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III. RADIO SPECTRUM MANAGEMENT

Radio spectrum is a limited national resource of substantial importance for the development of the telecommunication sector as a part of the national economy. The growing demand of communication services and the increasingly higher requirements with regards to their quality lead to the necessity of optimal use of modern communication technologies and to the development of various new technological platforms making use of radio spectrum.

In accordance with its legal competence and the Regulatory policy of management of the radio spectrum allocated for civil needs, adopted with Decision No. 1000 of 13 June 2005, the CRC ensures conditions for optimal allocation and efficient use of the radio spectrum, avoiding harmful interference. That is also accomplished in accordance with the requirements of the decisions and recommendations of the International Telecommunication Union, the European Commission and the Electronic Communications Committee to the European Conference of Posts and Telecommunications, respecting the principles of transparency, non-discrimination, predictability, proportionality, objectivity and publicity.

The National Plan for Allocation of the radio spectrum into radio frequencies and radio frequency bands for civil needs, for the needs of the national security and defense, and for shared use between them, is a major act related to the radio spectrum management. Taking into account the national peculiarities, the spectrum allocation by services is made in accordance with the Radio Regulation of the International Telecommunication Union, the European Table for Frequency Allocation and their Use (ERC/Report 25) and the NATO Joint Frequency Agreement for frequency allocation for civil needs and for defence needs.

The use of the radio spectrum in the Republic of Bulgaria is for civil needs, for the needs of the national security and defense and for shared use between them, the bands allocated for shared use being allocated with priority for the needs of the national security and defense in accordance the existing allocation and with the European and world trends. Fig. 95 shows the percentage radio spectrum allocation by users.

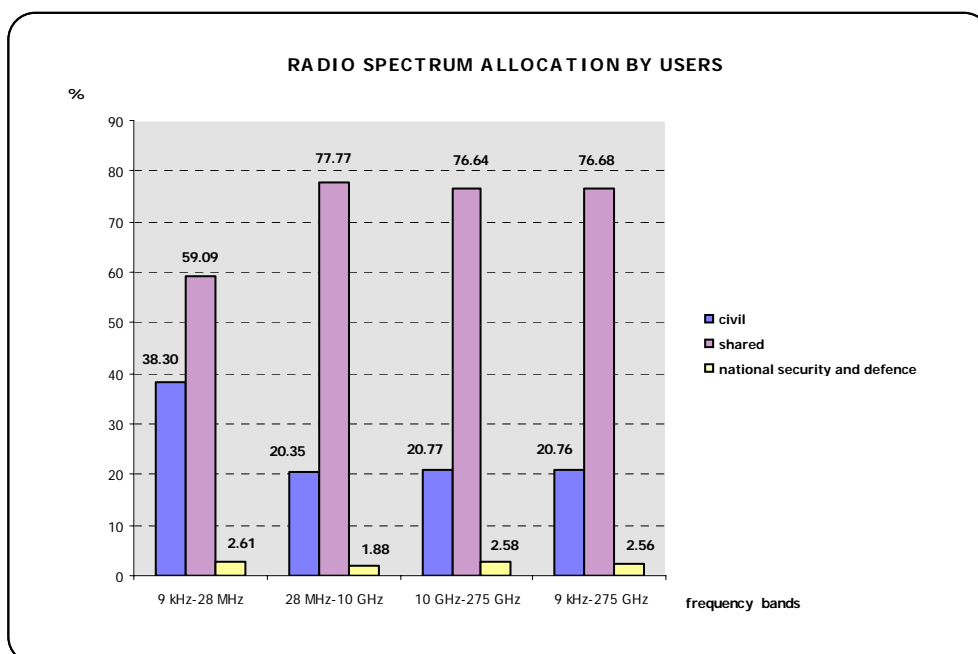


Fig. 95

In view of harmonisation of the radio spectrum allocation by bands, services and users with the Radio Regulation and ERC/Report 25 and achieving the goals set down in the State Policy on Planning and Allocation of the Radio Spectrum, the National Plan for Radio

Spectrum Allocation is updated annually with the active participation of the CRC representative in the National Radio Frequency Spectrum Council. The update of the Plan in 2005 provided for harmonisation of the frequency bands in the range 230-470 MHz (in accordance with the NATO Joint Frequency Agreement and ERC/Report 25), conditions for optimal planning and efficient use of the spectrum for civil needs, as well as possibilities for the introduction of new digital technologies. In accordance with ERC/REC 70-03 of the Electronic Communications Committee, new radio frequencies and radio frequency bands were allocated for Short-Range Devices. Bearing in mind their great diversity, their fast entry on the market and the expectations that these trends will persist, the provision of additional resources for these applications will continue in the future.

