Notice:
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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 the specification of mobile 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 the magnetic force.

- Surely use a standard screwdriver when you disassemble this product.

- Use a thickened twisted wire when you measure level because a thickened twisted wire has low resistance.

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

- Take specially care of soldering iron because the board of the 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 the charger.

- Don't use the unauthorised materials except for the replacement registered on SEC System. Otherwise the engineer isn't charged with issues that you don't keep.
1-2. ESD(Electrostatically Sensitive Devices) Precaution

Several semiconductors 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.

Protect you from ESD damage by static electricity.

- Remove electrical charges emitted by the human body before you touch semiconductors or parts. There are ways that you touch an earthed place or wear static electricity prevention string on wrist to prevent these problems.

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

- Use a soldering removing tool equipped with static electricity isolation. Otherwise ESD will be damaged by static electricity.

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

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

### 2-1. GSM General Specification

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<tr>
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<th>GSM850</th>
<th>EGSM 900</th>
<th>DCS1800</th>
<th>PCS1900</th>
<th>WCDMA 2100</th>
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3. Operation Instruction and Installation

Main Function

- Android OS: Gingerbread
- HSPA+ 21Mbps / HSUPA 5.7Mbps
- 8MP AF with LED Flash
- 4.27 WVGA Super AMOLED Plus (C-Type)
- A-GPS / BT v3.0 USB v2.0 / WiFi (802.11 a/b/g/n) / OTG
- Recording 1080p / Playback 1080p
- Sensors: Acceleration, Magnetic, Gyro, Light, Proximity
- Additional:
  - 1.2GHz Dual Core CPU
  - Application store / Precise Motion UI
  - Seamless Sharing Experience.
4. Exploded View and Parts List

4-1. Cellular phone Exploded View

![Cellular phone exploded view diagram with parts labeled QFR01, QAR01, QCA02, QCB01, QME02, QCA01, QMP01, QVK01, QCR12, QVC02, QME02, QCA02, QCR96, QSP01, QVO01, QRE01, QCK01, QCR03, QBC00].
### 4-2. Cellular phone Parts list

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## 5. MAIN Electrical Parts List

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Please consult the GSPN website (Samsung Portal) for the most recent version of the product's part list.
6. Level 1 Repair

6-1. S/W Download

6-1-1. Pre-requisite for S/W Downloading

- Downloader Program (*Odin3 v1.83.exe*)
- GT-I9100 Mobile Phone
- Data Cable
- JIG BOX (GH99-36900A)
- JIG Cable (GH39-01339A)
- Adapter (GH99-38251A)
- Serial Cable
- Binary files

※ Settings

Connect to ANYWAY JIG BOX & JIG CABLE (Phone to JIG)
Or PC to Phone Using Data Cable
6-1-2. S/W Downloader Program

- Load the binary download program by executing the "Odin3 v1.83.exe" 🔄 Run this file.

1. Option Selection
   - Check Re-Partition, Auto Reboot and F. Reset Time, then select PIT, PDA, PHONE and CSC Files.
2. Enter Device into Download Mode
   - Enter the device into Download Mode by pressing down on Volume Down button and OK button, and pressing down on Power ON/OFF Button.

3. Connect the Handset to PC via Data Cable.
   Make sure ID:COM box highlighted yellow that the Handset is connected to the PC.

![ODIN3 Software Interface](image)

5. Disconnect the Handset to Data cable.

6. Once the device boots up, confirm the downloaded version name and etc. :
   *
   #1234#
   
   Full Reset :
   *
   2767*3855#
7. Level 2 Repair

7-1. Disassembly

1. Release the screws at 7 points.
   (Torque: 1.1±0.1 kgf.cm) (Size: M1.4*L3)
   Be careful not to scratch rear cover.

2. Disjoint hook 12 points at the rear
   (Follow the order)

3. Separate the cable from the PBA.
   Release the screw 2point(Size: M1.4*L3)
   (Torque: 1.1±0.1 kgf.cm)
   Detach the side FPCBs from the Bracket.
   Be careful not to damage the FPCBs.

4. Separate all connectors from the PBA.
   Separate the PBA from the Front.
7. Level 2 Repair

5. Release the screw 2point (Size: M1.4*L2) (Torque: 1.1±0.1 kgf.cm) Separate the sub PBA from the PBA.

6. Separate the Receiver Ass'y from the Front. (Insert a tool into the holes.) Be careful not to damage the FPCBs.
7-2. Assembly

1. Insert the VGA Ass’y in the Front. Put the chassis on the sensor. Be careful not to damage the camera FPCB.

2. Attach the FPCB on the Front. Insert the sub PBA in the hook. Attach the FPCB on the Front. Screw 2 points. (Size: M1.4*L2) (Torque: 1.1±0.1 kgf.cm)

3. Put the Receiver Ass’y on the Front. Furl the Receiver and put it on the Front. Be careful to damage the FPCB.

4. Connect the cable on the sub PBA. Organize the cable on the Front.
5. Put the PBA on the Front.
Attach the side FPCBs on the Bracket.

