

National 5G Strategy Republic of Serbia

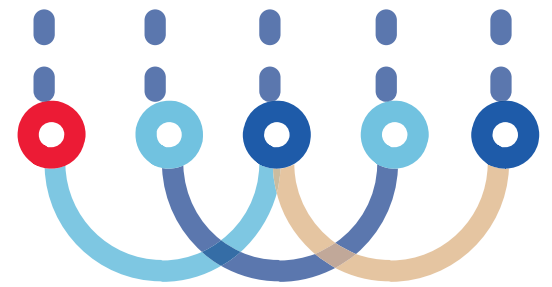
Aleksandra Vučić



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

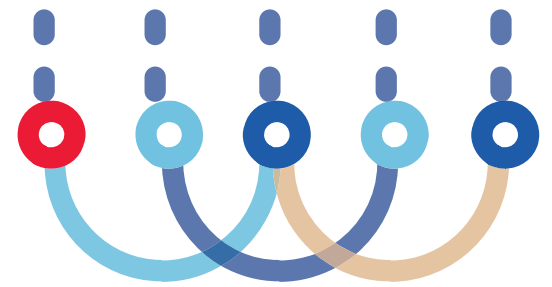


Content



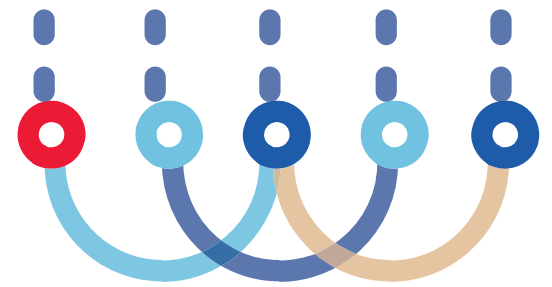
- Relevant legislations and the most important strategic documents
- RATEL – Policy and Goals
- Frequency bands currently used by mobile operators
- Current status of assignment
- 5G Pioneer bands
- Future use: 700MHz, 2.6GHz, 3.5GHz and 26GHz
- The latest news

Relevant legislations and the most important strategic documents



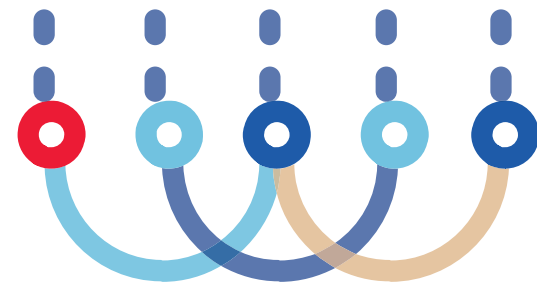
- *Law on Electronic Communication*
- *Allocation Plan- Radio Frequency Allocation Plan*
- *Strategy for the development of electronic communications 2010-2020*
- *Strategy of the Next Generation Networks*

RATEL – Policy and Goals



- Manage radio spectrum usage
- Assign radio frequencies according to the Allocation Plan and Allotment Plans
- Coordinate radio frequencies usage
- Monitor radio spectrum usage
- Fostering competition of electronic networks and services
- Improving the capacity and the quality of networks
- Developing electronic communications market
- Protecting interests of the electronic communications users
- Creating conditions for the development of electronic communications

Frequency bands currently used by mobile operators – exclusivity (licence)



➤ 3 Mobile operators:

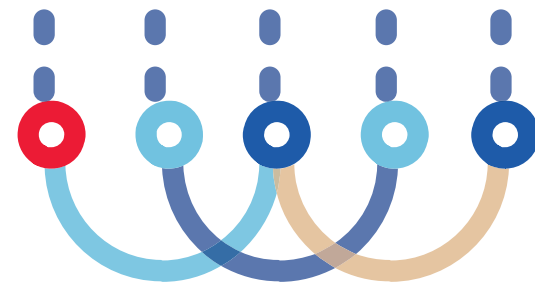
- Telekom Srbija
- Telenor
- Vip mobile
- + 2 MVNOs in Q4 2016

➤ Frequency bands:

- 800 MHz
- 900 MHz
- 1800 MHz
- 2100 MHz

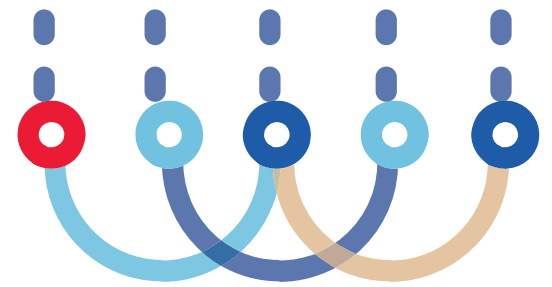
➤ **Based on the traffic demand, it is estimated that current spectrum will be sufficient until the end of 2018.**

