Internal Use Only

Service Manual

LG-AS990

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1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services.
System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of common carrier telecommunication service of facilities accessed through or connected to it. The manufacturer will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the phones or compatibility with the net work, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on the phones must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

A phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated by the  **sign.**

Following information is ESD handling:

• Service personnel should ground themselves by using a wrist strap when exchange system boards. • When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.

• Use a suitable, grounded soldering iron. • Keep sensitive parts in these protective packages until these are used.

• When returning system boards or parts like EEPROM to the factory, use the protective package as described.

1.3 Specifications

KEY FEATURES

- Android 4.4.2 - Powered Smartphone
- Up to 7 Customizable Home Screens
- 5.46″ Touch Screen
- 13MP AF with dual flash, 2.1M VT Image sensor
- 4G Mobile Hotspot
- DivX® H.264, H.263 Capable

ENHANCED USER EXPERIENCE

- Android 4.4.2
- Home Screens – customize 5 or 7 screens with shortcuts to apps, favorites, and widgets
- Path input Keyboard® – use one continuous finger motion to input text when composing a message
- Exchange Support – improved security, remote wipe capability for Exchange administrators, support for Exchange calendars in the Calendar application, auto-discovery for easy setup and syncing of an Exchange account,* and Global Address Lists lookup in the Email application
- Proximity Sensor – locks the touch screen and buttons while talking on the phone
- Motion Sensor – Digital compass , Accelerometer
- USB Charging via Computer
- Airplane Mode (RF Off)

*Available for Exchange 2007 and higher.

DESIGN

- Sleek and Stylish Design
- 5.46″ Display
- Capacitive Touch Screen – Glass with fast and accurate response
- Touch Vibration for Tactile Feedback*
- Micro USB Charging Port

*Only available on certain interactions with the touch screen.

MOBILE MEDIA

- Android Market™ – browse and download thousands of free and paid apps from around the world†
- Live Wallpaper – dynamic, animated backgrounds

- Full Web Browsing
- Connect to Social Networks – send quick updates to Twitter™, Facebook®, MySpace™,* or added social networks†
- Mobile Instant Messaging – Google Talk™, AIM®,* Yahoo!® Messenger,* Windows Live™*†
- Gmail™ and Email – mobile personal and corporate email†
- Text, Picture and Video†
- Flash 10.1 for Mobile Devices

- Java Support

*Applications downloaded from Android Market.

CAMERA/VIDEO

- 13MP AF/OIS with dual flash, 2.1M VT Image sensor and Camcorder*
- Camera Resolutions: 13M(4160x3120(4:3)), W10M(4160x2340(16:9)), 9M(3120x3120(1:1)), 3M(2048 x 1536(4:3))
- Camera and Video Zoom: up to 8x
- Image Editor: Zoom, Exposure, Artistic Effect, Color, Adjustment
- Brightness, ISO, White Balance,* Color Effects, Scene Mode, Timer
- Burst Shot – take 20 shots in quick succession
- Video Resolutions: UHD(3840 x 2160), FHD(1920 x 1080), HD(1280 x 720), 120-HD(Slow motion)
- Front-facing camera Resolutions: W2M(1920 x 1080), 1M(1280 x 960)
- *Available in both video and camera modes.

MULTIMEDIA

- Video Player for WMV, MP4, MKV, 3GP, and 3G2 Formats
- Music Player for MP3, WMA, and Unprotected AAC
- Stereo Sound via Headset or *Bluetooth*
- Multitask While Playing Music in the Background
- Music Library – Organized by Artists, Albums, Songs, Genres, Folders and Playlists
- Repeat and Shuffle Music Playback Modes

- microSD Memory Slot with Support for up to 2TB Storage
- USB Mass Storage – transfer files between microSD™ card and PC*

BLUETOOTH®

- Version: 4.0
- Save up to 100 *Bluetooth* Pairings*
- Supported Profiles: headset, hands-free, object push, advanced audio distribution (stereo), audio/video remote control, file transfer, phone book access, message access, serial port
- Listen to Music with Optional Stereo *Bluetooth* Headset**
- Send User-Generated Pictures (JPEG) and Videos via *Bluetooth* Wireless Technology

*Depends on available memory.

**Accessories sold separately.

VOICE/AUDIO

- One-Touch Speakerphone*
- Voice Clarity*
- Voice Commands
- Voice-Activated Dialing
- Text to Speech
- MP3 Music Ringer Support (clips from hit songs)†
- Voice Memo Recording
- More 20 Unique Ringtones + Vibrate and Silent Modes
- TTY Support

TOOLS & DATA

- Android Apps: Browser, Calculator, Calendar (Corporate or Google), Camera, Clock, Contacts, Email, Gallery, Gmail, Market, Messaging, Music, Phone, Settings, Voice Dialer, Voice Recorder, Voice Search
- Wi-Fi Connectivity – IEEE 802.11 a/b/g/n, ac

- Phone Book – unlimited fields* for numbers, emails, physical addresses, IM screen names, notes, nickname,, web addresses,, sppecial dates,, and a ppicture ID**
- FOTA Capable – upgrade firmware over the air†
- S-GPS and A-GPS Support for Enhanced Location Accuracy

*Depends on available memory.

