INTISARI

Salah satu teknologi komunikasi yang telah ada saat ini untuk meningkatkan efisiensi telekomunikasi adalah teknologi 4G *Long Term Evolution* (LTE). Beberapa faktor yang mempengaruhi kualitas jaringan *(network quality)* antara lain *signal strength* dan *quality of service*. Penelitian ini bertujuan untuk menganalisis korelasi antara *signal strength* parameter RSRP (*Reference Signal Received Power*) terhadap *quality of service* parameter *throughput* dan *jitter*. Penelitian dilakukan menggunakan metode *drive test* dengan *softwere G-Net Track Pro* dan *SpeedTest*, *provider* jaringan yang digunakan adalah *provider* Tri 4G LTE dengan 15 titik *sample* penelitian di Jalan Malioboro Yogyakarta. Hasil penelitian dan pengukuran menunjukkan bahwa rata-rata nilai RSRP adalah -82 dBm dan RSRQ -13 dB. Rata-rata hasil pengukuran *throughput* adalah 1 Mbps, rata-rata pengukuran *jitter* adalah 86,5 ms dan rata-rata *packet loss* adalah 0%. Sedangkan malam biasa rata-rata *throughput* adalah 1,4 Mbps, *Jitter* 33 ms, dan *packet loss* 0 %. Hasil analisis menunjukkan bahwa *signal strength* berpengaruh terhadap *quality of service*. Berdasarkan data hasil penelitian pada kondisi pengunjung normal, *signal strength* linear terhadap *quality of service*. Namun, berdasarkan hasil penelitian pada kondisi pengunjung padat terjadi ketidaksesuaian korelasi pada Titik 13, Titik 14, dan Titik 15. Pada ketiga titik tersebut, RSRP bernilai baik bahkan sangat baik dengan *range* nilai -72 dBm sampai -83 dBm, namun *quality of service* untuk parameter *throughput* dan *jitter* sangat buruk dengan *range* nilai *throughput* 0,4 Mbps sampai dengan 1,2 Mbps dan *jitter* dengan *range* nilai 93 ms sampai 130 ms. Korelasi antara *signal strength* terhadap *quality of service* terjadi apabila *signal strength* parameter RSRP memiliki nilai yang baik maka *quality of service* parameter *throughput* dan *jitter* juga memiliki nilai yang baik.

Kata Kunci: *Jitter*, Korelasi, RSRP, *Signal Strength, Throughput, Quality of Service*

ABSTRACT

Nowadays, one of the communications technology has existed to improve telecommunication efficiency is the technology of 4G Long Term Evolution (LTE). Some factors affect network quality, such as signal strength and quality of service. This study discusses the correlation between signal strength and the Reference Signal Received Power (RSRP) parameter on the quality of service with throughput and jitter parameters. This research is conducted by drive test method using the software G-Net Track Pro and SpeedTest, the network provider used is the provider Tri 4G LTE with a 15-point research sample at Malioboro street, Yogyakarta. The results of the research and measurements showed the average RSRP value of -82 dBm and RSRQ amounted to-13 dB. The average throughput measurement is 1 Mbps, the average measurement of jitter is 86.5 ms and the average packet loss is 0%. While the usual average night throughput is 1.4 Mbps, Jitter is 33 ms, and Packet Loss is 0%. The result showed that signal strength is affecting the quality of service. 80% or 13 sample research points show that signal strength is linear towards the quality of service. The correlation mismatched occur at point 13, point 14, and point 15. At all three points, the RSRP is well-priced even with a range of values of-72 dBm to-83 dBm, but the quality of service for throughput and jitter parameters is very poor with a throughput range of 0.4 Mbps to 1.2 Mbps and jitter with range value 93 ms to 130 ms. Results analysis showed the correlation between the signal strength to the quality of service occurs when the signal strength in this research RSRP parameter has a good value then the quality of service for the throughput and jitter parameters also have a good value.

Keywords: Jitter, Correlation, RSRP, Signal Strength, Throughput, Quality of Service.