**Hasil Simulasi Atoll Pada Penelitian “Perancangan Dan Analisis Pemanfaatan Frekuensi 850 Mhz Pada Teknologi LTE *Advanced* Untuk Meningkatkan Penetrasi *Mobile Broadband* Di Indonesia” oleh Ade Wahyudin, Muntaqo Alfin Amanaf, ita k. Ratnasari**

**1. Reference Signal Received power**



**Gambar1. Legenda parameter simulasi RSRP**



**Gambar2. Hasil simulasi RSRP kota Jakarta Pusat; LTE-A 850MHz (kiri), LTE 1800MHz (Kanan)**



**Gambar 3. Hasil simulasi RSRP kota Bandung; LTE-A 850MHz (kiri), LTE 1800MHz (Kanan)**



**Gambar 4. Hasil simulasi RSRP Kabupaten Banyumas; LTE-A 850MHz (kiri), LTE 1800MHz (Kanan)**



**Gambar 5. Hasil simulasi RSRPKabupaten Toba Samosir; LTE-A 850MHz (kiri), LTE 1800MHz (Kanan)**

1. **Carrier Signal to Interference + Noise Ratio**

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**Gambar 6. Legenda parameter CINR**

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**Gambar 7. Hasil simulasi RSRP kota Jakarta Pusat; LTE-A 850MHz (kiri), LTE 1800MHz (Kanan)**



**Gambar 8. Hasil simulasi RSRP kota Bandung; LTE-A 850MHz (kiri), LTE 1800MHz (Kanan)**



**Gambar 9. Hasil simulasi RSRP Kabupaten Banyumas; LTE-A 850MHz (kiri), LTE 1800MHz (Kanan)**



**Gambar 10. Hasil simulasi RSRP Kabupaten Toba Samosir; LTE-A 850MHz (kiri), LTE 1800MHz (Kanan)**

1. **Active User dan Effective Throughput**
	1. **Jakarta pusat, LTE 850 MHz**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Peak RLC Cumulated Throughput (DL) (kbps) | Effective RLC Cumulated Throughput (DL) (kbps) | Cumulated Application Throughput (DL) (kbps) | Peak RLC Cumulated Throughput (UL) (kbps) | Effective RLC Cumulated Throughput (UL) (kbps) | Cumulated Application Throughput (UL) (kbps) | Connection Success Rate (%) |
| Site0 | 68,388.70 | 68,264 | 67,190.80 | 44,992.60 | 44,992.60 | 43,892.80 | 100 |
| Site1 | 39,392.30 | 39,260.40 | 38,710.60 | 31,104.80 | 31,104.80 | 30,307.30 | 99.65 |
| Site2 | 99,112.90 | 98,560.30 | 96,812.30 | 101,184 | 101,184 | 98,754.70 | 98.47 |
| Site3 | 60,203.60 | 60,093.70 | 59,142.20 | 43,712.60 | 43,712.60 | 42,621.80 | 98.78 |

