Abstract

Long Term Evolution (LTE) known as 4G technology is developed to solve exponential demand for higher data rate by the users. This research work carried out measurement on a captured LTE wireless network of a 4-way Transmit, 4-way Receive (4T4R) multiple-input multiple-output (MIMO) optimization technique and existing 2x2 MIMO to assess the throughput. The assessment was conducted on a mobile network set up of four sites and unit inter connection on LTE continuous coverage with inter-site distance of 500m using two terminals user equipment to download and upload data by drive test. Monitoring and results collection were carried out using Local monitoring Terminal (LMT) and Test mobile system (TEMs) Drive Test (DT) kit as well as analysis of data using TEMs DT kit and NetPerSec. The results showed that Terminal 1 recorded a maximum achievable downlink and uplink throughput of 47.5 Mbps and 14.2 Mbps respectively against the system baseline 2x2 MIMO of 33.6Mbps and 10.7Mbps respectively. Terminal2, on the other hand, achieved maximum downlink and uplink throughput of 44.0 Mbps and 14.1 Mbps respectively higher than the same baseline 2x2 MIMO. This improvement indicates that increasing the number of transmit and receive antennas expands
the network capacity thereby yielding more throughput.

References


Index Terms

- Computer Science
- Wireless

Keywords

- Throughput
- Downlink
- Uplink
- MIMO
- data rate