## LIST of FIGURE

| Figure 2.1 Transmitter and Receiver Structure of OFDMA and      |
|---|
| SC-FDMA   |
| Figure 2.2 The difference between OFDM and OFDMA 11             |
| Figure 2.3 LTE Generic Frame Structure                          |
| Figure 2.4 LTE time frequency resource grid                     |
| Figure 2.5 Example of Carrier Aggregation                       |
| Figure 2.6 Illustration of Carrier Aggregation based on ICIC 20 |
| Figure 2.7 A typical heterogeneous network deployment with      |
| macrocells and small cells sharing two CCs                      |
| Figure 2.8 A COMP framework for DL transmission where           |
| eNB1, eNB2, and eNB3 can coordinate and create a multipoint     |
| transmission to UEi and UE2                                     |
| Figure 2.9 Coordinated Scheduling/Beamforming                   |
| Figure 2.10 System model of two interfered users                |
| Figure 2.11 Joint Processing                                    |
| Figure 3.1 An Illustration Inter-cell Interference in Homogen   |
| Network 33  |
| Figure 3.2 System Architecture                                  |
| Figure 3.3 Analytical result of sample a femto user and macro   |
| user  |
| Figure 3.4 Initial Simulator Screen                             |
| Figure 3.5 Sample illustration of selected femto user after the |
| deployment is completed   |
| Figure 3.6 Sample illustration of selected macro user after the |
| deployment is completed   |
| Figure 3.7 Conventional frequency planning (a) Reuse of 1 (b)   |
| Reuse of 3  |
| Figure 4.1 Topology with 30 Femtocells                          |
| Figure 4.2 Topology with 50 Femtocells                          |

| Figure 4.3 Throughput vs Average Distance Femto User with   | th |
|---|----|
| BW 20 MHz, Femtocells-306                                   | 1  |
| Figure 4.4 Throughput vs Average Distance Femto User with   | th |
| BW 100 MHz, Femtocells-306                                  | 2  |
| Figure 45 Throughput vs Average Distance Femto User with BV | W  |
| 20 MHz, Femtocells-506                                      | 3  |
| Figure 4.6 Throughput vs Average Distance Femto User with   | th |
| BW 100 MHz, Femtocells-506                                  | 4  |
| Figure 4.7 SINR vs Number of Femto users                    | 5  |
| Figure 4.8 SINR vs Number of Femtocells                     | 6  |