

## **Prediction of electromagnetic field in urban areas**

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This paper presents modified method of calculating intensity of electromagnetic field in urban areas. Analyses of propagation of spherical waves and simultaneously usage of calculating diffraction and refraction coefficients of waves on obstacles in shape of wedge has been proposed as a method. The calculation of resultant field is made by superposition method. On basis of executed analysis the calculation algorithm is proposed and hypothetical calculations are presented.

The contemporary civilization requires quick access to information. This implies the necessity of sending information between any two positions not only in the area of chosen country but also worldwide. These tasks are realized by radiocommunication systems that ensure wireless bilateral communication between the mobile stations which are moving in the reach of base stations system. The area covered by the system is divided into smaller territories usually schematically presented in the figures as hexagons with base stations in their centers.

The suggested modification of this method relies on analyze of spherical wave propagation. For this assumption the exemplary calculations of field intensity in urban area have been done. We have received big compatibility of calculation results and measurements. As a result suggested modification of nowadays used methods allows for more precise calculations of prediction of electromagnetic field in big urban areas. In the same time we may observe necessity to create the data base with the factors of the materials used in architecture. In presented method we define the general geometry of waves propagating in the streets and use the general basic solution for electromagnetic waves including the disappearance with greater distance from source.