

LIST OF FIGURES

Figure 1. 1 Research roadmap.....	5
Figure 2. 1 LTE network architecture [7].	6
Figure 2. 2 Flowchart capacity planning.....	8
Figure 2. 3 Flowchart coverage planning.....	12
Figure 2. 4 Modeling cost and benefit analysis.....	17
Figure 3. 1 LTE frequency research flowchart.	19
Figure 3. 2 Semarang City map [33].	21
Figure 3.3 Population growth prediction.	22
Figure 4. 2 Forecasting number of LTE subscribers in Semarang City.	30
Figure 4. 3 Forecasting number of LTE subscribers for each region type.	31
Figure 4. 4 Number of sites by capacity planning, (a) Scenario 1 (b) Scenario 2.....	32
Figure 4. 5 Number of sites by coverage planning, (a) Scenario 1 (b) Scenario 2.	34
Figure 4. 6 Semarang City map in simulation.....	34
Figure 4. 7 RSRP Scenario 1 result, (a) 700 MHz (b) 1800 MHz (c) 2100 MHz (d) 2300 MHz.	36
Figure 4. 8 RSRP Scenario 2 result, (a) 700 MHz (b) 1800 MHz (c) 2100 MHz (d) 2300 MHz.	37
Figure 4. 9 SINR Scenario 1 result, (a) 700 MHz (b) 1800 MHz (c) 2100 MHz (d) 2300 MHz.	39
Figure 4. 10 SINR Scenario 2 result, (a) 700 MHz (b) 1800 MHz (c) 2100 MHz (d) 2300 MHz.	40
Figure 4. 11 Throughput Scenario 1 result, (a) 700 MHz (b) 1800 MHz (c) 2100 MHz (d) 2300 MHz.	41
Figure 4. 12 Throughput Scenario 2 result, (a) 700 MHz (b) 1800 MHz (c) 2100 MHz (d) 2300 MHz.	43
Figure 4. 13 Cost of Scenario 1, (a) CAPEX (b) OPEX.	44
Figure 4. 14 Cost of Scenario 2, (a) CAPEX (b) OPEX.	45
Figure 4. 15 Cost and benefit analysis for Scenario 1.....	48
Figure 4. 16 Cost and benefit analysis for Scenario 2.....	49
Figure 4. 17 Frequency ranking value for LTE implementation.....	50