**Dependent on photos stored in your gallery.

SPECIFICATIONS

- Technology: CDMA/LTE/GPS/ WiFI/ BT /NFC
- Frequencies:

Support Band	TX Freq (MHz)	RX Freq (MHz)
BC0	824-849	869-894
BC1	1850-1910	1930-1990
LTE B2	1850-1910	1930-1990
LTE B4	1710-1755	2110~2155
LTE B5	824-849	869-894
LTE B12	699-716	729-746
LTE B17	704-716	734-746
LTE B 25	1850-1915	1930-1995
BT/WiF	2400 MHz ~ 2483.5 MHz & 5150 MHz ~ 5825 MHz	
GPS	1574.42 MHz ~ 1576.42 MHz, 1597.55MHz ~ 1605.86MHz	
NFC	13.56MHz	

- Data Transmission: EvDO, LTE

- Dimensions: 146.3(H) x 74.6(W) x 8.95(D) (mm)
- Weight: 149g (with Battery)
- Display: 5.46", TFT
- Standard Battery: min. 2940[mAh], typ. 3000[mAh]
- Internal Memory Size: 24Gb(SDRAM DDR3) + 32GB eMMC

ACCESSORIES

- Standard Battery*
- Travel Adapter and USB Data Cable*
- Bluetooth Headset (Optional)
- Bluetooth Hands-free kit (Optional)
- Vehicle Power Charger (VPC) (Optional)

2. PERFORMANCE

2.1 Product Name

LG-AS990 : CDMA BC0/1 + LTE B2/4/5/12/17

2.2 Supporting Standard

Item	Feature	Comment
Supporting Standard	CDMA BC0/BC1 LTE FDD B2/4/5/12/17	
Frequency Range	CDMA BC0 : TX 824~849MHz, CDMA BC0 : RX 869~894MHz CDMA BC1 : TX 1950~1910MHz, CDMA BC1 : RX 1930~1990MHz LTE B2 TX : 1850~1910 MHz LTE B2 RX : 1930~1990 MHz LTE B4 TX : 1710~1755 MHz LTE B4 RX : 2110~2155 MHz LTE B5 TX : 824~849 MHz LTE B5 RX : 869~894 MHz LTE B12 TX : 699~716 MHz LTE B12 RX : 729~746 MHz LTE B17 TX : 704~716 MHz LTE B17 RX : 734~746 MHz LTE B25 TX : 1850~1915 MHz LTE B25 RX : 1930~1995 MHz	
Application Standard	WAP 2.0	

2.3 Main Parts & Solution

Item	Part Name	Comment
Digital Baseband	MSM8974AC : Qualcomm	
Analog Baseband	MSM8974AC : Qualcomm	
RF Chip	WTR1625L : Qualcomm	

2.4 HW Features

Item	Feature	Comment
Form Factor	DOP type	
Battery	1) Capacity Standard : Li-Ion, 3000mAh	
	2) Packing Type : Soft Pack	
Size	Standard : 146.3 x 74.6 x 8.95	
Weight	About 149g	With Battery
RX sensitivity	CDMA(BC0) : -107 dBm CDMA(BC1) : -107 dBm LTE(FDD B2/4/5/12/17/25) : -96dBm	
TX output power	CDMA(BC0) : 25 dBm CDMA(BC1) : 24.5 dBm LTE(FDD B2/25) : 23.5dBm LTE(FDD B4/5/12/17) : 24 dBm	
Display	Main LCD TFT Main LCD (5.46", 2560 X 1440 Pixels)	
Built-in Camera	13M AF + 2.1M VT	
Status Indicator	Yes	
Keypad	Full Touch Screen Back Key : 3	Back Key : Power On Volume up/down

ANT	Main : Internal Fixed Type	
System connector	5 Pin u-USB	
Ear Phone Jack	3.5 pi type	
PC synchronization	Yes	
Memory	3GB(SDRAM LPDDR3) + 32GB eMMC	
Speech coding	EVRC	
Vibrator	Built in Vibrator	
Blue Tooth	Bluetooth 4.0+BLE	
MIDI(for Buzzer Function)	SW Decoded 72Poly	
Music Player	MP3/WMA/AAC/MIDI/EAAC+/HE AAC/OGG	
Video Player	MPEG4, H.264	
Camcorder	MPEG4 or H.263	
Voice Recording	Yes	
Speaker Phone mode Support	Yes	
Travel Adapter	Yes	

1) RSSI Display

	Specification	
	CDMA	
BAR5 → 4	-80±5dB	Antenna BAR
BAR4 → 3	-90±5dB	
BAR 3 → 2	-97±3dB	
BAR2 → 1	< -100	
BAR 1→ No SVC	< -100	

Measure RSSI after 10 seconds if you change power.

2) Charging Time

3.5 hour under (3000mAh battery, 1.8A T/A)

3) Travel Charger

Input : 100 ~ 240 V, 50/60 Hz

Output : 5.0V, 1800 mA

4) Battery Type

Li-ion Battery Pack, 3000 mAh

Standard Voltage : 3.8 V, Battery Full Charge Voltage : 4.35V

5) Current Consumption

Item	CDMA Only	LTE	Comment
Standby	8.5mA ↓ (Slot index2)	8.5mA↓ (2.56s)	GPS & Wifi Off Neighborhood Cell Off, LCD Off
Talk Mode	- Max Pwr : 650mA↓ @ Avg - Tx 10dBm : 200mA↓ @ Avg	- Max Pwr : 850mA↓ @ Avg - Tx 10dBm : 350mA↓ @ Avg	GPS & Wifi Off Neighborhood Cell Off, LCD Off
Power Off	600uA ↓	600uA ↓	

