DAFTAR ISI

Abstrak i
Abstract ii
Kata Pengantar iii
Daftar Isi v
Daftar Gambar viii
Daftar Tabel ix
Daftar Grafik x
Daftar Singkatan xi

BAB I PENDAHULUAN
1.1 Latar Belakang 2
1.2 Penelitian Terkait 3
1.3 Perumusan Masalah 4
1.4 Batasan Masalah 4
1.5 Tujuan Penelitian 5
1.6 Hipotesis Penelitian 5
1.7 Metodologi Penelitian 6
1.8 Sistematika Penulisan 7
BAB II TINJAUAN PUSTAKA
2.1 Perkembangan Teknologi Seluler 8
2.2 Long Term Evolution 9
2.3 LTE-Advanced 10
2.4 Konfigurasi Jaringan 12
2.5 Carrier Aggregation 14
2.5.1 Intra band non contiguous 15
2.5.2 Inter band non contiguous 15
2.5.3 Intermodulation Interferece 16
2.6 Frekuensi Kerja Carrier Aggregation 16
2.7 Frekuensi Reuse 17
2.7.1 Frequency Reuse 1 18
2.7.2 Frequency Reuse 3 18
2.7.3 Fractional Frequency Reuse 19
2.7.4 Soft Frequency Reuse 20
2.7.5 Intelligent Reuse 20
2.8 Coverage & Capacity Planning 20
2.8.1 Planning by Capacity 21
2.8.1.1 Forecasting Jumlah Pelanggan 21

2.8.1.2 Perhitungan Network Throughput 21
2.8.1.3 Perhitungan Throughput per cell 24
2.8.1.4 Perhitungan Jumlah Site 25
2.8.2 Planning by Coverage 26
2.8.2.1 Perhitungan Link Budget 26
2.8.2.2 Perhitungan Jari- jari sel 27
2.8.2.3 Perhitungan Jumlah sel 28
BAB III METODE PERANCANGAN DAN PEMODELAN SIMULASI JARINGAN LTE- ADVANCED
3.1 Pendahuluan 29
3.2 Diagram Alir 29
3.3 Penentuan Parameter LTE 31
3.3.1 Kondisi Daerah exisiting & Data Kependudukan 31
3.3.2 Klasifikasi Daerah Layanan 33
3.3.3 Spesifikasi Perangkat 34
3.3.4 Penentuan Frekuensi 34
3.4 Planning by Capacity 35
3.4.1 Forecasting Total User 36
3.4.2 Trafik & Model Analysis (LTE services) 36
3.4.3 Single User Throughput 37
3.4.4 Network Throughput 39
3.4.5 Configuration Parameter & Cell Throughput 39
3.4.6 Number of Site 41
3.5 Planning by Coverage 42
3.5.1 Uplink MAPL Calculation 43
3.5.2 Downlink MAPL Calculation 44
3.5.3 Radius Cell Calculation 44
3.5.4 Site Coverage 45
3.5.5 Number of Site 46
3.6 Carrier Aggregation 46
3.6.1 Planning by Capacity 47
3.7 Pemodelan Simulasi Jaringan LTE-A 49
3.7.1 Frequency Reuse 1 (Non SFR) sebagai skenario 1 49
3.7.2 Soft Frequency Reuse 51
3.7.2.1 SFR A sebagai skenario 2 51
3.7.2.2 SFR B sebagai skenario 3 53
3.8 Pengaturan Skema SFR pada Atoll 55
BAB IV ANALISIS DAN SIMULASI
4.1 Analisis Hasil Perencanaan Jaringan berdasarkan Capacity dan Coverage 57

4.2 Plotting Site 58
4.2.1 Non Carrier Aggregation 59
4.2.2 Carrier Aggregation 59
4.3 Analisis by CINR 60
4.3.1 Non Carrier Aggregation 61
4.3.1.1 Skenario 1 (FR 1) 61
4.3.1.2 Skenario 2 (SFR A) 62
4.3.1.3 Skenario 3 (SFR B) 63
4.3.2 Carrier Aggregation 64
4.3.2.1 Skenario 1 (FR 1) 64
4.3.2.2 Skenario 2 (SFR A) 65
4.3.2.3 Skenario 3 (SFR B) 66
4.4 Analisis by User Rejected 66
4.4.1 Non Carrier Aggregation 67
4.4.2 Carrier Aggregation 68
4.5 Analisis by Throughput 69
4.5.1 Non Carrier Aggregation 69
4.5.1.1 Skenario 1 (FR 1) 69
4.5.1.2 Skenario 2 (SFR A) 70
4.5.1.3 Skenario 3 (SFR B) 71
4.5.2 Carrier Aggregation 72
4.5.2.1 Skenario 1 (FR 1) 72
4.5.2.2 Skenario 2 (SFR A) 73
4.5.2.3 Skenario 3 (SFR B) 74
4.6 Hasil Simulasi 75
BAB V PENUTUP
5.1 Kesimpulan 77
5.2 Saran 78
DAFTAR REFERENSI 79