* 1. **Jakarta pusat, LTE 1800 MHz**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Peak RLC Cumulated Throughput (DL) (kbps) | Effective RLC Cumulated Throughput (DL) (kbps) | Cumulated Application Throughput (DL) (kbps) | Peak RLC Cumulated Throughput (UL) (kbps) | Effective RLC Cumulated Throughput (UL) (kbps) | Cumulated Application Throughput (UL) (kbps) | Connection Success Rate (%) |
| Site0 | 25,251.10 | 25,130 | 24,803.20 | 14,592.40 | 14,567.30 | 14,237.80 | 97.64 |
| Site1 | 32,922.30 | 32,814.20 | 32,358.60 | 18,752.50 | 18,717.50 | 18,233.80 | 96.32 |
| Site10 | 26,285.90 | 26,249.80 | 25,889.30 | 11,136 | 11,113 | 10,817.80 | 95.85 |
| Site11 | 10,824.20 | 10,789.80 | 10,660.40 | 6,208.19 | 6,184.70 | 6,056.59 | 96.63 |
| Site12 | 6,392.53 | 6,376.70 | 6,298.52 | 2,560.04 | 2,551.98 | 2,475.40 | 86.44 |
| Site2 | 45,492.90 | 45,111.10 | 44,514.70 | 31,872.90 | 31,814.80 | 31,062.50 | 90.79 |
| Site3 | 41,122.80 | 40,771.20 | 40,200.80 | 30,592.70 | 30,532.30 | 29,716.20 | 89.27 |
| Site4 | 34,618.40 | 34,385.70 | 33,908.10 | 17,216.50 | 17,178.30 | 16,766.30 | 94.52 |
| Site5 | 38,521.90 | 37,871.30 | 37,331.70 | 38,785 | 38,716 | 37,684.70 | 87.64 |
| Site6 | 50,097.30 | 49,483.70 | 48,827.30 | 39,425 | 39,327.50 | 38,295.80 | 91.11 |
| Site7 | 35,695 | 35,234.60 | 34,710.10 | 28,480.80 | 28,420.20 | 27,717.10 | 91.69 |
| Site8 | 38,675.60 | 38,156.60 | 37,646.30 | 35,009 | 34,964.60 | 34,134.10 | 89.59 |
| Site9 | 30,551.30 | 30,379.60 | 29,998.40 | 18,752.50 | 18,719.50 | 18,235.50 | 95.97 |

* 1. **Kota Bandung, LTE 850 MHz**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Peak RLC Cumulated Throughput (DL) (kbps) | Effective RLC Cumulated Throughput (DL) (kbps) | Cumulated Application Throughput (DL) (kbps) | Peak RLC Cumulated Throughput (UL) (kbps) | Effective RLC Cumulated Throughput (UL) (kbps) | Cumulated Application Throughput (UL) (kbps) | Connection Success Rate (%) |
| Site0 | 95,497.10 | 94,998 | 93,441.90 | 96,320.90 | 96,320.90 | 93,768.80 | 93.31 |
| Site1 | 110,297.00 | 110,034.00 | 108,174.00 | 99,265.10 | 99,265.10 | 96,693.40 | 99.64 |
| Site2 | 36,207.20 | 35,971.10 | 35,305.00 | 38,784 | 38,784 | 37,767.10 | 97.09 |
| Site3 | 94,436.00 | 93,924.20 | 92,229.70 | 101,185.00 | 101,185.00 | 98,606.10 | 96.28 |
| Site4 | 93,153.20 | 92,432.90 | 91,111.40 | 94,592.90 | 94,592.90 | 92,381.70 | 88.71 |
| Site5 | 37,392.20 | 37,360.50 | 36,900.50 | 11,904.30 | 11,904.30 | 11,606.10 | 100 |
| Site6 | 25,472.00 | 25,472.00 | 25,171.20 | 10,432.30 | 10,432.30 | 10,179.50 | 100 |