6) Battery Bar

Battery Bar	Specification	Battery Bar	Specification
Bar 20(Full)	98%	Bar 9 -> Bar 8	43% -> 42%
Bar 20 -> Bar 19	98% -> 97%	Bar 8 -> Bar 7	38% -> 37%
Bar 19 -> Bar 18	93% -> 92%	Bar 7 -> Bar 6	33% -> 32%
Bar 18 -> Bar 17	88% -> 87%	Bar 6 -> Bar 5	28% -> 27%
Bar 17 -> Bar 16	83% -> 82%	Bar 5 -> Bar 4	23% -> 22%
Bar 16 -> Bar 15	78% -> 77%	Bar 4 -> Bar 3	18% -> 17%
Bar 15 -> Bar 14	73% -> 72%	Bar 3 -> Bar 2	13% -> 12%
Bar 14 -> Bar 13	68% -> 67%	Bar 2 -> Bar 1	8% -> 7%
Bar 13 -> Bar 12	63% -> 62%	Bar 1 -> Bar 0	3% -> 2%
Bar 12 -> Bar 11	58% -> 57%	Power off	2% -> 1%
Bar 11 -> Bar 10	53% -> 52%	Low battery pop-up	15% , 5%, 1%
Bar 10 -> Bar 9	48% -> 47%		

2.5 SW Features

Item	Feature	Comment
RSSI	0 ~ 5 Levels	
Battery Charging	0 ~ 20 Levels	Using Fuel Gauging (%)
Key Volume	0 ~ 7 Level	
Audio Volume	0 ~ 15 Level	
Time / Date Display	Yes	
Multi-Language	Yes	English, Espanol, Franch, Korea, Chinese, etc
Quick Access Mode	Phone / Messaging / Apps / Web / Contact	
PC Sync	No	
Speed Dial	Yes	Voice mail center -> 1 key
Profile	Yes	not same with feature phone setting
CLIP / CLIR	Yes	
Phone Book	Name / Number / Email / Website / Postal addresses / Organizations / Groups / Birthday Notes / Ringtone	There is no limitation on the number of items. It depends on available memory amount.
Last Received Number	Yes	There is no limitation on the number of items. It depends on available memory amount.
Last Missed Number	Yes	There is no limitation on the number of items. It depends on available memory amount.
Search by Number / Name	Name / Number	
Group	Yes	There is no limitation on the number of items. It depends on available memory

		amount.
Fixed Dial Number	Yes	
Service Dial Number	No	
Own Number	Yes	Read / Write
Voice Memo	Yes	Support voice recorder
Call Reminder	No	Missed call popup
Network Selection	LTE+CDMA	
Mute	Yes	
Call Divert	Yes	Support call forwarding
Call Barring	Yes	
Call Charge (AoC)	No	
Call Duration	Yes	
SMS (EMS)	There is no limitation on the number of items. It depends on available memory amount.	EMS does not support.
SMS Over GPRS	No	No
EMS Melody / Picture Send / Receive / Save	No No	
MMS MPEG4 Send / Receive / Save	Yes Yes	
Long Message	Yes	
Cell Broadcast	Yes	
Download	Yes	
Game	Yes	
Calendar	Yes	
Memo	No	integrated to QMemo+
World Clock	Yes	
Unit Convert	No	
Stop Watch	Yes	
Wall Paper	Yes	
WAP Browser	No	WAP stack and wml are not supported.

Download Melody / Wallpaper	Yes	Over web browser
SIM Lock	No	Operator Dependent
SIM Toolkit	Class 1, 2, 3, C, E	
MMS	Yes	
EONS	Yes	
CPHS	Yes	V4.2
ENS	No	
Camera	Yes	13M AF VT : 2.1M
JAVA	No	Android do not support JAVA
Voice Dial	Yes	
IrDa	Yes	
Bluetooth	Yes	Ver. 4.0
FM radio	No	
GPRS	No	
EDGE	No	
Hold / Retrieve	Yes	
Conference Call	Yes	Max. 7
DTMF	Yes	
Memo pad	No	integrated to QMemo+
TTY	No	
AMR	No	Speech Codec EVRC
SyncML	No	
IM	Yes	Gtalk
Email	Yes	

2.6 HW SPEC.

1) LTE transmitter specification

Item	Spec.	Min	Typ.	Max	Unit
Maximum Output Power (Class III)	Power class 3 (Environmental Test)	20.3 (20.3)	23.0 (23.0)	25.7 (25.7)	dBm/ 10MHz
Frequency Error	QPSK	-0.1 PPM -15hz	-	+0.1 PPM +15hz	
EVM	QPSK 16QAM			17.5 12.5	%
IQ-component	QPSK, 12RB			-24.2	dBc
In-band emissions for non allocated RB	QPSK, 12RB			-24.2	dB
Spectrum Flatness	QPSK, 50RB	-2		+3.4	dB
Occupied bandwidth	QPSK, 50RB			10	MHz
ACLR (Adjacent Channel Leakage Power Ratio)	E-UTRA ACLR1			-29.2	dB
	UTRA ACLR1			-32.2	dB
	UTRA ACLR2			-35.2	dB
Transmitter Spurious emissions	9 kHz < f < 150 kHz			-36	dBm/1kHz
	150kHz < f < 30 MHz			-36	dBm/10kHz
	30MHz < f < 1GHz			-36	dBm/100kHz
	1GHz < f < 12.75GHz			-30	dBm/1MHz