1. Planning, assignment and efficient use of the radio spectrum

CRC conducts planning of the radio spectrum, allocated for civil needs, in order to assign it for use by professional and public telecommunication networks and specifies the technical parameters and requirements for carrying out telecommunications through them. The assignment of radio frequencies and radio frequency bands takes place after international coordination and national coordination and agreement with all interested state bodies and departments.

The technical possibilities for carrying out telecommunications through telecommunication networks with individually assigned frequency resource in terms of electromagnetic compatibility and biological protection are studied on a case-by-case basis.

1.1. Mobile service

In 2005, radio spectrum planning was accomplished in order to assign it for telecommunications through professional telecommunication mobile network PMR with national and local coverage and through telecommunication mobile paging network carried out by different departments and firms. Following planning and national coordination with all interested bodies and departments, 1161 frequencies were assigned to telecommunication operators, and that is an increase by 36% compared to 2004.

In accordance with the update of the National Plan for Radio Spectrum Allocation, the process of cessation of using the range 300 MHz for civil needs was completed by the end of 2005 and frequency resource of total capacity of 2.3875 MHz was released for the national security and defense. At the same time, additional radio spectrum for civil needs was allocated for the mobile service in the range 400 MHz. Following frequency planning of that resource, the telecommunication operators that used the range 300 MHz, were re-licensed for operation in the ranges 50, 80, 150 and 400 MHz and frequencies were assigned to new operators.

The update of the National Plan for Radio Spectrum Allocation made possible the use of the bands 880.1-914.9 MHz and 925.1-959.9 MHz entirely for civil needs. To enhance the efficient use of the spectrum, re-planning of the frequency resource in the range 900 MHz, assigned to BTC AD for carrying out telecommunications through a GSM public telecommunication mobile cellular network with a national coverage, was accomplished.

Following frequency planning of the frequency resource of 2x20 MHz in the bands 1920-1940 MHz and 2110-2130 MHz and 3x5 MHz in the band 2010-2025 MHz in 2004, and its national coordination and agreement with all interested bodies and departments in the beginning of 2005, the CRC conducted tenders for awarding three individual licenses for carrying out telecommunications through public telecommunication mobile cellular UMTS networks with national coverage with a term of 20 years. With the awarded Class A license, „MOBILTEL” EAD was assigned frequency resource of 2×10^5 MHz against an initial

license fee of 78 m lv., as reached in the organized sealed-bid tender, and with the awarded Class B licenses to “COSMO BULGARIA MOBILE” EAD and „BTC MOBILE” EOOD, each operator was assigned frequency resource of 2 x 5 + 5 MHz against an initial license fee of 42 m lv.

In connection with the privatization of the power distribution companies, the process of re-planning and update of the radio spectrum assigned to them for carrying out telecommunications through telecommunication mobile networks was completed. Frequency planning and national coordination of radio frequency resource was carried out in order to assign it with an individual license for telecommunications through professional telecommunication networks with national coverage for the aeronautical mobile service, radiolocation and radio navigation for air traffic control and provision of aero navigation services to flights in the civil air space.

With Decision No. 255 of 10 February 2005, CRC amended its Decision No. 717 of 12 February 2004 for determination of radio spectrum for common use, allocating, in addition to the band 2400-2483.5 MHz, bands 5150–5350 MHz and 5470–5725 MHz for carrying out telecommunications through public RLAN networks from the mobile service on the basis of registration under General license No. 220.

1.2. Fixed service

During last year the trend of considerable growth of the “point-to-point” networks (microwave networks), traditional for the fixed service, continued. Frequency planning and national coordination was accomplished for 2156 microwave hops that is a 4% increase in comparison with 2004. CRC approved operational projects for 451 microwave hops. The fixed networks of the mobile operators were deployed quite dynamically, the number of microwave hops of „MOBILTEL” EAD increasing by 10%, of „COSMO BULGARIA MOBILE” EAD by 70% and of „RADIOCOMMUNICATION COMPANY” EOOD by 6%. Due to the great interest on the part of license applicants, radio spectrum for “point-to-point” networks, ensuring high-speed data transmission (data rate not less than 155 Mbit/s), was planned and allocated.