* 1. **Kota Bandung, LTE 1800 MHz**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Peak RLC Cumulated Throughput (DL) (kbps) | Effective RLC Cumulated Throughput (DL) (kbps) | Cumulated Application Throughput (DL) (kbps) | Peak RLC Cumulated Throughput (UL) (kbps) | Effective RLC Cumulated Throughput (UL) (kbps) | Cumulated Application Throughput (UL) (kbps) | Connection Success Rate (%) |
| Site0 | 32,443.60 | 32,311 | 31,951.80 | 14,464.30 | 14,388.50 | 14,025.60 | 98.14 |
| Site1 | 25,244.30 | 25,106.90 | 24,825.60 | 9,920.26 | 9,880.46 | 9,628.70 | 100 |
| Site10 | 69,687.90 | 68,896.00 | 68,085.30 | 52,097 | 51,971 | 50,628.50 | 89.81 |
| Site11 | 66,790.70 | 66,009.80 | 65,182.30 | 53,313.30 | 53,184.70 | 51,774.10 | 88.01 |
| Site12 | 27,020.80 | 26,913.00 | 26,595.60 | 13,504.30 | 13,438.10 | 13,079.30 | 96.78 |
| Site13 | 35,311.00 | 35,054.20 | 34,652.20 | 14,080.40 | 14,028.70 | 13,684.40 | 97.82 |
| Site14 | 75,555.80 | 74,579.00 | 73,666.80 | 55,361.30 | 55,209.90 | 53,774.60 | 89.22 |
| Site15 | 46,756.10 | 46,540.90 | 46,004.40 | 25,600.60 | 25,521.10 | 24,857.30 | 96.25 |
| Site16 | 55,426.90 | 54,742.60 | 54,048.60 | 39,681 | 39,550 | 38,485.20 | 87.62 |
| Site17 | 62,680.70 | 62,204.90 | 61,464.50 | 44,929 | 44,773.00 | 43,554.30 | 86.85 |
| Site18 | 33,134 | 33,007.10 | 32,628.40 | 17,600.40 | 17,532.50 | 17,040.90 | 97.01 |
| Site2 | 59,299.90 | 58,663.60 | 57,969.40 | 47,937 | 47,798.70 | 46,610.50 | 86.48 |
| Site3 | 69,966.10 | 69,181.30 | 68,332.40 | 51,905.30 | 51,750.10 | 50,405.90 | 90.32 |
| Site4 | 42,638.50 | 42,088.10 | 41,575.90 | 31,232.80 | 31,129.10 | 30,322.50 | 91.96 |
| Site5 | 49,848.40 | 49,291 | 48,694.50 | 33,792.80 | 33,692.60 | 32,778.80 | 91.65 |
| Site6 | 79,111 | 78,256.60 | 77,317.70 | 55,937.40 | 55,775.70 | 54,365.30 | 87.74 |
| Site7 | 74,616.60 | 73,752.40 | 72,871.10 | 55,297.40 | 55,100.10 | 53,676.80 | 86.6 |
| Site8 | 42,875.20 | 42,374.80 | 41,857.30 | 27,776.70 | 27,653.30 | 26,983.80 | 94.31 |
| Site9 | 17,397.70 | 17,344.60 | 17,156.30 | 8,320.25 | 8,283.20 | 8,073.06 | 100 |

* 1. **Kabupaten Banyumas, LTE 850 MHz**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Peak RLC Cumulated Throughput (DL) (kbps) | Effective RLC Cumulated Throughput (DL) (kbps) | Cumulated Application Throughput (DL) (kbps) | Peak RLC Cumulated Throughput (UL) (kbps) | Effective RLC Cumulated Throughput (UL) (kbps) | Cumulated Application Throughput (UL) (kbps) | Connection Success Rate (%) |
