Project Title

Radio Wave Propagation Software Simulation in Urban and Non-urban Area for Radio Network Planning Scenarios

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Abstract

Due to develop technologies and new generation of radio services like radio mobile, cellular networks, control traffic radar systems, WLL, radio trunk networks,… it is not possible to use the traditional (try and error physically fielded test) method for network planning

This software is developed based on new wave propagation innovative model for all radio network planning scenarios in urban and non urban areas. Instead of using the traditional method for network planning which is low efficient and less accurate, using this software will present more privilege such as cost and time reduction in executed project, more accurate calculation for link study and coverage study of radio transceivers and base stations.

In this software not only have been used the more accurate model of propagation, but also high resolution geographically information such as topographic and geomorphology parameters; It means integrating 3 knowledge COMMUNICATION, COMPUTER and GIS resulted in a more accurate tool for network planning in all scenarios. By this tool the planner can present point to point path loss and calculate the signal strength received in receiver location and vise versa. Also in the case of point to multi point scenarios, the coverage with fading and silence effect of base stations in the real maps will be presented.

The accuracy of this software has been tested by some executed national projects in IRAN and confirmed in existing operational networks such as Air Traffic Control Radar Network planned in IRAN CAO, Radio Trunk Network in IRAN Railways Organization, Tehran Power Radio Trunk Network, and also in about 27 other executed projects.