

## LIST OF FIGURES

2.1	Software Defined Radio (SDR) architecture. . . . .	6
2.2	Illustration of MCRBS functionality to provide communication access in a disaster area. . . . .	7
2.3	GSM network architecture. . . . .	8
2.4	UMTS network architecture. . . . .	9
2.5	LTE network architecture. . . . .	10
2.6	Comparison between 5G SA and NSA mode. . . . .	11
2.7	Structure of an IMSI. . . . .	11
3.1	Flow diagram of victim finding system development. . . . .	13
3.2	Testing environment. . . . .	15
3.3	Illustration of the proposed system. . . . .	16
4.1	Simulation result for relationship between RSSI and success rate. . .	19
4.2	Experiment with laptop and USRP B210. . . . .	20
4.3	Spectrum view at frequency 945 MHz (before transmitting 2G signals). . . . .	21
4.4	Spectrum view at frequency 945 MHz (after transmitting 2G signals). . . . .	21
4.5	2G VFS detecting MS in the coverage of VFS. . . . .	22
4.6	2G RSSI level at the victim's MS. . . . .	22
4.7	Spectrum view at frequency 2142.8 MHz (before transmitting 3G signals). . . . .	23
4.8	Spectrum view at frequency 2142.8 MHz (after transmitting 3G signals). . . . .	23
4.9	3G VFS detecting MS in the coverage of VFS. . . . .	24
4.10	3G RSSI level at the victim's MS. . . . .	24
4.11	Spectrum view at frequency 2685 MHz (before transmitting 4G signals). . . . .	25
4.12	Spectrum view at frequency 2685 MHz (after transmitting 4G signals). . . . .	26
4.13	4G VFS detecting MS in the coverage of the VFS. . . . .	26
4.14	4G RSSI level at the victim's MS. . . . .	27
4.15	UE configuration to operate at 3310 MHz. . . . .	27
4.16	Virtual SIM configuration at UE. . . . .	28

4.17	Spectrum view at frequency 3310 MHz (before transmitting 5G signals). . . . .	29
4.18	Spectrum view at frequency 3310 MHz (after transmitting 5G signals).	29
4.19	5G VFS detecting MS in the coverage of the VFS. . . . .	30
4.20	2G RSSI measurement results. . . . .	30
4.21	3G RSSI measurement results. . . . .	31
4.22	4G RSSI measurement results. . . . .	32
4.23	5G RSSI measurement results. . . . .	32