| Site0 | 16,584.60 | 16,561 | 16,357.40 | 6,208.13 | 6,188.67 | 6,014.53 | 100 |
| Site1 | 56,690.50 | 56,633.20 | 55,900.10 | 24,000.60 | 23,986.50 | 23,342.30 | 98.25 |
| Site10 | 26,535.00 | 26,503.70 | 26,165.50 | 12,224 | 12,224 | 11,912.60 | 99.07 |
| Site11 | 64,241.70 | 64,024.80 | 63,180.80 | 31,616.80 | 31,582.40 | 30,790.90 | 95.48 |
| Site12 | 85,324.80 | 85,203.10 | 84,111.40 | 41,089.00 | 41,062.90 | 39,997.20 | 97.97 |
| Site13 | 65,608.60 | 65,428.80 | 64,630.70 | 31,360.70 | 31,301.70 | 30,447.20 | 98.9 |
| Site14 | 51,829.30 | 51,669.80 | 50,979.10 | 24,896.70 | 24,825.40 | 24,204.60 | 99.57 |
| Site15 | 36,973.70 | 36,659.60 | 36,150.10 | 25,664.70 | 25,631.50 | 24,960.90 | 97.35 |
| Site16 | 86,096.10 | 85,727.10 | 84,677.30 | 39,041 | 39,026 | 38,006.00 | 97.39 |
| Site17 | 93,701.30 | 93,474.60 | 92,260.30 | 46,913 | 46,911.60 | 45,679.50 | 96.5 |
| Site18 | 42,222 | 42,065.90 | 41,557.10 | 20,928.60 | 20,915.10 | 20,388.70 | 92.38 |
| Site19 | 71,276.60 | 71,191.00 | 70,259.50 | 34,049 | 34,043.30 | 33,170.40 | 96.3 |
| Site2 | 72,221.60 | 71,849.10 | 70,953.30 | 31,873.00 | 31,775.00 | 31,018.40 | 98.7 |
| Site20 | 89,514.40 | 89,335.00 | 88,217.10 | 39,169.10 | 39,158.00 | 38,182.70 | 94.96 |
| Site21 | 43,389.80 | 43,245 | 42,707.80 | 18,240.40 | 18,240.40 | 17,796.90 | 96.3 |
| Site22 | 26,472 | 26,464.60 | 26,138.50 | 9,984.23 | 9,984.23 | 9,735.91 | 99.45 |
| Site23 | 71,658.40 | 71,365.70 | 70,408.50 | 35,264.90 | 35,161.00 | 34,242.60 | 96.62 |
| Site24 | 21,205.20 | 21,151.60 | 20,876.10 | 10,048.30 | 10,048.30 | 9,809.53 | 96.35 |
| Site3 | 77,760.40 | 77,539.50 | 76,494.40 | 35,905.00 | 35,896.50 | 35,005.10 | 97.15 |
| Site4 | 80,453.20 | 80,247.70 | 79,232.90 | 41,537 | 41,466 | 40,335.60 | 98.1 |
| Site5 | 56,185.30 | 55,996.40 | 55,324.90 | 26,368.70 | 26,311.70 | 25,675.70 | 96.65 |
| Site6 | 51,641.60 | 51,505.60 | 50,913.80 | 25,920.70 | 25,920.70 | 25,241.60 | 98.03 |
| Site7 | 77,703.40 | 77,479.90 | 76,485.10 | 37,952.90 | 37,922.40 | 36,929.20 | 96.85 |
| Site8 | 101,831 | 101,489 | 100,207 | 46,721.20 | 46,680.70 | 45,497.50 | 94.62 |
| Site9 | 45,854.30 | 45,620.10 | 45,046.50 | 21,312.50 | 21,221 | 20,626.40 | 100 |