Be careful to damage the cable.

6. Connect all the connector on the PBA.
Connect the cable on the PBA.

7. Joint the Rear and the Front.
(Follow the order)
Hook at the 12 points.

8. Screws at 7 points.
(Torque: 1.1±0.1 kgf.cm)
(Size: M1.4*L3)

Be careful not to scratch rear cover.
8. Level 3 Repair

8-1. Block Diagram
8-2. PCB Diagrams

8-2-1. Top
8-2-2. Bottom
8-3. Flow Chart of Troubleshooting

Equipments

↑ Oscilloscope

á Digital Multimeter

á Power Supply

á + driver, ESD Safe Tweezer

↑ 8960 & Spectrum Analyzer

á Soldering iron
8-3-1. Power On

Cell-phone can’t power on.

- Check the Battery Voltage. Is it more than 3.6V?
  - Yes
    - Check the PK601 (soldering crack, open, etc)
    - Check the U501 output voltage (C535 > 2.0V, C554 > 1.2V)
      - Yes
        - Check the Clock OSC500(TP213) Is that frequency 32KHz?
          - Yes
            - check the initial operation
            - END
          - No
            - Change the U501
              - Each voltage level has ±10% margin.
            - If the output voltage is not satisfied with normal condition, Change the U501.
              - If OSC400 does not still work, Change the U501
                - This problem is internal oscillator of U501.
                  - Test condition (Oscilloscope setting)
                    - : 20.0us.div (time division)
            - No
              - If the output voltage is not satisfied with normal condition, Change the U501.
                - Each voltage level has ±10% margin.
              - Change the OSC500.
                - If OSC400 does not still work, Change the U501

- No
  - Charging the battery by TA.
    - If its voltage level is extremely low (under 3.0V), Change the battery.
  - Check the PK601(Power-key FPCB)
    - Abnormal
      - Change the PK601(Power-key FPCB) And retry to the power-on operation.
8-3-2. Initial

- **Initial Failure**
  - Yes
    - Check the CP Reset
      - \(\text{TP : RESET_PWRDWN_N} = 0\text{V(LOW)}\)
        - No
          - Check the UCP300 (short, crack, etc.)
            - ※ Probing the Test point of UCP300
        - Yes
          - Check the AP Reset
            - \(\text{AP_N_RST_IN(R513)} = 0\text{V(LOW)}\)
              - No
                - Check the UCP300 (short, crack, etc.)
                  - ※ Probing the Test point of UCP300
              - Yes
                - Check the oscillator clock waveforms.
                  - \(32.768\text{KHz : OSC500(TP213), 24Mhz : OSC400(C440)}\)
                    - Abnormal
                      - Check the OSC500, OSC400 and R418.
                        - ※ Test condition (Oscilloscope setting) : 20.0us.div (time division)
                    - Normal
                      - Is the LCD display on?
                        - No
                          - Check the LCD part(short, crack, etc.)
                        - Yes
                          - Does the speaker make a sound?
                            - No
                              - Check the Audio Part(short, crack, etc.)
                            - Yes
                              - END

8-3-3. Sim Part

Insert SIM card

Yes

Check the Pin Soldering of SIM300

Yes

Check the SIM Voltage. (R312) >= 3.0?

No

Resoldering and recheck

Yes

Change to the new SIM card.
If it doesn’t still work SIM card after changing the SIM card, Check the UCP300 (Crack etc)

END
8-3-4. Charging Part

- TA / USB Insert
  - Yes
  - Charging Sequence Start
    - Vin = 5V
      - Yes
        - Check EN/SET
          - No
            - Resolder and Replace Q500
          - Yes
            - Check PGB / CHGSB = 0V(LOW)
              - No
                - Resolder or Replace U504
              - Yes
                - Battery is Charging?
                  - No
                    - Resolder or Replace U504
                  - Yes
                    - END

No

Check R566(Vin) = 5V, or may not connected TA / USB
8-3-5. Microphone Part (Main MIC)

Check main microphone function in voice call receiver mode or in Voice Recording mode

Yes

Check Sub-PCB module where main MIC is placed for any damage (Tear in FPC, etc)

