJU TIM RADIO DOO PRNJAVOR	1	0
22	ATOM-ZONA DOO RAZBOJNA	1	0
23	PREDUZEĆE AGRO-PRESS DOO GREDETIN	1	0
24	Eparhija niška Srpske pravoslavne crkve	1	0
25	PROIZVODNO USLUŽNO PREDUZEĆE BIS-KOMERC DOO BEOGRAD	1	0
26	DRUŠTVO SA OGRANIČENOM ODGOVORNOŠĆU RADIO ČAČAK ČAČAK	1	0
27	INFORMATIVNI CENTAR DOO PRIBOJ	1	0
28	PREDUZEĆE ZA RADIO I TELEVIZIJSKE AKTIVNOSTI RTV SVRLJIG DOO SVRLJIG	1	0
29	RADIO MEDVEĐA DOO MEDVEĐA	1	2
30	Udruženje građana "FORMA PLUS"	1	0
31	RADIO BISER DOO PRIVREDNO DRUŠTVO ZA SAOBRAĆAJ TRGOVINU IZDAVAŠTVO I RADIO I TELEVIZIJSKE AKTIVNOSTI POŽAREVAC	1	0
32	PRIVREDNO DRUŠTVO SA OGRANIČENOM ODGOVORNOŠĆU RADIO-ANTENA VRŠAC	2	2

Ord. no.	Name and seat of the radio station owner	Broadcasting station permits	Microwave station permits
33	DOO RTV. EKOS-LE VLASOTINCE	1	0
34	RADIO TELEVIZIJA KURŠUM DOO KURŠUMLIJA	1	0
35	PRIVREDNO DRUŠTVO ZA PROIZVODNJU, PROMET I USLUGE DELFIN MARKETING DOO, ZLATIBOR	1	0
36	RADIO I TELEVIZIJA TRSTENIK DOO TRSTENIK	1	0
37	DOO RADIO 9 KRAGUJEVAC	1	0
38	EPARHIJA BAČKA SPC-CRКVENA OPŠTINA BAČKA PALANKA	0	2
39	RADIO-VLADIMIRCI DOO VLADIMIRCI	0	2
40	BC INFO d.o.o. Bela Crkva	0	2

DIGITAL TV SIGNAL COVERAGE – NATIONAL COVERAGE

Ord. no.	Name and seat of the radio station owner	Broadcasting station permits	Microwave station permits
1.	JAVNO PREDUZEĆE EMISIONA TEHNIKA I VEZE BEOGRAD (ČUKARICA)	43	28

APPENDIX 3

OVERVIEW OF REGISTERED OPERATORS

Pursuant to the Law, RATEL is required to keep operator register/records, which is implemented in accordance with the Decision on the manner of keeping registers, records, data bases and other information within the competence of the Republic Agency for Electronic Communications and Postal Services and publishing thereof on RATEL's website.

Table 1. Number of operators of electronic communications services on 31.12.2018

Service	Registered operators
Public voice service	40
VoIP (Voice Over IP)	27
Internet access and Internet services	193
Media content distribution	81
SMS/MMS transmission	16
VAS (value added service)	38
Data transfer	19
Leased network resources	29
Leased infrastructure	31
Broadcasting and multiplexing	1
Directory	1
Other services	4

Table 2. Number of operators of electronic communications networks on 31.12.2018

Network	Registered operators
GSM mobile network	3
UMTS mobile network	3
LTE mobile network	3
PSTN (public switched telephone network)	3
CDMA network	2



Network	Registered operators
Cable access network	101
Radio relay transport network	12
Optical transport network	34
Passive infrastructure	45
BFWA (Broadband Fixed Wireless Access)	71
WAS/RLAN (Wireless Local Area Network)	117
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 156 changes (98 new entries and 58 deletions) made to the register of operators – providers of electronic communications, during 2018:

- 1 new entry and 1 deletion for public voice service;
- 10 new entries and 7 deletions for media content distribution service;
- 1 new entry and 4 deletions for VoIP services;
- 19 new entries and 11 deletions for Internet access and Internet services;
- 1 new entry and 1 deletion for data transmission;
- 2 new entries and 12 deletions for VAS (voice transmission, SMS, MMS);
- 1 new entry and 0 deletions for leased infrastructure;
- 5 new entries and 1 deletion for leased electronic communications network resources;
- 1 new entry and 1 deletion for message transmission (SMS, MMS);
- 4 new entries and 2 deletions for passive infrastructure;
- 1 new entry and 1 deletion for radio relay transport network;
- 4 new entries and 5 deletions for optical transport network;
- 12 new entries and 6 deletions for cable access network;
- 14 new entries and 1 deletion for BFWA (Broadband Fixed Wireless Access) network;
- 21 new entries and 5 deletions for WAS/RLAN (Wireless Local Area Networks).





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