* 1. **Kabupaten Banyumas, LTE 1800 MHz**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Peak RLC Cumulated Throughput (DL) (kbps) | Effective RLC Cumulated Throughput (DL) (kbps) | Cumulated Application Throughput (DL) (kbps) | Peak RLC Cumulated Throughput (UL) (kbps) | Effective RLC Cumulated Throughput (UL) (kbps) | Cumulated Application Throughput (UL) (kbps) | Connection Success Rate (%) |
| Site0 | 12,179.60 | 12,095 | 11,959.60 | 8,512.18 | 8,469.98 | 8,206.85 | 100 |
| Site1 | 5,850.07 | 5,806.49 | 5,738.69 | 7,168.18 | 7,122.54 | 6,939.44 | 100 |
| Site10 | 10,930.20 | 10,823.90 | 10,709.80 | 5,056 | 5,021 | 4,889.18 | 98.95 |
| Site11 | 21,816.80 | 21,571.40 | 21,316.20 | 15,232.30 | 15,128.90 | 14,718.40 | 98.79 |
| Site12 | 14,075.80 | 13,989.10 | 13,816.00 | 10,112.30 | 10,046.80 | 9,819.17 | 100 |
| Site13 | 19,989.20 | 19,828.50 | 19,584.20 | 13,056.30 | 12,982.10 | 12,633.70 | 99.12 |
| Site14 | 9,297.85 | 9,243.66 | 9,130.74 | 6,336.18 | 6,309.02 | 6,154.06 | 100 |
| Site15 | 8,772.45 | 8,621.05 | 8,530.97 | 2,816.09 | 2,800.83 | 2,737.24 | 100 |
| Site16 | 22,415.90 | 22,280.00 | 22,018.10 | 11,200 | 11,134 | 10,860.30 | 99.53 |
| Site17 | 21,076.50 | 20,903.60 | 20,658.80 | 9,792 | 9,735.23 | 9,515.59 | 99.47 |
| Site18 | 10,129 | 10,035.40 | 9,917.34 | 8,064.17 | 8,032.79 | 7,809.71 | 100 |
| Site19 | 14,843.10 | 14,693.70 | 14,514.50 | 14,336 | 14,261.10 | 13,879.20 | 100 |
| Site2 | 12,158.90 | 12,090.70 | 11,941.70 | 10,304.20 | 10,249.20 | 9,978.38 | 100 |
| Site20 | 15,893.30 | 15,600.70 | 15,422.00 | 12,672.30 | 12,603.50 | 12,273.70 | 100 |
| Site21 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 |   |
| Site22 | 21,412 | 21,207.50 | 20,978.20 | 12,352.30 | 12,267.40 | 11,916.10 | 100 |
| Site23 | 21,258.80 | 21,052.30 | 20,824.80 | 12,800.30 | 12,726.50 | 12,395.60 | 99.55 |
| Site24 | 16,037.90 | 15,900.30 | 15,714.00 | 10,496.20 | 10,437.30 | 10,165.00 | 98.91 |
| Site25 | 15,841.10 | 15,683.70 | 15,499.10 | 12,736.30 | 12,668.80 | 12,333.00 | 99.54 |
| Site26 | 16,381.90 | 16,274.60 | 16,088.70 | 10,816 | 10,755 | 10,500.00 | 100 |
| Site27 | 12,982.70 | 12,768.20 | 12,619.00 | 6,976.17 | 6,948.26 | 6,771.72 | 100 |
| Site28 | 2,432.27 | 2,312.17 | 2,286.96 | 1,536.03 | 1,528.89 | 1,483.15 | 100 |
| Site29 | 19,196.10 | 18,958.50 | 18,726.50 | 9,088.22 | 9,048.66 | 8,805.11 | 99.41 |
| Site3 | 1,855 | 1,843 | 1,820 | 2,496.07 | 2,488.33 | 2,422.56 | 100 |
| Site30 | 18,537.00 | 18,254.30 | 18,025.80 | 11,392.30 | 11,321 | 11,055.60 | 100 |
| Site31 | 8,747.68 | 8,670.26 | 8,568.20 | 4,544.11 | 4,530.23 | 4,423.67 | 100 |
| Site32 | 17,596.30 | 17,474.30 | 17,253.50 | 11,776.30 | 11,702.80 | 11,392.40 | 99.5 |
| Site33 | 16,219 | 16,013.30 | 15,804.50 | 10,304.30 | 10,243.70 | 10,008.90 | 99.5 |
| Site34 | 12,694 | 12,639 | 12,502.80 | 8,064.17 | 8,014.44 | 7,796.99 | 100 |
| Site35 | 9,941.30 | 9,768.92 | 9,657.26 | 7,424.20 | 7,378.18 | 7,192.18 | 100 |
| Site36 | 6,141.05 | 6,096 | 6,029.92 | 3,648.11 | 3,630.13 | 3,537.63 | 100 |