No  Change the Sub-PCB module

Yes

Check the voltage at C656 = 2.8V

No  Resolder or replace U609

Yes

Check component soldering statuses of C621, C622

No  Resolder or replace C621, C622

Yes

END
8-3-5-1. Microphone Part (Sub MIC)

Check Sub microphone function
in voice call loudSPK mode
or in camcording mode

Yes

Check RCV-Earjack module
where Sub MIC is placed
for any damage (Tear in FPC,
etc)

No

Replace the RCV-Earjack module

Yes

Check the voltage at
C658 = 2.8V

No

Resolder or replace U610

Yes

Check component soldering
statuses of C627, C630

No

Resolder or replace C627, C630

Yes

END
SUB_MICBIAS_LDO_2.8V

V_BAT

SUB_MICBIAS_EN

C657  C658

GND

VDD4  VOUT

U610

CE3

5  GND

2

SUB_MICBIAS_EN

AP_PMIC_EN

C300  C304

C328

C351  C353  C356  C358

C405  C413  C414

C504  C505  C508  C509

C521  C522  C523  C524  C525  C526  C527

C530  C533  C535  C537

C541

C544  C546  C547

C550  C552  C554  C555  C556  C558  C573

C637

C638

C657  C658

C659

C660

HDC600

L300

L302

L303

C503  L300

U603

U603

LED500

C502

R348  R349

R408  R409

R508  R511

R515  R516  R517

R546

R602  R622

R623  R624

R625  R626

RESET_REQ_N

SC109

TU600

TP_eMMC_EN

U303

U603

U610

U611

VR607
8-3-6. Speaker Part

- Check speaker function. Play MP3 with maximum volume level.
  - Yes
  - No
    - Check the connection of HEA703
      - Yes
        - Replace the speaker module
          - Yes
            - END
          - No
            - Check the signals on ZD700, ZD701
              - Yes
                - Reconnect HEA703
              - No
                - Resolder or replace U602
8-3-6. Receiver Part

Check receiver function in voice call receiver mode.

Yes

Check the connection of HDC600

Yes

Check RCV-Earjack module where RCV's placed for any damage (Tear in FPC, etc)

Yes

Check the signals on R629, R630

Yes

END

No

No

No

No

Yes

Reconnect HDC600

Replace the RCV-Earjack module

Resolder or replace U602
8-3-7. BT/WIFI

BT/WiFi is not working

Yes

Check BT or WiFi function ON

Yes

Check the Voltage on C208 = 2.8V

No

Check the U501 (crack, open, damaged, etc.)

Yes

Check 37.4MHz Clock at R208

No

Check the OSC201 (crack, open, etc.)

Yes

Check the Voltage on L202 = 1.5V

No

Resolder or change the L202

Yes

Check the Status of C201, ANT200

No

Resolder or Replace C201, ANT200

Yes

Resolder or Replace MOD201

Yes

END
8-3-8. FM RADIO

FM Radio is not working

Yes

Check the Connection of HDC600

Yes

Check the Audio Signal at L209, L210

Yes

Check the Audio Signal at C632, C633

Yes

Resold and Replace U205

Yes

END

No

Connect Earjack Ass’y correctly to HDC600

No

Check Earphone (crack, open, etc.)

No

Check Audio Codec IC (U602)
8-3-8. LCD

LCD is still off after PWR ON

Yes → Check the connection of HDC 701

Yes → Check the soldering status of EMI Filters

Yes → Check VCC_3.0V_LCD = 3.0V(C708), VCC_1.8V_PDA = 1.8V(C552),

Yes → Check ELVDD_4.6V = 4.6V(C706), ELVSS_-4.9V = 3.0~4.4V(C707)

Yes → Replace LCD Module

Yes → END

No → Reconnect the HDC 701

No → Resoldering EMI Filters (F700, F701, F702, F704, F707, F709)

No → Resolder or Replace the PMIC(U501)

No → Resoldering L703, L704
8-3-9. TSP

Touch Screen does not work

Yes

Check TSP Connector on Main PBA

Yes

Reconnect the HDC701

No

No

Check the TSP connector on LCD Module

Yes

Reconnect TSP Connector

No

Check the I2C signal(R426, R427) and int signal(R702, R704)

Yes

RESOLDER or REPLACE U704

No

Yes

RESOLDER R426, R427, R702, R704

Yes

Replace LCD Module

Yes

END
8-3-10. 8M CAM

"Camera" function does not work

Yes

Check the Camera connector on Main PBA

Yes

Check the voltage

C533 = 1.2V, C709 = 1.2V, C714 = 2.8V, C712 = 1.5V, C549 = 1.8V, C553 = 1.8V, C545 = 1.8V

No

Resolder L503, C533
Resolder U701, C709, C710
Resolder U703, C713, C714
Resolder U702, C711, C712
Resolder C549
Resolder C553
Resolder C545
Replace the PBA

No

Check R703 is 24MHz

Yes

Replace the PBA.