Curent status of assignament



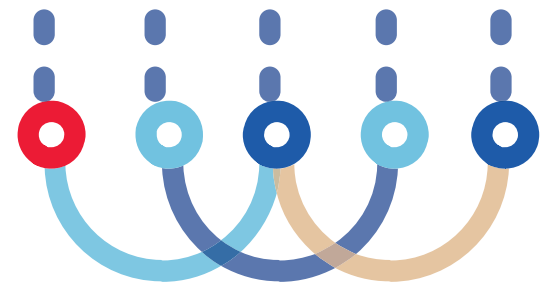
Frequency bands already harmonised for mobile broadband SRB			
Band	Size (MHz)	Ref	Assigned in SRB (June 2018)
800 MHz	2 x 30	ECC/DEC/(09)03	2 x 30
900 MHz	2 x 35	ERC/DEC/(94)01 & ERC/DEC/(97)02 & ECC/DEC/(06)13	2 x 23.4 MHz
1452 - 1492 MHz	0	Broadcasting (Maastricht 2002 Special Arrangement, Rev. in Constanta 2007, EN 302 077 & ECC/DEC/(03)02)	No
1.8 MHz	2 x 75	ERC/DEC/(95)03 & ECC/DEC/(06)13	2 x 70 MHz
2.1 GHz	2 x 60 + 35	ECC/DEC/(06)01	2 x 45 + 15 MHz
2.6 GHz	2 x 70 + 50	ECC/DEC/(05)05	No
3.4 – 3.8 GHz	400	ECC/DEC/(11)06	No
700 MHz	0	Broadcasting (Geneva Agreement 2006.& EN 302 755)	No
2.3 – 2.4 GHz	0	SAP/SAB&RR&Def.Syst (ERC/REC 62-02&ERC/REC25 10& EN 302 064&EN 301 783)	No
	Total		Total : 351.8 MHz
	1025 MHz		Free : 673.2 MHz

EU 5G Action plan

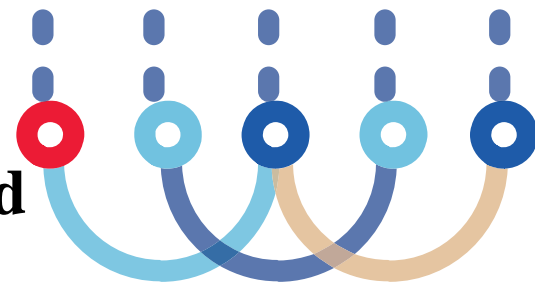


- On 14 September 2016, the Commission launched the Action plan with list of pioneer spectrum bands for the initial launch of 5G services
- The Commission has then identified the Pioneer bands:
 - Low frequency range: 700 MHz band
 - Mid frequency range: 3.4-3.8 GHz band
 - High frequency band: the 26 GHz band

Future use : 700MHz band

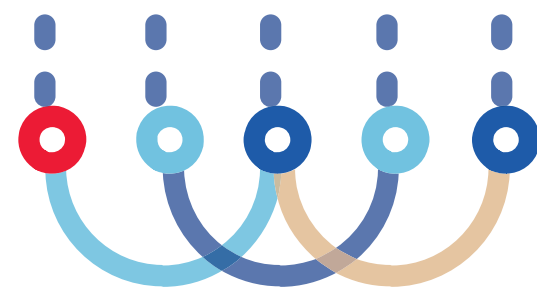


- SEDDIF-multilateral framework agreement between 13 administrations in order to enable optimization of the future use of 470-694MHz for digital terrestrial television and to facilitate the replanning of the 700MHz band
- Digital dividend 2 is ready to be used for mobile broadband in accordance with the result of SEDDIF



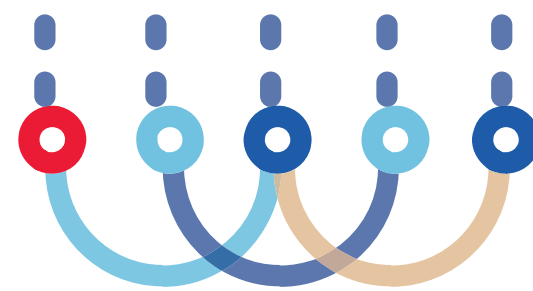
Future use: 2.6GHz (2500-2690 MHz) band

- According to the Allocation Plan, frequency band 2500-2690 MHz is allocated to fixed and mobile service (MFCN)
- In Serbia the part of this frequency band is used by military (until the state's decision to hold the auction)



Future use: 3.5 GHz (3.4-3.8 GHz) band

- 3.5 GHz band is seen as “golden” and “innovation” band
- 400 MHz of continuous spectrum
- Unlike in most European countries, in Serbia this frequency band is **completely unused**
- According to the Allocation Plan, frequency band 3400-3800 MHz is allocated to fixed, mobile and fixed-satellite service (space-to-Earth), the duplex mode of operation in the whole frequency band is Time Division Duplex (TDD)



Future use: 26GHz (24.25-27.5 GHz) band

- According to the Allocation Plan, frequency bands are allocated to:
 - 24.25-24.5 GHz fixed and mobile service,
 - 24.5-25.25 GHz fixed service and
 - 25.25-27.5 GHz fixed, mobile and inter-satellite service.
- RATEL granted licences for almost 900 microwave links in frequency band 24.5-26.5 GHz
- 1.3 GHz is unused in continuity



The latest news



- Bulgaria, Greece and Serbia have jointly agreed to develop experimental 5G cross-border corridors that will allow for the testing of driverless vehicles. This corridor will include the border crossings and key sections of the main roads.
- At the Digital Assembly 2018 in Sofia (25-26 June), another important milestone in the extension of 5G testing corridors for connected and automated mobility was reached. Bulgaria, Greece and Serbia signed a Letter of Intent to work together on the Thessaloniki – Sofia – Belgrade corridor

Thank you!



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