2. Specification

2-1. GSM General Specification

	GSM850 Phase 1	EGSM 900 Phase 2	DCS1800 Phase 1	PCS1900	WCDMA2100	WCDMA900
Freq. Band[MHz] Uplink/Downlink	824~849 869~894	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990	1922~1977 2112~2167	880~915 925~960
ARFCN range	128~251	0~124 & 975~1023	512~885	512~810	UL:9612~9888DL:10562~10838	UL:2712~2863,DL:2937~ 3088
Tx/Rx spacing	45MHz	45MHz	95MHz	80MHz	190MHz	45MHz
Mod. Bit rate/ Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	3.84Mcps	3.84Mcps
Time Slot Period/Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	FrameLength: 10ms Slotlength: 0.667ms	FrameLength: 10ms Slotlength: 0.667ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK	QPSKHQPSK	QPSKHQPSK
MS Power	33dBm~5dBm	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm	24dBm~-50dBm	24dBm~-50dBm
Power Class	5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl	3(max+24dBm)	3(max+24dBm)
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm	-106.7dBm	-106.7dBm
TDMA Mux	8	8	8	8	8	8
Cell Radius	35Km	35Km	2Km	2Km	2Km	2Km

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2-2. GSM Tx Power Class

TX Power control level	GSM850
5	33±2 dBm
6	31±2 dBm
7	29±2 dBm
8	27±2 dBm
9	25±2 dBm
10	23±2 dBm
11	21±2 dBm
12	19±2 dBm
13	17±2 dBm
14	15±2 dBm
15	13±2 dBm
16	11±3 dBm
17	9±3dBm
18	7±3 dBm
19	5±3 dBm

TX Power control level	EGSM900
5	33±2 dBm
6	31±2 dBm
7	29±2 dBm
8	27±2 dBm
9	25±2 dBm
10	23±2 dBm
11	21±2 dBm
12	19±2 dBm
13	17±2 dBm
14	15±2 dBm
15	13±2 dBm
16	11±3 dBm
17	9±3dBm
18	7±3 dBm
19	5±3 dBm

TX Power control level	DCS1800
0	30±3 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4 dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

TX Power control level	PCS1900
0	30±3 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4 dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

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3. Operation Instruction and Installation

Main Function

- GSM(2G EDGE/GPRS) 850/900/1800/1900
- WCDMA(3G HSDPA) 900/2100
- 3.2" WQVGA Slim
- 1GHz Application Processor
- Seamless Onebody
- 3M pixel AF Camera.
- HD video Playing(Divx, Xvid)/Recording
- FM Radio with RDS and real time recording
- Bluetooth v3.0
- USB 2.0 FS / Wi-Fi 802.11n / GPS
- Music player : MP3/AAC/AAC+/eAAC+/WMA/AMR/MIDI/SP-MIDI/i-melody/WAV/MMF
- Accelerator Sensor / Proximity Sensor / G-sensor
- Voice & Motion UI
- SMS/MMS/Email/Video Messaging E-mail/Push E-mail(Exchange ActiveSync)
- Multi-touch
- Multi-task manager
- TV-OUT
- Navigation
- Voice recording

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4. Exploded View and Parts List

4-1. Cellular phone Exploded View

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5-2. Cellular phone Parts list : GT-I5510XKAPRT

Design LOC	Description	SEC CODE
QAR01	MODULE-RCV+SENSOR FPCB(GT_I5510)	GH59-09976A
QBC00	ASSY COVER-BATT	GH98-18480A
QBR05	ASSY BRACKET-TOP	GH98-18181A
QCA01	ASSY CAMERA-MODULE,3M (GT_I5510)	GH96-04945A
QCD01	PMO DECO-CAMERA	GH72-61405A
QCK02	PMO KEY-HOLD	GH72-61408A
QCR03	SCREW-MACHINE	6001-001811
QCR12	SCREW-MACHINE	6001-001530
QCR93	SCREW-MACHINE	6001-002263
QFL01	ASSY CASE-SLIDE LOWER	GH98-18175A
QFR01	ASSY CASE-SLIDE FRONT	GH98-18176A
QFU01	ASSY CASE-SLIDE UPPER	GH98-18174A
QKP01	RMO KEY-QWERTY	GH73-14452A
QKP02	ASSY KEYPAD-SUB	GH98-18178A
QLC01	ASSY LCD-3.2" WQVGA GT_I5510	GH96-04888A
QME01	DOME SHEET-GT_I5510	GH59-09798A
QME02	KEY FPCB-SUB KEY PBA	GH59-09869A
QME03	TOUCH/PANEL-GT_I5510	GH59-09960A
QME16	ASSY ETC-CON TO CON(GTI5510)	GH59-09800A
QMI01	MICROPHONE-ASSY-GT_I5510	GH30-00698A
QMO01	MOTOR DC-SCH-S369	GH31-00392A
QMP01	A/S ASSY-PBA MAIN(COMM)GT_I5510	GH82-05279A
QRE01	ASSY CASE-SLIDE REAR	GH98-18177A
QRF06	PMO COVER-USB	GH72-61402A
QSP01	MODULE-SPK+ANTENNA(GT_I5500)	GH59-09955A
QVO01	ASSY KEY-VOLUME	GH98-18180A

