

LTE Performance Analysis in the City of Bogota Northern Zone for Two Different Mobile Broadband Operators over Qualipoc

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Abstract : The evolution in mobile broadband technologies has allowed to increase the download rates in users considering the current services. The evaluation of technical parameters at the link level is of vital importance to validate the quality and veracity of the connection, thus avoiding large losses of data, time and productivity. Some of these failures may occur between the eNodeB (Evolved Node B) and the user equipment (UE), so the link between the end device and the base station can be observed. LTE (Long Term Evolution) is considered one of the IP-oriented mobile broadband technologies that work stably for data and VoIP (Voice Over IP) for those devices that have that feature. This research presents a technical analysis of the connection and channeling processes between UE and eNodeB with the TAC (Tracking Area Code) variables, and analysis of performance variables (Throughput, Signal to Interference and Noise Ratio (SINR)). Three measurement scenarios were proposed in the city of Bogotá; using QualiPoc, where two operators were evaluated (Operator 1 and Operator 2). Once the data were obtained, an analysis of the variables was performed determining that the data obtained in transmission modes vary depending on the parameters BLER (Block Error Rate), performance and SNR (Signal-to-Noise Ratio). In the case of both operators, differences in transmission modes are detected and this is reflected in the quality of the signal. In addition, due to the fact that both operators work in different frequencies, it can be seen that Operator 1, despite having spectrum in Band 7 (2600 MHz), together with Operator 2, is reassigning to another frequency, a lower band, which is AWS (1700 MHz), but the difference in signal quality with respect to the establishment with data by the provider Operator 2 and the difference found in the transmission modes determined by the eNodeB in Operator 1 is remarkable.

Keywords : BLER, LTE, network, qualipoc, SNR.

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