

ABSTRACT

A huge number of users and new applications need higher access speeds and lower latency of wireless communication. As a result, operators need more capacity and higher efficiency to serve their customer. LTE is designed to have wider channels up to 20MHz, with low latency and packet optimized radio access technology. The peak data rate envisaged for LTE is 100 Mbps in downlink and 50 Mbps in the uplink. In order to support the simultaneous use of legacy and new systems, the operator need to provide a better radio system.

The aim of this thesis is to designs, simulates, analyzes and expose the state of the art of map planning LTE radio system. Special emphasis is laid on radio link budget along with detailed coverage area and capacity. After that, the frequency planning of LTE is also studied. The results cover the interference limited coverage calculation, the traffic capacity calculation and radio frequency assignment. The implementation is achieved on the Atoll software platform for the LTE Radio Planning and also can see the simulation antenna in Google Earth. The study will also present the system-level simulation methodology and assumptions used, as well as some simulation results that are possibly affected by certain system parameters.

Keywords: Long Term Evolution, MIMO, Coverage area, Capacity, Cost 231-Hata.