In 2005, the Commission re-allocated and re-planned some of the radio spectrum, allocated for the fixed service, providing possibilities of more efficient use of the frequency resource for the “point-to-multipoint” networks in the ranges 3.5 GHz and 26 GHz and created conditions for the introduction of new technologies. In view of the considerable interest on the part of license candidates, CRC announced two sealed-bid tenders for the award of five individual licenses with national coverage or a term of 10 years for carrying out telecommunications through public telecommunication networks of the fixed service of the type “point-to-multipoint” in the range 3.4-3.6 GHz – two Class A licenses, assigning limited frequency resource of 2 x 21 MHz duplex frequency blocks, and three Class B licenses, assigning 2 x 10.5 MHz duplex frequency blocks. The tender for awarding the two Class A licenses took place on 11 October 2005 with the participation of six companies at an initial tender price of 1 344 000 lv. After a two-day bidding, the price reached 5 044 000 lv. per license, i.e. nearly four times the starting price. On 25 October 2005 the tender for awarding the individual licenses Class B was conducted with initial tender price of 672 000 lv., in which seven companies took part. The price reached 6 172 000 lv. per license and exceeded the initial price more than nine times.

1.3. Fixed satellite service

In 2005, CRC assigned radio frequency resource for carrying out telecommunications through networks of the fixed satellite service to 8 new operator and made 27 modifications

in the technical parameters of licensed networks. 40 transceiver and transmission stations of public networks were nationally coordinated and agreed and 10 stations of professional networks were nationally coordinated with all interested state bodies and departments. Ten operational projects for telecommunication networks of the fixed satellite service were approved.

1.4. Broadcasting

1.4.1. Analogue broadcasting

During last year CRC determined free frequency channels for building new television relay stations for the networks of BULGARIAN NATIONAL TELEVISION, bTV and NOVA TV, for which it made 174 frequency assignments. 66 channels and basic parameters for television broadcasting with local coverage were also determined. In the VHF-FM range 87.5-108 MHz 12 frequency assignments were made for the national networks of BNR and "DARIK RADIO" and 40 frequencies and basic parameters for audio broadcasting with local coverage were determined.

358 frequency assignments and technical parameters for audio and television broadcasting were coordinated nationally and agreed by all interested bodies and departments. 141 operational projects for building transmitter station of licensed operators for audio broadcasting were approved, 13 of which national operators, and 66 operational projects for television broadcasting, 52 of which national operators.

1.4.2. Digital broadcasting

At the end of the last century, at a global scale, the process of transition from analogue to digital terrestrial broadcasting began. This transition is attributed to the fact that digital broadcasting features not only more efficient use of the radio spectrum and higher quality of the transmitted programs, but with the new possibilities for provision of new services and network planning for mobile and portable program reception. To ensure conditions for the transition from analogue to digital systems and introduction of the new technologies in the field of radio and television broadcasting, in 2004 and 2006 (two sessions) the Regional Radio communication Conference (RRC-04/06) for planning digital terrestrial broadcasting of the International Telecommunication Union was held.

During the intercessional period, the International Telecommunication Union developed the data format and the software for planning the digital frequency allotments and/or assignments, necessary for every administration, so that they be included in the Plan for introduction of digital terrestrial broadcasting. For that purpose the necessary input requirements for the Republic of Bulgaria were prepared and submitted. Based on the reds from the other states, a comprehensive verification was accomplished and the corrected data were submitted to the Radio communication Bureau which published them and distributed them among all administrations.

In accordance with the results of the first planning exercise, made by the Radio communication Bureau, the input requirements of the Republic of Bulgaria were analyzed and modified in order to achieve optimum allocation in the second exercise. The final input requirements were submitted in the Radio communication Bureau which determined the reference situation including analogue assignments and digital allotments and assignments. After development and publication of the draft plan for terrestrial digital broadcasting, the administrations will have the opportunity to analyze the results obtained and prepare for participation in the second session of RRC 04/06 in May-June 2006.

Representatives of CRC took an active part in the work of the Balkan East-European Group for preliminary coordination of the frequency plans for digital broadcasting of the

Balkan states. The Group was set up on Bulgaria's initiative to assist in the work of the Regional Radio conference and ensure conditions for optimum and mutually favourable digital plan for all participants.

2. Electromagnetic compatibility

In order to ensure safety of aviation, in 2005 330 investigations for electromagnetic compatibility between the VHF-FM radio stations and the navigation systems ILS, VOR and COM were conducted.

In order to locate the sources of trans-border interference for the audio and television broadcasting stations, CRC analyzed a large number of measurement records for recording signals in the frequency ranges allocated for broadcasting, and drew the relevant conclusions for elimination of the problems with those disturbances.

141 operational projects for building transmitting stations of licensed audio broadcasting operators and 66 for television broadcasting were checked. Checks were also made on 451 microwave hops of operators of telecommunication networks of the fixed service and 10 operational projects of networks of the fixed satellite service.