No

Resolder R703
Replace the PBA.

No

Check F703, F706

Yes

Resolder F703, F706
Replace the PBA.

No

Check L700, L701 is OK

Yes

Resolder L700, L701

No

Replace the camera module

Yes

END
8-3-11. 2M CAM

"Camera" function does not work

Yes

Check the Camera connector on Main PBA

No

Reconnect the HDC704

Yes

Check the voltage
C533 = 1.2V
C714 = 2.8V
C712 = 1.5V
C549 = 1.8V
C553 = 1.8V

No

Resolder U903, R905, R907, L903
Resolder U703, C713, C714
Resolder U702, C711, C712
Resolder C549
Resolder C553

Yes

Check R703 is 24MHz

No

Resolder R703
Replace the PBA.

Yes

Check F705

No

Resolder F705
Replace the PBA.

Yes

Replace the camera module

Yes

END
8-3-12. GSM1800 RX

NORMAL CONDITION
catch the channel?

NO

Check C107 ≤ -65dBm ?

NO

Check the Voltage at C102 = VOUT_CHARGER

NO

YES

Check C101, L101 ≥ -65dBm ?

YES

NO

Check component soldering status OK at F100

YES

NO

YES

Check F100 PIN 18, 19 ≥ -65dBm

YES

NO

NO

YES

Check the voltage at
(C138 = VOUT_CHARGER ?)
& (C169, C170, C171 = VOUT_CHARGER?)
& (C137, C174 = 2.85V ?)
& (C134, C176 = 2.65V ?)
& (C136, C178 = 1.8V?)
& (C135, C175, C173 = 1.2V?)

NO

YES

Check the freq. at C123: 26MHz ?

NO

YES

GSM1800 Receiver is O.K?

NO

YES

END

NO

YES

CHECK soldered RFS100, L107, C107, L108

Resolder or change U101, C102

Resolder or change C101, L101

Resolder or change F100

Resolder or change F100

Resolder or change U104

Change or resolder OSC100

Resolder or change UCP300
8-3-13. WCDMA Band1 RX

NORMAL CONDITION
catch the channel?

YES
NO

Check C107 ≤ -65dBm ?

YES
NO

Check the Voltage at C102 =VOUT_CHARGER

YES
NO

Resolder or change
U101, C102

Check C108, L102 ≥ -65dBm ?

YES
NO

Resolder or change C108, L102

Check component soldering status OK at F100

YES
NO

Resolder or change F100

Check F100 PIN 14, 15 ≥ -65dBm

YES
NO

Resolder or change F100

Check the voltage at
{C138 = VOUT_CHARGER ?}
& {C169, C170, C171 = VOUT_CHARGER?}
& {C137, C174 = 2.85V ?}
& {C134, C176 = 2.65V ?}
& {C136, C178 = 1.8V?}
& {C135, C175, C173 = 1.2V?}

YES
NO

Resolder or change U104

Check the freq. at C123 : 26MHz ?

NO
YES

Change or resolder OSC100

WCDMA band1 Receiver is O.K?

NO
YES

END
8-3-14. WCDMA Band2 / GSM1900 RX

NORMAL CONDITION
catch the channel?

NO

Check C107 ≤ -65dBm ?

NO

Check L103, L106 ≥ -65dBm ?

YES

Check the Voltage at C102 = VOUT_CHARGER

& C169, C170, C171 = VOUT_CHARGER?

& C134, C176 = 2.65V ?

& C136, C178 = 1.8V?

& C135, C175, C173 = 1.2V?

YES

Check compoent soldering status OK at F100

NO

Check F100 PIN 16, 17 ≥ -65dBm

YES

Check the voltage at (C138 = VOUT_CHARGER ?)

& (C169, C170, C171 = VOUT_CHARGER?)

& (C137, C174 = 2.85V ?)

& (C134, C176 = 2.65V ?)

& (C136, C178 = 1.8V?)

& (C135, C175, C173 = 1.2V?)

YES

Check the freq. at C123 : 26MHz ?

NO

Change or resolder OSC100

YES

WCDMA band2/GSM1900 Receiver is O.K?