2) LTE receiver specification

Item	Spec.	Min	Typ.	Max	Unit
Sensitivity Level (DL : QPSK, 50RB UL : QPSK, 25RB)	Dual Receiver			B2: -95 B4 : -97 B17: -94	dBm /10MHz
	Single Receiver (exception in 3GPP)			B2 : -92 B4 : -94.0 B17: -91.0	dBm /10MHz
Maximum input Level	Dual Receiver (DL : 64QAM, 50RB UL : QPSK, 12RB)			-25.7	dBm /10MHz
ACS (Adjacent Channel Selectivity)	Dual Receiver (DL : QPSK, 50RB UL : QPSK, 12RB) Δf = ± 7.5MHz, LTE BW 5MHz			33	dB
In-Band Blocking (DL : QPSK, 50RB UL : QPSK, 20RB)	Dual Receiver Δf = ± 7.5MHz, LTE BW 5MHz Δf = ± 12.5MHz, LTE BW 5MHz			-88.3	dBm /10MHz
Out of Band Blocking (DL : QPSK, 50RB UL : QPSK, 20RB)	Dual Receiver Δf = ± 15MHz~85MHz, CW			-88.3	dBm /10MHz
Narrow Band Blocking (DL : QPSK, 50RB UL : QPSK, 20RB)	Dual Receiver Δf = ± 5.2125MHz, CW			-81.3	dBm /10MHz
Intermodulation (DL : QPSK, 50RB UL : QPSK, 20RB)	Dual Receiver Δf = ± 12.5MHz, CW Δf = ± 25MHz, LTE BW 5MHz			-88.3	dBm /10MHz
Spurious emissions (DL : QPSK, 0RB UL : QPSK, 0RB)	Dual Receiver 30MHz < f < 1GHz			-57	dBm /100kHz
	1GHz < f < 12.75 GHz			-47	dBm /1MHz

3) CDMA (DCN) transmitter specification

Item	Spec.	Min	Typ.	Max	Unit
Frequency Accuracy	-	-300	-	+300	Hz
Time Reference	-	-1	-	+1	uS
Waveform Quality	-	0.944	0.98	1	-
Open Loop Output Power Class III	Ior =-93.5dBm/1.23MHz	10.5	20	25.5	dBm/ 1.23MHz
	Ior =-65dBm/1.23MHz	-17.5	-8	1.5	dBm/ 1.23MHz
	Ior =-25dBm/1.23MHz	-57.5	-48	-38.5	dBm/ 1.23MHz
Maximum Output power(Class III)	Power class 3	23.0	24.8	26.0	dBm/ 1.23MHz
Maximum Spurious Emission	Δf = ± 900 KHz Maximum Spurious Emission	-42	-48	-	dBc/ 30KHz
	Δf = ± 1.98 MHz Maximum Spurious Emission	-54	-60	-	dBc/ 30KHz
Standby Output Power	Ior =-75dBm/1.23MHz (when TX disabled)	-	-	- 61	dBm/ 1MHz
Minimum Controlled Output Power	-	-	-53	-50	dBm/ 1.3MHz
Conducted Spurious Emissions (Pout = -13dBm)	Fc±Δf 885KHz	-	-	-42	dBc /30kHz
	Fc±Δf 1.98MHz	-	-	-54	dBc /30kHz

4) CDMA (DCN) receiver specification

Item	Spec.	Min	Typ.	Max	Unit
Sensitivity	-	-	-106	-104	dBm /1.23MHz
Single Tone Desensitization	Ior = -94dBm **Jammer = GMSK-45dBm** Δf = ± 1100KHz FER < 1% →Jammer PWR 가변측정	-45	-43	-	dBm
Intermodulation Spurious Response Attenuation	Ior = -101dBm **Jammer = -43dBm** Δf=± 900kHz, ±1.7MHz FER < 1% →Jammer PWR 가변측정	-43	-41	-	dBm
	Ior = -90dBm **Jammer = -32dBm** Δf=± 900kHz, ±1.7MHz FER < 1% →Jammer PWR 가변측정	-32	-30	-	dBm
	Ior = -79dBm Jammer = -21dBm Δf=± 900kHz, ±1.7MHz FER < 1% → Sector PWR 가변측정	-	-84	-79	dBm /1.23MHz
Conducted Spurious Emissions	TX=off, RX Band (869~894MHz)	-	-	-81	dBm /1.23MHz
	TX=off, TX Band (824~849MHz)	-	-	-61	dBm /1.23MHz
	TX=off, RX/TX Band외	-	-	-47	dBm /30 KHz

5) CDMA (UCPSC) transmitter specification

Item	Spec.	Min	Typ.	Max	Unit
Frequency Accuracy	-	-150	-	+150	Hz
Time Reference	-	-1	-	+1	uS
Waveform Quality	-	0.944	0.98	1	-
Open Loop Output Power Class II	Ior =-97dBm/1.23MHz	10.5	20	25.5	dBm/ 1.23MHz
	Ior =-65dBm/1.23MHz	-20.5	-11	-1.5	dBm/ 1.23MHz
	Ior =-25dBm/1.23MHz	-60.5	-51	-41.5	dBm/ 1.23MHz
Maximum Output power(Class II)	Power class 2	23.0	24.5	26.0	dBm/ 1.23MHz
Maximum Spurious Emission	Δf = ± 1.25 MHz Output Power -> Max	-42	-46	-	dBc/ 30KHz
	Δf = ± 1.98 MHz Output Power -> Max	-50	-55		dBc/ 30KHz
Standby Output Power	Ior =-75dBm/1.23MHz (when TX disable)	-	-	- 61	dBm/ 1MHz
Minimum Controlled Output Power	-	-	-53	-50	dBm/ 1.23MHz
Conducted Spurious Emission (Pout = -13dBm)	Fc±Δf 1.25MHz	-	-	-42	dBc /30kHz
	Fc±Δf 1.98MHz	-	-	-54	dBc /30kHz

