

ABSTRAK

Teknologi mobile dari generasi pertama sampai generasi ketiga telah dengan cepat berkembang untuk memenuhi kebutuhan layanan suara, video dan data. Dengan meningkatnya permintaan layanan data maka dibutuhkan teknologi yang dapat melayani peningkatan trafik yang terjadi. Upaya yang dilakukan untuk dapat melayani kebutuhan data yang tinggi adalah dengan menerapkan teknologi seluler 4G *Long Term Evolution* (LTE). Pada penelitian ini membahas tentang analisis pengukuran kualitas jaringan provider smartfren dengan frekuensi 2300 MHz pada wilayah Kecamatan Kapuk. Pengukuran *performansi* teknologi 4G *LTE* dilakukan dengan cara *Drive Test* menggunakan metode *Multi Site Verification* (MSV) atau *Cluster* dengan pengukuran parameter *RSRP*, *SINR*, dan *Downlink Throughput*. Adapun tujuan penelitian ini adalah untuk menganalisis kualitas *performansi* layanan jaringan 4G *LTE* provider PT.Smartfren Telecom Tbk. di wilayah kecamatan kapuk. Hasil penelitian menunjukkan bahwa kualitas *performansi* layanan jaringan 4G *LTE* provider PT.Smartfren Telecom Tbk. di wilayah kecamatan Kapuk didapatkan bahwa dari ke tiga parameter yang diukur diperoleh nilai *achieved RSRP* baik saat jam sibuk bernilai (96.80%) dengan rata-rata (-86.97 dBm) sedangkan saat jam sepi bernilai (94.99%) dengan rata-rata (-87.32 dBm), *SINR* saat jam sibuk bernilai (58.84%) dengan rata-rata (5.26 dB), sedangkan saat jam sepi bernilai (70.80%) dengan rata-rata (7.36 dB) dan *Downlink Throughput* saat jam sibuk bernilai (84.76%) dengan rata-rata (11.91 Mbps) sedangkan saat jam sepi bernilai (95.54%) dengan rata-rata (19.51 Mbps). Untuk keseluruhan nilai parameter *RSRP*,*SINR* dan *Downlink Throughput* saat busy hour dan non busy hour sudah mencapai dan memenuhi nilai standar KPI PT.Smartfren.

Kata Kunci : 4G LTE, DRIVE TEST, RSRP, SINR dan Downlink Throughput.

ABSTRACT

Mobile technology from the first generation to the third generation has rapidly developed to meet the needs of voice, video and data services. With the increasing demand for data services, technology is needed that can serve the increase in traffic that occurs. Efforts made to be able to serve high data needs are by implementing 4G Long Term Evolution (LTE) cellular technology. This study discusses the analysis of the quality measurement of the smartfren provider network with a frequency of 2300 MHz in the Kapuk District area. Measuring the performance of 4G LTE technology is done by means of a Drive Test using the Multi Site Verification (MSV) or Cluster method with measurement of RSRP, SINR, and Downlink Throughput parameters. The purpose of this study is to analyze the performance quality of the 4G LTE network service provider PT.Smartfren Telecom Tbk. in the Kapok district. The results showed that the quality of the performance of the 4G LTE network service provider PT.Smartfren Telecom Tbk. in the Kapuk sub-district, it was found that from the three parameters measured, the value of achieved RSRP during peak hours is (96.80%) with an average (-86.97 dBm) while during quiet hours it is (94.99%) with an average (-87.32) dBm), SINR during peak hours is (58.84%) with an average (5.26 dB), while during quiet hours is (70.80%) with an average (7.36 dB) and Downlink Throughput during peak hours is valued (84.76%) with average (11.91 Mbps), while during quiet hours it is valued (95.54%) with an average (19.51 Mbps). For all RSRP, SINR and Downlink parameter values, the throughput at busy hour and non busy hour has reached and met the KPI standard value of PT Smartfren.

Keywords : 4G LTE, DRIVE TEST, RSRP, SINR, and Downlink Troughput

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***ANALISIS PENGUKURAN JARINGAN LAYANAN SMARTFREN BERDASARKAN MULTI SITE
VERIFICATION PADA FREKUENSI 2300 MHz***

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