NO

Resolder or change UCP300

END

CONTINUOUS RX ON
RF INPUT : 9880CH
AMP : -50dBm

Check C107 ≤ -65dBm ?

CHECK soldered RFS100, L107, C107, L108

NO

Resolder or change U101, C102

Resolder or change L103, L106

Resolder or change F100

Resolder or change F100

Resolder or change U104

Resolder or change U104

Resolder or change UCP300
8-3-15. WCDMA Band5 / GSM 850 RX

NORMAL CONDITION
catch the channel?

NO

Check C107 \( \leq -65\text{dBm} \) ?

YES

CHECK soldered
RFS100, L107, C107, L108

NO

Check the Voltage at
C102 \( \text{VOUT\_CHARGER} \) ?

NO

Resolder or change
U101, C102

YES

Check C100, L100
\( \geq -65\text{dBm} \) ?

NO

Resolder or change
C100, L100

YES

Check component
soldering status OK at
F100

NO

Resolder or change
F100

YES

Check F100 PIN 20, 21
\( \geq -65\text{dBm} \)

NO

Resolder or change
F100

YES

Check the voltage at
\{ C138 = \text{VOUT\_CHARGER} \}
& \{ C169, C170, C171
= \text{VOUT\_CHARGER}\}
& \{ C137, C174 = 2.85\text{V} \}
& \{ C134, C176 = 2.65\text{V} \}
& \{ C136, C178 = 1.9\text{V} \}
& \{ C135, C175, C173 = 1.2\text{V} \}

NO

Resolder or change
U104

YES

Check the freq. at C123
: 26MHz ?

NO

Change or resolder
OSC100

YES

WCDMA band5/GSM850
Receiver is O.K?

NO

Resolder or change
UCP300

END

CONTINUOUS RX ON
RF INPUT : 4408CH
AMP : -50dBm
8-3-16. WCDMA Band8 / GSM900 RX

- NORMAL CONDITION
  - catch the channel?
    - NO
    - Check C107 ≤ -65dBm ?
      - NO
      - Check the Voltage at C102 = VOUT_CHARGER
      - NO
      - Check the Voltage at C102 = VOUT_CHARGER
        & C169, C170, C171 = VOUT_CHARGER?
        & C137, C174 = 2.85V ?
        & C134, C176 = 2.65V ?
        & C136, C178 = 1.8V?
        & C135, C175, C173 = 1.2V?
        - YES
          - CHECK soldered RFS100, L107, C107, L108
    - YES
      - Resolder or change U101, C102

- Check L104, L105 ≥ -65dBm ?
  - NO
  - YES
    - Check component soldering status OK at F100
    - NO
      - Resolder or change L104, L105
    - YES
      - Check F100 PIN 22, 23 ≥ -65dBm
      - NO
        - Resolder or change F100
      - YES
        - Check the Voltage at C107 = VOUT_CHARGER?
          & C169, C170, C171 = VOUT_CHARGER?
          & C137, C174 = 2.85V ?
          & C134, C176 = 2.65V ?
          & C136, C178 = 1.8V?
          & C135, C175, C173 = 1.2V?
          - YES
            - Resolder or change U104
          - NO
            - Change or resolder OSC100
      - NO
        - Resolder or change UCP300

- WCDMA band8/GSM900 Receiver is O.K?
  - NO
  - YES
    - END
8-3-17. GSM850/GSM900 TX

- **U101 PIN11:** About 30dBm?
  - **NO**
    - Check the Voltage at C102 = VOUT_CHARGER?
      - **NO**
        - Resolder or change U101, C102
      - **YES**
        - Check C120, L110, L113: About 30dBm?
          - **YES**
            - Resolder or change C120, L110, L113
          - **NO**
            - Check the Voltage at R741, C117 = VOUT_CHARGER?
              - **YES**
                - Resolder or change PAM100, R741, C117
              - **NO**
                - Check C125, L112: About 0dBm?
                  - **YES**
                    - Resolder or change C125, L112
                  - **NO**
                    - Check the voltage at (C138 = VOUT_CHARGER?)
                      & (C169, C170, C171 = VOUT_CHARGER?)
                      & (C137, C174 = 2.85V?)
                      & (C134, C176 = 2.65V?)
                      & (C136, C178 = 1.8V?)
                      & (C135, C175, C173 = 1.2V?)
                    - **YES**
                      - Change or resolder OSC100
                    - **NO**
                      - Resolder or change U104

- **YES**
  - Check the freq. at C123: 26MHz?
    - **NO**
      - Resolder or change UCP300
    - **YES**
      - GSM850/900 Transmitter is O.K?
8-3-18. DCS/PCS TX

U101 PIN11 : About 27dBm ?