6) CDMA (USPCS) receiver specification

Item	Spec.	Min	Typ.	Max	Unit
Sensitivity	-	-	-106	-104	dBm /1.25MHz
Single Tone Desensitization (at Output=+15dBm)	Ior = -94dBm Δf = ± 1.25MHz **Jammer = GMSK-45dBm** FER < 1% →Jammer PWR 가변측정	-45	-23	-	dBm
Intermodulation Spurious Response Attenuation	Ior = -94dBm **Jammer = GMSK-44dBm** Δf=±1.27MHz, ±2.64MHz FER < 1% →Jammer PWR 가변측정	-44	-42	-	dBm
Conducted Spurious Emissions	TX=off, RX Band (1930~1990MHz)	-	-	-81	dBm /1.23MHz
	TX=off, TX Band (1850~1910MHz)	-	-	-61	dBm /1.23MHz
	TX=off, RX/Tx Band외	-	-	-47	dBm /30 KHz

7) GPS receiver specification

Item	Specification
Receive Frequency	1574.42 MHz ~ 1576.42 MHz
Minimum Sensitivity	1 satellite ≥-142dBm, 7 satellites ≥ -147dBm at coarse time aiding

8) WLAN 802.11a transceiver specification

Item	Specification
Transmit Frequency	5150 MHz ~ 5825 MHz (CH36~CH165)
Tx Power Level	≤ 23dBm(5150 ~ 5350 MHz), ≤ 30dBm(5470 ~ 5825 MHz)
Frequency Tolerance	within ±20 PPM
Chip clock Frequency Tolerance	within ±20 PPM
Spectrum Mask	≤ -20 @ ±11MHz offset (9Mhz ~ 11MHz) ≤ -28 @ ±20MHz offset (11MHz ~ 20Mhz) ≤ -40 @ ±30MHz offset (20MHz ~ 30Mhz)
Transmitter constellation error (rms EVM)	≤ -5dB@6Mbps, ≤ -8dB@9Mbps, ≤ -10dB@12Mbps, ≤ -13dB@18Mbps, ≤ -16dB@24Mbps, ≤ -19dB@36Mbps, ≤ -22dB@48Mbps, ≤ -25dB@54Mbps
Spurious Emissions	< -36 dBm @ 30 MHz to 47 MHz < -54 dBm @ 47 MHz to 74 MHz < -36 dBm @ 74 MHz to 87,5 MHz < -54 dBm @ 87,5 MHz to 118 MHz < -36 dBm @ 118 MHz to 174 MHz < -54 dBm @ 174 MHz to 230 MHz < -36 dBm @ 230 MHz to 470 MHz < -54 dBm @ 470 MHz to 862 MHz < -36 dBm @ 862 MHz to 1 GHz < -30 dBm @ 1 GHz to 5.15 GHz < -30 dBm @ 5.35 GHz to 5.47 GHz < -30 dBm @ 5.725 GHz to 26.5 GHz
Rx Min input Sensitivity	PER ≤ 10% -82dBm@6Mbps, -81dBm@9Mbps, -79dBm@12Mbps -77dBm@18Mbps, -74dBm@24Mbps, -70dBm@36Mbps -66dBm@48Mbps, -65dBm@54Mbps
Rx Max input Sensitivity	≥ -30dBm(6,9,12,18,24,36,48,54Mbps) @ PER ≤ 10%

Rx Adjacent Channel Rejection	PER ≤ 10%, ACR ≥ 16dB@6Mbps, ACR ≥ 15dB@9Mbps, ACR ≥ 13dB@12Mbps, ACR ≥ 11dB@18Mbps, ACR ≥ 8dB@24Mbps, ACR ≥ 4dB@36Mbps ACR ≥ 0dB@48Mbps, ACR ≥ -1dB@54Mbps ※ACR shall be measured by setting the desired signal's stre ngth 3 dB above the rate-dependent sensitivity specified in min input sensitivity

9) CDMA (DCN) receiver specification

Item	Specification
Transmit Frequency	2400 MHz ~ 2473.5 MHz (CH1~CH11)
Tx Power Level	≤ 20dBm
Frequency Tolerance	within ±25 PPM
Chip clock Frequency Tolerance	within ±25 PPM
Spectrum Mask	≤ -30 @ fc-22MHz< f <fc-11MHz and fc+11MHz< f <fc+22MHz ≤ -50 @ f < fc-22MHz and f > fc+22MHz
Power ramp on/off time	≤ 2us
Carrier Suppression	≤ -15dB
Modulation Accuracy(Peak EVM)	≤ 35%
Spurious Emissions	< -36 dBm @ 30MHz ~ 1GHz < -30 dBm above @ 1GHz ~ 12.75GHz < -47 dBm @ 1.8GHz ~ 1.9GHz < -47 dBm @ 5.15GHz ~ 5.3GHz
Rx Min input Sensitivity	≤ -76dBm(1Mbps,2Mbps,5.5Mbps,11Mbps) @ FER ≤ 8%
Rx Max input Sensitivity	≥ -10dBm(1Mbps,2Mbps,5.5Mbps,11Mbps) @ FER ≤ 8%
Rx Adjacent Channel Rejection	≥ 35dB @FER ≤ 8%, interference input signal -70dBm@fc±25MHz(11Mbps)

