

3D Electromagnetic Mapping of the Signal Strength in Long Term Evolution Technology in the Livestock Department of ESPOCH

Authors : Cinthia Campoverde, Mateo Benavidez, Victor Arias, Milton Torres

Abstract : This article focuses on the 3D electromagnetic mapping of the intensity of the signal received by a mobile antenna within the open areas of the Department of Livestock of the Escuela Superior Politecnica de Chimborazo (ESPOCH), located in the city of Riobamba, Ecuador. The transmitting antenna belongs to the mobile telephone company "TUENTI", and is analyzed in the 2 GHz bands, operating at a frequency of 1940 MHz, using Long Term Evolution (LTE). Power signal strength data in the area were measured empirically using the "Network Cell Info" application. A total of 170 samples were collected, distributed in 19 concentric circles around the base station. 3 campaigns were carried out at the same time, with similar traffic, and average values were obtained at each point, which varies between -65.33 dBm to -101.67 dBm. Also, the two virtualization software used are Sketchup and Unreal. Finally, the virtualized environment was visualized through virtual reality using Oculus 3D glasses, where the power levels are displayed according to a range of powers.

Keywords : reception power, LTE technology, virtualization, virtual reality, power levels

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