

List of figure

Fig 2.1 (a) Theoretical coverage (b) Ideal coverage (c) Real coverage	5
Fig 2.2 Center-excited cells with omnidirectional antennas ..	6
Fig 2.3 Illustration of cellular frequency reuse concept.....	7
Fig 2.4 Cluster size of 3, 4, 7 and 9.....	8
Fig 2.5 Method of locating co-channel cells (Example for $N = 19, i = 3, j = 2$).....	9
Fig 2.6 Reuse distance.....	9
Fig 2.7 Reuse distance calculation	10
Fig 2.8 Co-channel cells in a cellular system.....	10
Fig.2.9 Different modulation techniques; QPSK, 16QAM and 64QAM.....	20
Fig.2.10 Orthogonal wave composition	20
Fig.2.11 Small cell comparison in terms of range.....	23
Fig.2.12 Perspective challenges on Femtocells.....	26
Fig 3.1 Channel allocation scheme for LTE femtocells located in a GSM cell using reuse cluster f1.....	31
Fig 3.2 Uplink Interference Model.....	31
Fig 3.3 Interference GSM BS.....	33
Fig 3.4 Interference that LTE femtocell in cell s receives	35

Fig 3.5 Interference GSM BS received if LTE femtocell are deployed on the steady distance toward GSM BS (K = 4).....	37
Fig 3.6 Interference that LTE femtocell received if LTE femtocel are deployed on the steady distance toward GSM BS (K = 4).....	38
Fig 3.7 Interference GSM BS received if LTE femtocell are deployed on the dynamic distance toward to GSM BS (K = 4).....	39
Fig 3.8 Interference that LTE femtocell received if LTE are deployed on the dynamic distance toward to GSM BS (K = 4).....	40
Fig 3.9 Interference GSM BS received if LTE femtocell are deployed on the steady distance toward GSM BS (K = 7).....	41
Fig 3.10 Interference that LTE femtocell received if LTE are deployed on the steady distance toward GSM BS (K = 7)	42
Fig 3.11 Interference GSM BS received if LTE femtocell are deployed on the dynamic distance toward to GSM BS (K = 7)	43
Fig 3.12 Interference LTE femtocell received if LTE are deployed on the dynami distance toward to GSM BS (K = 7)	44
Fig 4.1 SINR of GSM versus change of femtocell number...	47

Fig 4.2 SINR of GSM versus deployment position of LTE femtocell.....	49
Fig 4.3 SINR of GSM versus Change of femtocell number & deployment position	51
Fig 4.4 SINR of GSM versus GSM Macrocell size	54
Fig 4.5 SINR of LTE femtocell versus change of femtocell number.....	56
Fig 4.6 SINR of LTE femtocell versus deployment position of LTE femtocell.....	59
Fig 4.7 SINR of LTE femtocell versus Change of femtocell number & deployment position.....	62
Fig 4.8 SINR of LTE femtocell versus GSM Macrocell size.	64
Fig 4.9 LTE femtocell throughput versus change of femtocell number.....	67
Fig 4.10 Femtocell throughput versus deployment position of LTE femtocell.....	70
Fig 4.11 Femtocell throughput versus Change of femtocell number & deployment Position.....	73
Fig 4.12 Femtocell throughput versus GSM macrocell size.	75