10) WLAN 802.11g transceiver specification

Item	Specification
Transmit Frequency	2400 MHz ~ 2473.5 MHz (CH1~CH11)
Tx Power Level	≤ 20dBm
Frequency Tolerance	within ±25 PPM
Chip clock Frequency Tolerance	within ±25 PPM
Spectrum Mask	≤ -20 @ ±11MHz offset (9Mhz ~ 11MHz) ≤ -28 @ ±20MHz offset (11MHz ~ 20Mhz) ≤ -40 @ ±30MHz offset (20MHz ~ 30Mhz)
Transmitter constellation error (rms EVM)	≤ -5dB@6Mbps, ≤ -8dB@9Mbps, ≤ -10dB@12Mbps, ≤ -13dB@18Mbps, ≤ -16dB@24Mbps, ≤ -19dB@36Mbps, ≤ -22dB@48Mbps, ≤ -25dB@54Mbps
Spurious Emissions	< -36 dBm @ 30MHz ~ 1GHz < -30 dBm above @ 1GHz ~ 12.75GHz < -47 dBm @ 1.8GHz ~ 1.9GHz < -47 dBm @ 5.15GHz ~ 5.3GHz
Rx Min input Sensitivity	PER ≤ 10% -82dBm@6Mbps, -81dBm@9Mbps, -79dBm@12Mbps -77dBm@18Mbps, -74dBm@24Mbps, -70dBm@36Mbps -66dBm@48Mbps, -65dBm@54Mbps
Rx Max input Sensitivity	≥ -20dBm(6,9,12,18,24,36,48,54Mbps) @ PER ≤ 10%
Rx Adjacent Channel Rejection	PER ≤ 10%, ACR ≥ 16dB@6Mbps, ACR ≥ 15dB@9Mbps, ACR ≥ 13dB@12Mbps, ACR ≥ 11dB@18Mbps, ACR ≥ 8dB@24Mbps, ACR ≥ 4dB@36Mbps ACR ≥ 0dB@48Mbps, ACR ≥ -1dB@54Mbps ※ACR shall be measured by setting the desired signal's stren gth 3 dB above the rate-dependent sensitivity specified in min input sensitivity

11) WLAN 802.11n(HT20) transceiver specification

Item	Specification
Transmit Frequency	2400 MHz ~ 2473.5 MHz (CH1~CH11) 5150~5815MHz(CH36,CH40,CH44,CH48~116,CH132~161)
Tx Power Level	≤ 10mW/MHz(CH1 ~ 11) ≤ 2.5mW/MHz(CH36 ~ 48), ≤ 10mW/MHz(CH52 ~ 161)
Frequency Tolerance	within ±25 PPM(2400 ~ 2473.5 MHz) within ±20 PPM(5150 ~ 5815 MHz)
Chip clock Frequency Tolerance	within ±25 PPM(2400 ~ 2473.5 MHz) within ±20 PPM(5100 ~ 5815 MHz)
Spectrum Mask	≤ -20 @ ±11MHz offset (9Mhz ~ 11MHz) ≤ -28 @ ±20MHz offset (11MHz ~ 20Mhz) ≤ -45 @ ±30MHz offset (20MHz ~ 30Mhz)
Transmitter constellation error (rms EVM)	≤ -5dB@6.5Mbps, ≤ -10dB@13Mbps, ≤ -13dB@19.5Mbps, ≤ -16dB@26Mbps, ≤ -19dB@39Mbps, ≤ -22dB@52Mbps, ≤ -25dB@58.5Mbps, ≤ -28dB@65Mbps
Spurious Emissions	[2400 MHz ~ 2473.5 MHz (CH1 ~ 11)] < -36 dBm @ 30MHz ~ 1GHz < -30 dBm above @ 1GHz ~ 12.75GHz < -47 dBm @ 1.8GHz ~ 1.9GHz < -47 dBm @ 5.15GHz ~ 5.3GHz [5150 MHz ~ 5815 MHz (CH36 ~ 161)] < -36 dBm @ 30 MHz to 47 MHz < -54 dBm @ 47 MHz to 74 MHz < -36 dBm @ 74 MHz to 87,5 MHz < -54 dBm @ 87,5 MHz to 118 MHz < -36 dBm @ 118 MHz to 174 MHz < -54 dBm @ 174 MHz to 230 MHz

	< -36 dBm @ 230 MHz to 470 MHz < -54 dBm @ 470 MHz to 862 MHz < -36 dBm @ 862 MHz to 1 GHz < -30 dBm @ 1 GHz to 5.15 GHz < -30 dBm @ 5.35 GHz to 5.47 GHz < -30 dBm @ 5.725 GHz to 26.5 GHz
Rx Min input Sensitivity	PER ≤ 10% -82dBm@6.5Mbps, -79dBm@13Mbps, -77dBm@19.5Mbps -74dBm@26Mbps, -70dBm@39Mbps, -66dBm@52Mbps -65dBm@58.5Mbps, -64dBm@65Mbps
Rx Max input Sensitivity	≥ -20dBm @ PER ≤ 10%(2400 ~ 2473.5 MHz) ≥ -30dBm @ PER ≤ 10%(5150 ~ 5815 MHz)
Rx Adjacent Channel Rejection	PER ≤ 10%, ACR ≥ 16dB@6.5Mbps, ACR ≥ 13dB@13Mbps, ACR ≥ 11dB@19.5Mbps, ACR ≥ 8dB@26Mbps, ACR ≥ 4dB@39Mbps, ACR ≥ 0dB@52Mbps ACR ≥ -1dB@58.5Mbps, ACR ≥ -2dB@65Mbps ※ACR shall be measured by setting the desired signal's strength 3 dB above the rate-dependent sensitivity specified in min input sensitivity