6. Level 1 Repair

6-1. Software Download

6-1-1. Pre-requisite for Download

- Downloader Program (**Odin Multi Downloader v4.19**)
- GT-I5510 Mobile Phone
- JIG BOX (GH99-36900A)
- RF Test Cable (GH39-00985A)
- JIG Cable (GH39-01339A)
- Adapter (GH99-38251A)
- Data Cable
- Binary files

- Diagram of Connection:

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6-1-2. S/W Download Process

1. Load the binary download program by executing the "**Odin Multi Downloader v4.19**"

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2. Change Reset time to 30

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3. Select OPS file (EUROPA_v1.0.ops) from the folder that you saved the binary files.

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4. Load the file of Bootloader, Amss, PDA, CSC files from the folder that you saved the binary files.

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5. Set the phone as a download mode
"You have to set the phone as a download mode by pressing "Q" Key + Power Key simultaneously before connecting to PC "

6. COM Port Mapping change to **yellow** colour when the phone with download mode is connected to PC by data cable.

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7. Click the **Start** button when the Port searched.

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It will start to download.

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8. When downloading is finished successfully, there is a "**PASS**" message.

9. Confirm the downloaded version name and etc. :

***#1234#**

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9. Reference Abbreviate

Reference Abbreviate

- **AAC**: Advanced Audio Coding.
- **AVC** : Advanced Video Coding.
- **BER** : Bit Error Rate
- **BPSK**: Binary Phase Shift Keying
- **CA** : Conditional Access
- **CDM** : Code Division Multiplexing
- **C/I** : Carrier to Interference
- **DMB** : Digital Multimedia Broadcasting
- **EN** : European Standard
- **ES** : Elementary Stream
- **ETSI**: European Telecommunications Standards Institute
- **MPEG**: Moving Picture Experts Group
- **PN** : Pseudo-random Noise
- **PS** : Pilot Symbol
- **QPSK**: Quadrature Phase Shift Keying
- **RS** : Reed-Solomon
- **SI** : Service Information
- **TDM** : Time Division Multiplexing
- **TS** : Transport Stream

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1. Safety Precautions

1-1. Repair Precaution

- Repair in Shield Box, during detailed tuning. Take specially care of tuning or test, because specipicty of cellular phone is sensitive for surrounding interference(RF noise).

- Be careful to use a kind of magnetic object or tool, because performance of parts is damaged by the influence of magnetic force.

- Surely use a standard screwdriver when you disassemble this product, otherwise screw will be worn away.

- Use a thicken twisted wire when you measure level.
  A thicken twisted wire has low resistance, therefore error of measurement is few.

- Repair after separate Test Pack and Set because for short danger (for example an overcurrent and furious flames of parts etc) when you repair board in condition of connecting Test Pack and tuning on.

- Take specially care of soldering, because Land of PCB is small and weak in heat.

- Surely tune on/off while using AC power plug, because a repair of battery charger is dangerous when tuning ON/OFF PBA and Connector after disassembling charger.

- Don't use as you pleases after change other material than replacement registered on SEC System. Otherwise engineer in charge isn't charged with problem that you don't keep this rules.

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1-2. ESD(Electrostatically Sensitive Devices) Precaution

Several semiconductor may be damaged easily by static electricity. Such parts are called by ESD (Electrostatically Sensitive Devices), for example IC,BGA chip etc. Read Precaution below.
You can prevent from ESD damage by static electricity.

- Remove static electricity remained your body before you touch semiconductor or parts with semiconductor. There are ways that you touch an earthed place or wear static electricity prevention string on wrist.

- Use earthed soldering steel when you connect or disconnect ESD.

- Use soldering removing tool to break static electricity. , otherwise ESD will be damaged by static electricity.

- Don't unpack until you set up ESD on product. Because most of ESD are packed by box and aluminum plate to have conductive power,they are prevented from static electricity.

- You must maintain electric contact between ESD and place due to be set up until ESD is connected completely to the proper place or a circuit board.

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