NO

Check the Voltage at C102 = VOUT_CHARGER?

NO

Check C111, C118 : About 27dBm ?

NO

Check the Voltage at R741,C117 = VOUT_CHARGER?

YES

Check C124, L111 : About -4dBm ?

YES

YES

YES

YES

END

NO

NO

NO

NO

NO

NO

Change or resolder OSC100

Resolder or change UCP300

Resolder or change U101, C102

Resolder or change U104

Resolder or change PAM100, R741, C117

Resolder or change C111, C118

Resolder or change C124, L111

Resolder or change C102

CHECK soldered - RFS100,L107,C107,L108, C106,C104,C105,ANT100

CONTINUOUS TX ON CONDITION
TX POWER DAC:14500 CODE APPLIED
DCS CH : 685
PCS CH : 661
RBW : 100kHz
VBW : 100kHz
SPAN : 10MHz
REF LEV : 10dBm
ATT : 20dB
8-3-19. WCDMA BAND1 TX

CHECK soldered
- RFS100,L107,C107,L108,
  C106,C104,C105,ANT100

CONTINUOUS TX ON CONDITION
TX POWER DAC: 14500 CODE
APPLIED
WCDMA Band1 CH : 10700
RBW : 100kHz
VBW : 100kHz
SPAN : 10MHz
REF LEV. : 10dBm
ATT. : 20dB
WCDMA band1 Transmitter is O.K?

- YES
  - END

- NO
  - Resolder or change UCP300
8-3-20. WCDMA BAND2 TX

Check U106 PIN11 : About 22 dBm ?

YES

CHECK soldered
- RFS100,L107,C107,L108,
C106,C104,C105,ANT100

NO

Check the Voltage at C102 = VOUT_CHARGER?

NO

Resolder or change U101, C102

YES

Resolder or change L103, L106

Check L103, L106 : About 22dBm ?

NO

Resolder or change F100

YES

Check component soldering status OK at F100

Resolder or change C131, C127, L114

Check C131, C127, L114 : About 22dBm ?

NO

Check the Voltage at R741,C117=VOUT_CHARGER?

Resolder or change PAM100, R741, C117

YES

Check C124, L111 About 0dBm ?

YES

Resolder or change C124, L111

Check the Voltage at R741,C117=VOUT_CHARGER?

Resolder or change U104

YES

Check the voltage at (C138 = VOUT_CHARGER ?)
& (C168, C170, C171 = VOUT_CHARGER?)
& (C137, C174 = 2.85V ?)
& (C134, C176 = 2.65V ?)
& (C136, C178 = 1.8V?)
& (C135, C175, C173 = 1.2V?)

NO

Resolder or change U104

YES

Check the freq. at C123 : 26MHz ?

Change or resolder OSC100

NO

YES
WCDMA band2 Transmitter is O.K?

YES

NO

Resolder or change UCP300

END
8-3-21. WCDMA BAND5 TX

- Check U101 PIN11: About 22 dBm?
  - YES
    - CHECK soldered
      - RFS100, L107, C107, L108, C106, C104, C105, ANT100
  - NO
    - Resolder or change U101, C102

- Check the Voltage at C102 = VOUT_CHARGER?
  - NO
    - Resolder or change U101, C102
  - YES

- Check C100, L100: About 22 dBm?
  - YES
    - Resolder or change C100, L100
  - NO
    - Resolder or change F100

- Check component soldering status OK at F100
  - YES
    - Resolder or change C128, C133
  - NO
    - Resolder or change C125, L112

- Check the Voltage at RT41, C117 = VOUT_CHARGER?
  - YES
    - Resolder or change U104
  - NO

- Check the Voltage at C125, L112: About 0 dBm?
  - YES

- Check the voltage at:
  - (C138 = VOUT_CHARGER ?)
  - & (C168, C170, C171 = VOUT_CHARGER?)
  - & (C137, C174 = 2.85V ?)
  - & (C134, C176 = 2.65V ?)
  - & (C136, C178 = 1.8V?)
  - & (C135, C175, C173 = 1.2V?)
  - NO
    - Resolder or change U104
  - YES

- Check the freq. at C123: 26MHz?
  - YES

- Change or resolder OSC100

CONTINUOUS TX ON CONDITION:
TX POWER DAC: 14500 CODE APPLIED
WCDMA Band5 CH: 4408
RBW: 100KHz
VBW: 100KHz
SPAN: 10MHz
REF LEV: 10dBm
ATT: 20dB
WCDMA band 5 Transmitter is O.K?