| Site37 | 23,133.30 | 22,787.70 | 22,501.70 | 13,760.30 | 13,670.90 | 13,279.90 | 98.04 |
| Site38 | 7,976.93 | 7,907.79 | 7,813.35 | 7,232.19 | 7,196.10 | 7,022.08 | 100 |
| Site39 | 23,125.30 | 22,950.40 | 22,675.20 | 11,584.30 | 11,524.40 | 11,266.80 | 98.28 |
| Site4 | 10,583.50 | 10,555.30 | 10,438.10 | 12,288.30 | 12,221.70 | 11,911.10 | 100 |
| Site40 | 30,109.40 | 29,729.80 | 29,389.80 | 12,992.30 | 12,942.90 | 12,614.50 | 99.22 |
| Site41 | 21,908.10 | 21,677.40 | 21,417 | 10,816.30 | 10,739.80 | 10,485.10 | 99.53 |
| Site42 | 17,206.60 | 16,990 | 16,784.50 | 12,096.30 | 12,018 | 11,714.70 | 98.6 |
| Site43 | 4,898.76 | 4,838.24 | 4,782.18 | 3,904.10 | 3,884.41 | 3,784.40 | 100 |
| Site44 | 6,628.31 | 6,584.04 | 6,496.38 | 4,800.13 | 4,774.77 | 4,681.13 | 100 |
| Site45 | 14,024 | 13,921.20 | 13,732.40 | 10,688.20 | 10,625.50 | 10,351.40 | 100 |
| Site46 | 18,549.80 | 18,378.80 | 18,147.10 | 11,712.30 | 11,636.90 | 11,393.50 | 99.54 |
| Site47 | 21,894.10 | 21,665.50 | 21,417.70 | 13,824.40 | 13,755.40 | 13,408.80 | 99.23 |
| Site48 | 21,137 | 20,943.70 | 20,697.10 | 12,992.30 | 12,920.20 | 12,607.50 | 99.16 |
| Site49 | 14,367.60 | 14,303.10 | 14,126.80 | 6,400.16 | 6,366.02 | 6,205.51 | 100 |
| Site5 | 20,641.60 | 20,530 | 20,276.50 | 10,816.30 | 10,759.30 | 10,483.70 | 99.49 |
| Site50 | 16,065.70 | 15,826.30 | 15,638.70 | 11,712.30 | 11,651.50 | 11,346.30 | 100 |
| Site51 | 17,099.30 | 17,021.80 | 16,816 | 11,456.30 | 11,409 | 11,111.40 | 100 |
| Site52 | 21,777 | 21,640.30 | 21,385 | 12,800.40 | 12,723.70 | 12,433.70 | 99.57 |
| Site53 | 25,434.30 | 25,108.10 | 24,813.60 | 14,016.40 | 13,945.60 | 13,617.80 | 99.62 |
| Site54 | 12,185 | 12,070.40 | 11,923.40 | 6,656.20 | 6,619.19 | 6,461.04 | 100 |
| Site55 | 11,869.30 | 11,762.40 | 11,621.30 | 6,208.17 | 6,170.46 | 6,022.27 | 99.14 |
| Site56 | 8,549.06 | 8,479.64 | 8,382.25 | 6,272.16 | 6,245.76 | 6,096.54 | 100 |
| Site57 | 17,757 | 17,603.90 | 17,399.90 | 11,968.30 | 11,906.70 | 11,563.50 | 98.98 |
| Site58 | 14,705.60 | 14,630.10 | 14,462.60 | 6,272.18 | 6,250.21 | 6,106.20 | 99.21 |
| Site59 | 22,228.30 | 22,004.50 | 21,737.50 | 12,288.30 | 12,203.40 | 11,883.10 | 97.91 |
| Site6 | 5,685.76 | 5,643.32 | 5,576.64 | 4,352.11 | 4,324.81 | 4,210.33 | 100 |
| Site60 | 10,087.40 | 10,017.50 | 9,909.69 | 5,440.13 | 5,414.62 | 5,284.11 | 100 |
| Site61 | 4,337 | 4,255.21 | 4,190.58 | 2,688.06 | 2,667.39 | 2,599.95 | 100 |
| Site62 | 10,516.80 | 10,414.40 | 10,283.50 | 7,424.17 | 7,378.51 | 7,172.39 | 100 |
| Site63 | 13,321.50 | 13,085.10 | 12,930.40 | 11,520.30 | 11,463.50 | 11,165.30 | 100 |
| Site64 | 4,067.13 | 4,036.71 | 3,996.34 | 2,880.07 | 2,868.18 | 2,798.64 | 100 |
| Site65 | 7,143.03 | 7,088.55 | 6,996.15 | 4,480.10 | 4,457.81 | 4,336.80 | 100 |
| Site7 | 9,377 | 9,337.53 | 9,232.98 | 5,632.16 | 5,601.20 | 5,473.95 | 100 |
| Site8 | 21,636.70 | 21,438.50 | 21,188.40 | 13,504.40 | 13,410.50 | 13,082.90 | 98.4 |
| Site9 | 8,451.52 | 8,372.49 | 8,261.87 | 7,488.16 | 7,448.10 | 7,251.25 | 100 |