12) WLAN 802.11n(HT40) transceiver specification

Item	Specification
Transmit Frequency	5170 ~ 5815 MHz (CH36 ~ 64, CH100 ~ 124, CH149 ~ 161
Tx Power Level	≤ 2.5mW/MHz(CH36 ~ 48), ≤ 10mW/MHz(CH52 ~ 161)
Frequency Tolerance	within ±20 PPM(5150 ~ 5815 MHz)
Chip clock Frequency Tolerance	within ±20 PPM(5100 ~ 5815 MHz)
Spectrum Mask	≤ -20 @ ±11MHz offset (9Mhz ~ 11MHz) ≤ -28 @ ±20MHz offset (11MHz ~ 20Mhz) ≤ -45 @ ±30MHz offset (20MHz ~ 30Mhz)
Transmitter constellation error (rms EVM)	≤ -5dB@13.5Mbps, ≤ -10dB@27Mbps, ≤ -13dB@40.5Mbps, ≤ -16dB@54Mbps, ≤ -19dB@81Mbps, ≤ -22dB@108Mbps, ≤ -25dB@121.5Mbps, ≤ -28dB@135Mbps
Spurious Emissions	[5150 MHz ~ 5815 MHz (CH36 ~ 161)] < -36 dBm @ 30 MHz to 47 MHz < -54 dBm @ 47 MHz to 74 MHz < -36 dBm @ 74 MHz to 87,5 MHz < -54 dBm @ 87,5 MHz to 118 MHz < -36 dBm @ 118 MHz to 174 MHz < -54 dBm @ 174 MHz to 230 MHz < -36 dBm @ 230 MHz to 470 MHz < -54 dBm @ 470 MHz to 862 MHz < -36 dBm @ 862 MHz to 1 GHz

	< -30 dBm @ 1 GHz to 5.15 GHz < -30 dBm @ 5.35 GHz to 5.47 GHz < -30 dBm @ 5.725 GHz to 26.5 GHz
Rx Min input Sensitivity	PER ≤ 10% -79dBm@13.5Mbps, -76dBm@27Mbps, -74dBm@40.5Mbps -71dBm@54Mbps, -67dBm@81Mbps, -63dBm@108Mbps -62dBm@121.5Mbps, -61dBm@135Mbps
Rx Max input Sensitivity	≥ -30dBm @ PER ≤ 10%(5150 ~ 5815 MHz)
Rx Adjacent Channel Rejection	PER ≤ 10%, ACR ≥ 16dB@13.5Mbps, ACR ≥ 13dB@27Mbps, ACR ≥ 11dB@40.5Mbps, ACR ≥ 8dB@54Mbps, ACR ≥ 4dB@81Mbps, ACR ≥ 0dB@108Mbps ACR ≥ -1dB@121.5Mbps, ACR ≥ -2dB@135Mbps ※ACR shall be measured by setting the desired signal's strength 3 dB above the rate-dependent sensitivity specified in min input sensitivity

13) WLAN 802.11ac(VHT20)

Item	Spec.
Transmit Frequency	2400 ~ 2483.5 MHz (CH1 ~ 11) 5150 ~ 5815 MHz (CH36 ~ 64, CH100 ~ 124, CH149 ~ 161)
Tx Power Level	≤ 10mW/MHz(CH1 ~ 11) ≤ 2.5mW/MHz(CH36 ~ 48), ≤ 10mW/MHz(CH52 ~ 161)
Frequency Tolerance	within ±25 PPM(2400 ~ 2483.5 MHz) within ±20 PPM(5150 ~ 5815 MHz)
Chip clock Frequency Tolerance	within ±25 PPM(2400 ~ 2483.5 MHz) within ±20 PPM(5150 ~ 5815 MHz)
Spectrum Mask	2.4G (2400 ~ 2483.5 MHz) ≤ -20 @ ±11MHz offset (9Mhz ~ 11MHz) ≤ -28 @ ±20MHz offset (11MHz ~ 20Mhz) ≤ -45 @ ±30MHz offset (20MHz ~ 30Mhz) 5G (5170 ~ 5710 MHz) ≤ -20 @ ±11MHz offset (9Mhz ~ 11MHz) ≤ -28 @ ±20MHz offset (11MHz ~ 20Mhz) ≤ -40 @ ±30MHz offset (20MHz ~ 30Mhz)
Transmitter constellation error (rms EVM)	≤ -5dB@6.5Mbps, ≤ -10dB@13Mbps, ≤ -13dB@19.5Mbps, ≤ -16dB@26Mbps, ≤ -19dB@39Mbps, ≤ -22dB@52Mbps, ≤ -25dB@58.5Mbps, ≤ -27dB@65Mbps, ≤ -30dB@78Mbps
Spurious Emissions	[2400 MHz ~ 2483.5 MHz (CH1 ~ 11)] < -36 dBm @ 30MHz ~ 1GHz < -30 dBm above @ 1GHz ~ 12.75GHz < -47 dBm @ 1.8GHz ~ 1.9GHz < -47 dBm @ 5.15GHz ~ 5.3GHz