YES

NO

Resolder or change UCP300

END
8-3-22. WCDMA BAND8 TX

- Check U101 PIN11: About 22 dBm?
  - YES: CHECK soldered
    - RFS100, L107, C107, L108, C106, C104, C105, ANT100
  - NO: Resolder or change U101, C102

- Check the Voltage at C102 = VOUT_CHARGER?
  - NO: Resolder or change U101, C102
  - YES: Resolder or change L104, L105

- Check L104, L105: About 22dBm?
  - NO: Resolder or change L104, L105
  - YES: Resolder or change C129, L112

- Check component soldering status OK at F100
  - NO: Resolder or change F100
  - YES: Resolder or change C129, L112

- Check the Voltage at R741, C117 = VOUT_CHARGER?
  - NO: Resolder or change PAM100, R741, C117
  - YES: Resolder or change C125, L112

- Check C125, L112: About 0dBm?
  - NO: Resolder or change U104
  - YES: Change or resolder OSC100

- Check the voltage at
  - (C138 = VOUT_CHARGER?)
  - & (C169, C170, C171 = VOUT_CHARGER?)
  - & (C137, C174 = 2.85V?)
  - & (C134, C176 = 2.65V?)
  - & (C136, C178 = 1.8V?)
  - & (C135, C175, C173 = 1.2V?)

- Check the freq. at C123: 26MHz?
  - NO: Change or resolder OSC100
  - YES:
WCDMA band8 Transmitter is O.K?

YES

NO

Resolder or change UCP300

END
8-3-8. MHL

MHL Does not work

Yes

Check if MHL_SEL(TP716) goes High

Yes

Check if U709 works properly

Yes

Check the voltage of L705(1.2V), L706(3.3V), L707(1.2V), L708(1.8V), C756(2.8V)

No

Check the LDOs(707, 710, 711)

No

Yes

Replace U708

Yes

Check if HDC703 is well connected

No

Change U709

Yes
8-3-8. MHL
8-3-9. OTG

OTG does not work

Yes

Check if TP_USB_OTG_EN goes High

No

Check if HDC703 is well connected

Yes

Check V_BUS_5V (D501)

No

Check if D501, R524, R525, R526, R527 is well mounted

Yes

Replace U503(MAX8627)

No

END
8-3-9. OTG
8-4. Service Schematics

- NC Point (Top View)