* 1. **Kabupaten Toba Samosir, LTE 850 MHz**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Peak RLC Cumulated Throughput (DL) (kbps) | Effective RLC Cumulated Throughput (DL) (kbps) | Cumulated Application Throughput (DL) (kbps) | Peak RLC Cumulated Throughput (UL) (kbps) | Effective RLC Cumulated Throughput (UL) (kbps) | Cumulated Application Throughput (UL) (kbps) | Connection Success Rate (%) |
| Site0 | 330.18 | 322 | 318.62 | 320.01 | 316.88 | 313.71 | 100 |
| Site10 | 8,974.87 | 8,964.80 | 8,862.50 | 4,352.08 | 4,339.89 | 4,214.86 | 100 |
| Site11 | 21,195.50 | 21,128.10 | 20,873.30 | 9,472 | 9,462 | 9,213.70 | 100 |
| Site12 | 30,312.40 | 30,168.50 | 29,798.10 | 14,848.40 | 14,838.10 | 14,469.80 | 98.18 |
| Site13 | 17,420.50 | 17,354.70 | 17,148.40 | 11,136.30 | 11,092.90 | 10,824.00 | 100 |
| Site14 | 40,724.70 | 40,521.90 | 40,048.90 | 14,528.40 | 14,512.10 | 14,193.30 | 97.67 |
| Site15 | 38,823.40 | 38,715.60 | 38,256.60 | 18,304.50 | 18,284.10 | 17,819.90 | 98.82 |
| Site16 | 5,551.31 | 5,419.34 | 5,354.94 | 3,136.05 | 3,107.94 | 3,010.88 | 100 |
| Site17 | 6,330.16 | 6,301.05 | 6,227.80 | 3,904 | 3,892 | 3,776.91 | 100 |
| Site2 | 32,008.20 | 31,784.50 | 31,442.80 | 17,792 | 17,750.90 | 17,297.80 | 98.42 |
| Site3 | 12,706 | 12,607.90 | 12,467.70 | 7,808.22 | 7,779.28 | 7,594.45 | 100 |
| Site5 | 33,356.00 | 33,255.90 | 32,882.40 | 14,912 | 14,885.90 | 14,532.80 | 100 |
| Site6 | 21,397.70 | 21,347.60 | 21,088.10 | 12,544.30 | 12,525.30 | 12,195.50 | 99.07 |
| Site7 | 36,501.40 | 36,405.40 | 35,990.20 | 21,184.50 | 21,175.30 | 20,590.00 | 99.41 |
| Site8 | 40,992.80 | 40,956 | 40,495.00 | 17,856.50 | 17,854.40 | 17,445.50 | 99.69 |
| Site9 | 11,729 | 11,726.80 | 11,589.00 | 6,784.23 | 6,779.23 | 6,649.99 | 100 |

