



Republic of Bulgaria



**BULGARIA'S PREPARATION FOR THE NEW
COMMUNICATION HORIZON (5G) -
SPECTRUM MANAGEMENT**

**Galya Blateva,
Head of Terrestrial mobile networks Department
COMMUNICATIONS REGULATION COMMISSION (CRC)**

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5G on the horizon (1)

5G opens a new stage in the digital world, delivering higher speeds, reliability and connectivity, and it is expected:

- ✓ potentially 1000 Mbps rate of data transfer;
- ✓ latency of around of 1 ms or less;
- ✓ transferring significantly more traffic;
- ✓ more automation.

By 2025, 5G is expected to reach one third of the world's population. The transition to 5G is a catalyst for innovation and new technologies such as artificial intelligence, robotics and augmented reality.



5G on the horizon (2)

For the successful introduction and development of 5G it is required to provide good regulatory conditions for the use of the radio frequency spectrum.

Global frequency harmonization is essential for the development of 5G.

The benefits of spectrum harmonization include:

- ✓ improving spectrum efficiency;
- ✓ reducing cross-border interference;
- ✓ enabling global roaming and others.



5G on the horizon (3)

Radio Spectrum Policy Group (RSPG) has adopted Strategic roadmap towards 5G for Europe, according to which:

- ✓ by 2020 Member States should allow the use of sufficiently large blocks of spectrum in 3.4-3.8 GHz band and at least 1 GHz in 26 GHz;
- ✓ action should be taken on 5G coverage in rural areas;
- ✓ Member States should assess the need for national actions that will enable easier facilities installation, in particular for small cells.



5G on the horizon (4)

Initially for 5G deployment in Europe are designated the following bands:

- ✓ 700 MHz - optimal radio wave propagation;
- ✓ 3.6 GHz - relatively large bandwidth;
- ✓ 26 GHz - high performance of 5G.



Actions undertaken by CRC for the introduction of 5G in Bulgaria (1)

CRC has taken actions for the harmonisation of these bands by amending the regulatory framework:

- ✓ conditions for harmonized use of the 700 MHz band (694-790 MHz band) are defined;
- ✓ conditions for harmonized use of the 3400-3800 MHz band (3.6 GHz band) have been modified to use the band for 5G networks as well;
- ✓ conditions for harmonized use of the 26 GHz band (24.25-27.5 GHz band) are defined.

Actions undertaken by CRC for the introduction of 5G in Bulgaria (2)

In order to fulfill the obligation in Art. 54 of the Electronic Communications Code, by 31 December 2020, Bulgaria must allow the use of a sufficiently large block of 3.6 GHz band and at least 1 GHz of 24.25-27.5 GHz band for the deployment of 5G networks.

CRC will take the necessary actions to ensure harmonized conditions for the use and provision of radio spectrum for the introduction and development of 5G.



5G tests in Bulgaria (1)

To support the development of technical innovation, CRC enables mobile undertakings to use the radio frequency resources for testing new technologies and facilities.

In recent years, there has been an increasing interest from the mobile undertakings in issuing temporary authorizations for testing in technology-neutral bands.



5G tests in Bulgaria (2)

This year CRC issued three temporary authorizations for conducting 5G tests.

A resource of 100 MHz TDD in 3.6 GHz band is granted for sharing use, as the purpose of which is to test:

- ✓ the effective traffic management between different technologies and bands;
- ✓ the influence and interference between technical facilities operating in adjacent bands;
- ✓ technical methods and solutions for increasing data rates.

5G tests in Bulgaria (3)

The tests conducted of new technologies and the results of it is important information for CRC as a regulator in the field of electronic communications.

According to undertakings data, initial results show:

- ✓ achieved download data speed – 1.47 Gbps;
- ✓ 6 ms latency.

5G tests in Bulgaria (4)

Practical tests of 5G conducted by undertakings include :

- ✓ the first call through 5G mobile network in Bulgaria;
- ✓ the first medical examination of a patient performed with the new technology in Bulgaria;
- ✓ virtual reality, video streaming and gaming;
- ✓ remote chef hobby mentoring session;
- ✓ 360 ° video broadcast from a concert;
- ✓ applications in education - historical places enter the classroom;
- ✓ other.

Sustainable and competitive environment for business development (1)

In its actions CRC is guided by and complying with the main principles of openness, transparency and regulatory predictability. In doing so:

- ✓ regularly carries out public consultations to explore the interest of business regarding the prospects for use of radiofrequency spectrum in the technologically neutral bands;
- ✓ organizes and conducts meetings with the undertakings providing electronic communications on issues of importance for the business development;
- ✓ conducts public consultation to reduce the level of the fees for spectrum provision and use in technologically neutral bands.



Sustainable and competitive environment for business development (2)

The main challenges in the work of CRC will continue to be:

- ✓ maintaining the conditions for effective competition;
- ✓ ensuring high quality of the provided services;
- ✓ development and implementation of transparent procedures for proportional apportioning and equitable provision of necessary frequency resource for market penetration of new technologies and services, including 5G networks.



Conclusion

CRC will continue to implement a spectrum management policy with which to:

- ✓ create least onerous conditions for spectrum use;
- ✓ facilitate the introduction of new technologies and services;
- ✓ encourage investment and competition;
- ✓ increase the country's economic growth and benefits to consumers from high quality services;
- ✓ conduct active dialogue with stakeholders.



Thank you for your attention!