UCP400

: NC

2.1 Pin Assignment Diagram

Figure 2-1  S5PC210 Pin Map (756-FCMSP) Top View
# UCP300

| Ball Map (Bottom View) 6 / 15/2010 7.5x7.5 FBGA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ball | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 |
| A | NC | MEM_A_9 | MEM_A_10 | MEM_A_11 | MEM_A_12 | MEM_A_13 | MEM_A_14 | MEM_A_15 | MEM_A_16 | MEM_A_17 | MEM_A_18 | MEM_A_19 | MEM_A_20 | MEM_A_21 |
| B | MEM_A_22 | NC | MEM_A_23 | MEM_A_24 | MEM_A_25 | MEM_A_26 | MEM_A_27 | MEM_A_28 | MEM_A_29 | MEM_A_30 | MEM_A_31 | MEM_A_32 | MEM_A_33 | MEM_A_34 |
| C | MEM_A_35 | NC | MEM_A_36 | MEM_A_37 | MEM_A_38 | MEM_A_39 | MEM_A_40 | MEM_A_41 | MEM_A_42 | MEM_A_43 | MEM_A_44 | MEM_A_45 | MEM_A_46 | MEM_A_47 |
| D | MEM_A_48 | NC | MEM_A_49 | MEM_A_50 | MEM_A_51 | MEM_A_52 | MEM_A_53 | MEM_A_54 | MEM_A_55 | MEM_A_56 | MEM_A_57 | MEM_A_58 | MEM_A_59 | MEM_A_60 |
| E | MEM_A_61 | NC | MEM_A_62 | MEM_A_63 | MEM_A_64 | MEM_A_65 | MEM_A_66 | MEM_A_67 | MEM_A_68 | MEM_A_69 | MEM_A_70 | MEM_A_71 | MEM_A_72 | MEM_A_73 |
| F | MEM_A_74 | NC | MEM_A_75 | MEM_A_76 | MEM_A_77 | MEM_A_78 | MEM_A_79 | MEM_A_80 | MEM_A_81 | MEM_A_82 | MEM_A_83 | MEM_A_84 | MEM_A_85 | MEM_A_86 |
| G | MEM_A_87 | NC | MEM_A_88 | MEM_A_89 | MEM_A_90 | MEM_A_91 | MEM_A_92 | MEM_A_93 | MEM_A_94 | MEM_A_95 | MEM_A_96 | MEM_A_97 | MEM_A_98 | MEM_A_99 |
| H | MEM_A_100 | NC | MEM_A_101 | MEM_A_102 | MEM_A_103 | MEM_A_104 | MEM_A_105 | MEM_A_106 | MEM_A_107 | MEM_A_108 | MEM_A_109 | MEM_A_110 | MEM_A_111 | MEM_A_112 |
| I | MEM_A_113 | NC | MEM_A_114 | MEM_A_115 | MEM_A_116 | MEM_A_117 | MEM_A_118 | MEM_A_119 | MEM_A_120 | MEM_A_121 | MEM_A_122 | MEM_A_123 | MEM_A_124 | MEM_A_125 |
| J | MEM_A_126 | NC | MEM_A_127 | MEM_A_128 | MEM_A_129 | MEM_A_130 | MEM_A_131 | MEM_A_132 | MEM_A_133 | MEM_A_134 | MEM_A_135 | MEM_A_136 | MEM_A_137 | MEM_A_138 |
| K | MEM_A_139 | NC | MEM_A_140 | MEM_A_141 | MEM_A_142 | MEM_A_143 | MEM_A_144 | MEM_A_145 | MEM_A_146 | MEM_A_147 | MEM_A_148 | MEM_A_149 | MEM_A_150 | MEM_A_151 |
| L | MEM_A_152 | NC | MEM_A_153 | MEM_A_154 | MEM_A_155 | MEM_A_156 | MEM_A_157 | MEM_A_158 | MEM_A_159 | MEM_A_160 | MEM_A_161 | MEM_A_162 | MEM_A_163 | MEM_A_164 |
| M | MEM_A_165 | NC | MEM_A_166 | MEM_A_167 | MEM_A_168 | MEM_A_169 | MEM_A_170 | MEM_A_171 | MEM_A_172 | MEM_A_173 | MEM_A_174 | MEM_A_175 | MEM_A_176 | MEM_A_177 |
| N | MEM_A_178 | NC | MEM_A_179 | MEM_A_180 | MEM_A_181 | MEM_A_182 | MEM_A_183 | MEM_A_184 | MEM_A_185 | MEM_A_186 | MEM_A_187 | MEM_A_188 | MEM_A_189 | MEM_A_190 |
| O | MEM_A_191 | NC | MEM_A_192 | MEM_A_193 | MEM_A_194 | MEM_A_195 | MEM_A_196 | MEM_A_197 | MEM_A_198 | MEM_A_199 | MEM_A_200 | MEM_A_201 | MEM_A_202 | MEM_A_203 |
| P | MEM_A_204 | NC | MEM_A_205 | MEM_A_206 | MEM_A_207 | MEM_A_208 | MEM_A_209 | MEM_A_210 | MEM_A_211 | MEM_A_212 | MEM_A_213 | MEM_A_214 | MEM_A_215 | MEM_A_216 |
| Q | MEM_A_217 | NC | MEM_A_218 | MEM_A_219 | MEM_A_220 | MEM_A_221 | MEM_A_222 | MEM_A_223 | MEM_A_224 | MEM_A_225 | MEM_A_226 | MEM_A_227 | MEM_A_228 | MEM_A_229 |
| R | MEM_A_230 | NC | MEM_A_231 | MEM_A_232 | MEM_A_233 | MEM_A_234 | MEM_A_235 | MEM_A_236 | MEM_A_237 | MEM_A_238 | MEM_A_239 | MEM_A_240 | MEM_A_241 | MEM_A_242 |
| S | MEM_A_243 | NC | MEM_A_244 | MEM_A_245 | MEM_A_246 | MEM_A_247 | MEM_A_248 | MEM_A_249 | MEM_A_250 | MEM_A_251 | MEM_A_252 | MEM_A_253 | MEM_A_254 | MEM_A_255 |

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## UME300

### 3. PIN CONFIGURATION

<table>
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169 FBGA: Top View (Ball Down)

- **Blue**: Mobile SDRAM
- **Orange**: moviNAND
- **Red**: Power
- **Green**: Ground
- **NC / DNU**: Not Connected / DNU
Figure 2   Ball Diagram PG-WFWLB-138-2 (Top View)
U103

Pin Out

Bumps Down

U104

Pin Out

Bumps Down
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Figure 2. Ball Diagram (Top View)
Figure 6  A1026 Ball Assignments (Top View)
67-ball WLCSP
Bottom VIEW
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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