* 1. **Kabupaten Toba Samosir, LTE 1800 MHz**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Peak RLC Cumulated Throughput (DL) (kbps) | Effective RLC Cumulated Throughput (DL) (kbps) | Cumulated Application Throughput (DL) (kbps) | Peak RLC Cumulated Throughput (UL) (kbps) | Effective RLC Cumulated Throughput (UL) (kbps) | Cumulated Application Throughput (UL) (kbps) | Connection Success Rate (%) |
| Site0 | 6,393.57 | 6,350 | 6,246.05 | 2,624.06 | 2,613.16 | 2,551.27 | 100 |
| Site1 | 9,381.43 | 9,245.15 | 9,051.34 | 5,184.10 | 5,155.56 | 4,996.96 | 100 |
| Site10 | 1,739.97 | 1,737.96 | 1,720.58 | 384 | 383 | 374.00 | 100 |
| Site11 | 10,635.00 | 10,635.00 | 10,418.40 | 7,104.20 | 7,061.43 | 6,899.22 | 100 |
| Site12 | 3,095.61 | 3,039.99 | 3,009.59 | 3,456.08 | 3,433.03 | 3,327.39 | 100 |
| Site13 | 11,949.70 | 11,898.30 | 11,605.70 | 6,144.18 | 6,114.47 | 5,987.16 | 100 |
| Site14 | 15,230.80 | 15,069.50 | 14,686.60 | 6,592.17 | 6,550.33 | 6,383.17 | 100 |
| Site15 | 2,360.82 | 2,356.04 | 2,332.48 | 1,408.03 | 1,398.68 | 1,369.37 | 100 |
| Site16 | 13,191.20 | 12,994.70 | 12,843.90 | 5,440 | 5,411 | 5,275.63 | 100 |
| Site17 | 11,152.60 | 10,936.80 | 10,769.60 | 5,824 | 5,795.74 | 5,666.40 | 100 |
| Site18 | 7,711 | 7,675.32 | 7,473.76 | 2,304.07 | 2,296.75 | 2,243.06 | 100 |
| Site19 | 16,998.70 | 16,736.00 | 16,317.30 | 7,104 | 7,057.63 | 6,859.99 | 100 |
| Site2 | 604.81 | 604.81 | 598.76 | 384.01 | 380.76 | 371.92 | 100 |
| Site20 | 2,388.70 | 2,370.40 | 2,305.74 | 768.02 | 764.76 | 746.87 | 100 |
| Site21 | 2,389.34 | 2,374 | 2,309.11 | 2,240.07 | 2,225.78 | 2,172.97 | 100 |
| Site22 | 13,409 | 13,309.50 | 13,010.70 | 6,656.16 | 6,608.19 | 6,455.72 | 100 |
| Site23 | 13,386.30 | 13,236.30 | 13,044.60 | 7,488.19 | 7,448.25 | 7,241.31 | 99.27 |
| Site24 | 8,100.66 | 8,014.34 | 7,840.52 | 6,272.18 | 6,236.62 | 6,087.65 | 100 |
| Site25 | 2,359.08 | 2,352.82 | 2,300.51 | 1,984.03 | 1,976.60 | 1,926.21 | 100 |
| Site26 | 7,650.17 | 7,596.86 | 7,427.01 | 3,840 | 3,820 | 3,710.11 | 100 |
| Site27 | 5,822.53 | 5,793.18 | 5,644.13 | 4,928.11 | 4,898.14 | 4,757.57 | 100 |
| Site28 | 4,497.34 | 4,400.26 | 4,299.47 | 2,624.04 | 2,614.68 | 2,532.42 | 100 |
| Site29 | 8,180.75 | 8,044.16 | 7,785.22 | 2,752.05 | 2,735.10 | 2,651.84 | 100 |
| Site3 | 5,333 | 5,227 | 5,105 | 1,920.05 | 1,913.53 | 1,858.66 | 100 |
| Site30 | 2,880.45 | 2,878.99 | 2,841.53 | 896.00 | 896 | 866.56 | 100 |
| Site31 | 10,019.00 | 9,926.32 | 9,766.57 | 6,656.15 | 6,626.25 | 6,473.40 | 100 |
| Site32 | 7,722.95 | 7,610.34 | 7,523.78 | 6,272.18 | 6,232.33 | 6,098.78 | 100 |
| Site33 | 7,866 | 7,838.04 | 7,681.25 | 3,136.08 | 3,114.81 | 3,037.94 | 100 |
| Site34 | 2,642 | 2,572 | 2,515.55 | 2,048.02 | 2,040.14 | 1,968.78 | 100 |
| Site35 | 3,288.04 | 3,173.98 | 3,101.28 | 320.01 | 316.32 | 308.09 | 100 |
| Site36 | 3,568.98 | 3,553 | 3,476.83 | 1,984.05 | 1,972.05 | 1,911.71 | 100 |
| Site37 | 7,316.60 | 7,250.31 | 7,160.47 | 6,208.16 | 6,172.58 | 6,019.12 | 100 |
| Site4 | 5,216.79 | 5,208.11 | 5,145.14 | 3,008.07 | 2,996.20 | 2,915.20 | 100 |
| Site5 | 6,509.75 | 6,356.17 | 6,256.49 | 4,160.10 | 4,135.49 | 4,017.89 | 100 |
| Site6 | 1,058.39 | 1,036.20 | 1,025.84 | 320.01 | 319.05 | 310.74 | 100 |
| Site7 | 2,264.85 | 2,237.37 | 2,215.00 | 1,664.02 | 1,654.80 | 1,597.61 | 100 |
| Site8 | 6,866.92 | 6,772.61 | 6,665 | 3,904.09 | 3,884.99 | 3,769.70 | 100 |
| Site9 | 4,165.24 | 4,124 | 4,040.66 | 2,752.07 | 2,729 | 2,650.94 | 100 |