Ministry of Digital Development of the Kyrgyz Republic

International Telecommunication Union

International Telecommunication Union training "Launching the next generation mobile network (5G/IMT-2020)"

Bishkek, Kyrgyz Republic, August 24-26, 2022

On 24-26 August 2022, the International Telecommunication Union (ITU) conducted a training on the launch of fifth generation mobile networks (IMT-2020). The training was conducted within the framework of cooperation between ITU and the Ministry of Science and ICT (MSIT) of the Republic of Korea. The training was attended by 67 specialists representing the Communications Administration, regulatory authorities, telecom operators, equipment manufacturers, research organizations and the private sector of the Kyrgyz Republic. Active assistance in the preparation and holding of the event was provided by the Academy of Digital Innovations.

The training was held in a face-to-face format with the presence of listeners at the venue in Bishkek.

The first day of the training was devoted to a general overview of technological trends, key features of 5G networks and various aspects of launching 5G networks, primarily in terms of new services and their promotion strategy, relevant business models of operators.

The second day of the training was devoted to the issues of standardization of IMT-2020 networks and spectrum use for 5G. One of the key events of the training was the Round Table "5G Impact on Human Health", which was preceded by a comprehensive presentation on the international regulation of this issue.

In particular, the report considered the following key international documents:

- The International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for Limiting Exposure to Alternating Electric, Magnetic and Electromagnetic Fields, updated in 2020, included consideration of 5G/IMT-2020 networks;
- Progress report on ITU-D Question 7/2 "Policies, guidelines, regulations and assessments of human exposure to electromagnetic fields". Study period 2018-2021, which discusses in more detail the aspects of regulating the impact of electromagnetic fields on humans.

The report materials cited numerous sources of scientific articles and reviews confirming the safety of 5G networks for health in compliance with international standards. At the same time, during the subsequent discussion, it was noted that in the Kyrgyz Republic there are many times more stringent requirements, which with an even greater margin ensure the protection of public health.

The third day was devoted to various aspects of the implementation of 5G/IMT-2020 networks at the national level, including approaches to the allocation of new radio frequency bands, infrastructure sharing issues and planning for the shutdown of aging networks to focus on the development of 5G/IMT-2020 networks. At the end of the training, a report was presented on long-term trends in the development of 5 G networks and forecasts for the development of 6G networks.

Training materials, including the program, presentations and photos can be found on the event page on the ITU website.

Following the discussion during these three days and the round table on the most acute problems of implementing 5G/IMT-2020 networks, a number of opinions and recommendations were expressed that may be useful for the further development of 5G/IMT-2020 networks both in the Kyrgyz Republic and throughout region:

- According to the participating experts, the spectral capacity of 4G networks has almost reached the limit in the largest cities of the Kyrgyz Republic due to the growth in the consumption of data traffic by users. In order to provide the necessary bandwidth for the predicted growth of data traffic, as well as for the comprehensive development of the country's digital economy, it is proposed to form a deployment plan and launch 5G/IMT-2020 networks in the Kyrgyz Republic ;
- Existing norms in the Kyrgyz Republic are among the most stringent in the world, which ensures the protection of public health with a large margin;
- Such stringent requirements for electromagnetic radiation, together with conservative forecasting and evaluation methods, may limit the future development of 5G/IMT-2020 networks in the Kyrgyz Republic, which makes it advisable to review the current procedure for monitoring compliance with established requirements for a more accurate assessment of the real radiation of base stations;
- A number of invited experts noted the need to mitigate the most stringent requirements in the Kyrgyz Republic and other countries of the region to simplify the implementation of 5 G / IMT -2020 networks, but while maintaining a tenfold margin even relative to international recommendations ;

- To combat radiophobia, special attention should be paid to informing the public about the absence of the effect of electromagnetic radiation on humans, subject to international or more stringent standards, including information campaigns in the media with the involvement of all affected departments and ministries;
- The use of new radio frequency bands in the Kyrgyz Republic requires work to release them or to determine the conditions for sharing with remaining services and applications at the national level, as well as addressing issues of cross-border coordination;
- The successful implementation of 5G/IMT-2020 networks requires the allocation of new radio frequency bands, primarily in the medium frequency ranges (3.4 - 3.8 GHz), with the possibility of organizing channels of the order of 80-100 MHz;
- In addition to providing access to a sufficient and continuous radio frequency resource for 5 G / IMT -2020 networks, an important role is played by the cost of such spectrum, the burdens imposed on operators, as well as possible restrictions on the conditions for using the spectrum under EMC conditions, which it is advisable to establish in the interaction of the regulator with operators and which should take into account the potential for return on investment in the deployment of 5G/IMT-2020 networks;
- To optimize the use of radio frequency bands and the development of modern cellular networks, it is advisable to start planning the shutdown of 2G and 3G cellular networks in advance in order to ensure continuity of service for subscribers and IoT devices;
- To reduce the risks and costs of expanding 5G/IMT-2020 coverage in remote areas, the mechanism of voluntary agreements on the sharing of the infrastructure of telecom operators' networks can be applied. Such agreements are a vital long-term solution on which regulators and mobile operators must cooperate;
- To ensure the best voice communication experience for end users, it is recommended to deploy 5G/IMT -2020 networks according to the NSA (Non-Standalone) model, followed by a systematic migration to SA (Standalone). To ensure high quality of voice communication in 5G/IMT-2020 networks, it is recommended to implement VoLTE/VoNR services based on IMS;
- Implement 5G/IMT-2020 networks in conjunction with various programs and projects for the digitalization of sectors of the economy of the Kyrgyz Republic in order to accelerate such processes and accumulate national experience in creating new services and services;
- To support the fixed communication market in the Kyrgyz Republic, it is proposed to consider the introduction of fixed mobile convergence services through Mobile Virtual Communications Operators (MVNO). The introduction of MVNOs is recommended to be carried out taking into account the necessary updating of the regulatory framework and consultations with interested market participants.

The trainers at the event were:

- **Karlis Bogens**, Head of the Fixed and Mobile Services Division of the ITU Radiocommunication Bureau
- **Vadim Poskakuhin**, Co-founder of Ubiquitous Wireless LLP
- **Konstantin Savin**, Business Partner of IXP Consulting Agency

At the end of the three-day event, the participants of the training expressed their sincere gratitude to the Ministry of Digital Development of the Kyrgyz Republic, ITU and the Academy of Digital Innovations for the excellent preparation, organization and conduct of the training.