

CELLULAR COMMUNICATION STANDARD LTE OF POLOTSK, VITEBSK REGION

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Relevance. LTE (Long Term Evolution) is a logical continuation and improvement of third generation networks. LTE was approved by the Third Generation Partnership Project (3GPP) in January 2008. In the Republic of Belarus, the LTE radio access network was put into commercial operation on 17 December 2015. Construction of the network is carried out by the first infrastructure operator becloud for its further provision to all interested operators. By the end of 2016, 4G services were already available to residents of oblast centers, and today there is an active deployment of LTE network in large district centers, such as Bobruisk, Baranovichi, Lida, Orsha, Mozyr and others. LTE technology copes with the task perfectly, providing high data transmission speeds, thereby expanding the range of services in mobile networks and reducing the cost of their provision.

Goal of the work to develop a radio access network of cellular communication standard LTE of Polotsk, Vitebsk region.

Result analysis – The stage of calculations for the selected number of base stations and equipment parameters. With the help of the program atoll , it is possible to calculate the transmission ability, the city coverage with transmitters. The signal level in the covered area and other characteristics. After the end of the modeling process on the map near the base stations, an image of the coverage areas of the transmitters of the three sectors appears. As a result, we obtain a coverage map of the city of Polotsk with the calculated signal level, As a result, more than 75% of the covered area has a signal level ranging from -75 to -90 dBm, the most acceptable for modern subscriber equipment. Figure 6 shows the result of calculating the rate of transmission of subscriber data in the direction from BS to MS

Conclusion. In the course of the work the main stages of cellular communication development were given, the peculiarities of LTE network architecture, LTE radio interface functioning, as well as E-UTRAN radio interface structure were revealed when using OFDMA and SC-FDMA multiple access technologies. The analysis of MIMO technology capabilities is performed and the interaction of LTE networks with mobile communication networks of other 3GPP standards is studied. In oneways calculations of energy parameters the model of COST231-Hata radio waves propagation is put in place, which is the most optimal one for determination of transmission losses during network design in medium and large cities. Modeling of the radio coverage zone was carried out with the help of Atoll software complex. As a result, the radio access network of LTE standard is obtained taking into account the specified parameters.