Spurious Emissions	[5150 MHz ~ 5815 MHz (CH36 ~ 161)] < -36 dBm @ 30 MHz to 47 MHz < -54 dBm @ 47 MHz to 74 MHz < -36 dBm @ 74 MHz to 87,5 MHz < -54 dBm @ 87,5 MHz to 118 MHz < -36 dBm @ 118 MHz to 174 MHz < -54 dBm @ 174 MHz to 230 MHz < -36 dBm @ 230 MHz to 470 MHz < -54 dBm @ 470 MHz to 862 MHz < -36 dBm @ 862 MHz to 1 GHz < -30 dBm @ 1 GHz to 5.15 GHz < -30 dBm @ 5.35 GHz to 5.47 GHz < -30 dBm @ 5.725 GHz to 26.5 GHz
Rx Min input Sensitivity	PER ≤ 10% -82dBm@6.5Mbps, -79dBm@13Mbps, -77dBm@19.5Mbps -74dBm@26Mbps, -70dBm@39Mbps, -66dBm@52Mbps -65dBm@58.5Mbps, -64dBm@65Mbps, -59dBm@78Mbps
Rx Max input Sensitivity	≥ -30dBm @ PER ≤ 10%
Rx Adjacent Channel Rejection	PER ≤ 10%, ACR ≥ 16dB@6.5Mbps, ACR ≥ 13dB@13Mbps ACR ≥ 11dB@19.5Mbps, ACR ≥ 8dB@26Mbps, ACR ≥ 4dB@39Mbps, ACR ≥ 0dB@52Mbps ACR ≥ -1dB@58.5Mbps, ACR ≥ -2dB@65Mbps, ACR ≥ -7dB@78Mbps ※ACR shall be measured by setting the desired signal's strength 3 dB above the rate-dependent sensitivity specified in min input sensitivity

14) WLAN 802.11ac(VHT40)

Item	Spec.
Transmit Frequency	5150 ~ 5815 MHz (CH36 ~ 64, CH100 ~ 124, CH149 ~ 161)
Tx Power Level	≤ 2.5mW/MHz(CH36 ~ 48), ≤ 10mW/MHz(CH52 ~ 161)
Frequency Tolerance	within ±20 PPM(5150 ~ 5815 MHz)
Chip clock Frequency Tolerance	within ±20 PPM(5150 ~ 5815 MHz)
Spectrum Mask	≤ -20 @ ±21MHz offset (19Mhz ~ 21MHz) ≤ -28 @ ±40MHz offset (21MHz ~ 40Mhz) ≤ -40 @ ±60MHz offset (40MHz ~ 60Mhz)
Transmitter constellation error (rms EVM)	≤ -5dB@13.5Mbps, ≤ -10dB@27Mbps, ≤ -13dB@40.5Mbps, ≤ -16dB@54Mbps, ≤ -19dB@81Mbps, ≤ -22dB@108Mbps, ≤ -25dB@121.5Mbps, ≤ -27dB@135Mbps, ≤ -30dB@162Mbps, ≤ -32dB@180Mbps
Spurious Emissions	[5150 MHz ~ 5815 MHz (CH36 ~ 161)] < -36 dBm @ 30 MHz to 47 MHz < -54 dBm @ 47 MHz to 74 MHz < -36 dBm @ 74 MHz to 87,5 MHz < -54 dBm @ 87,5 MHz to 118 MHz < -36 dBm @ 118 MHz to 174 MHz < -54 dBm @ 174 MHz to 230 MHz < -36 dBm @ 230 MHz to 470 MHz < -54 dBm @ 470 MHz to 862 MHz < -36 dBm @ 862 MHz to 1 GHz

	< -30 dBm @ 1 GHz to 5.15 GHz < -30 dBm @ 5.35 GHz to 5.47 GHz < -30 dBm @ 5.725 GHz to 26.5 GHz
Rx Min input Sensitivity	PER ≤ 10% -79dBm@13.5Mbps, -76dBm@27Mbps, -74dBm@40.5Mbps -71dBm@54Mbps, -67dBm@81Mbps, -63dBm@108Mbps -62dBm@121.5Mbps, -61dBm@135Mbps, -56dBm@162Mbps, -54dBm@180Mbps
Rx Max input Sensitivity	≥ -30dBm @ PER ≤ 10%(5150 ~ 5815 MHz)
Rx Adjacent Channel Rejection	PER ≤ 10%, ACR ≥ 16dB@13.5Mbps, ACR ≥ 13dB@27Mbps, ACR ≥ 11dB@40.5Mbps, ACR ≥ 8dB@54Mbps, ACR ≥ 4dB@81Mbps, ACR ≥ 0dB@108Mbps ACR ≥ -1dB@121.5Mbps, ACR ≥ -2dB@135Mbps ACR ≥ -7dB@162Mbps, ACR ≥ -9dB@180Mbps ※ACR shall be measured by setting the desired signal's strength 3 dB above the rate-dependent sensitivity specified in min input sensitivity

15) WLAN 802.11ac(VHT80)

Item	Spec.
Transmit Frequency	5150 ~ 5815 MHz (CH36 ~ 64, CH100 ~ 124, CH149 ~ 161)
Tx Power Level	≤ 2.5mW/MHz(CH36 ~ 48), ≤ 10mW/MHz(CH52 ~ 161)
Frequency Tolerance	within ±20 PPM(5150 ~ 5815 MHz)
Chip clock Frequency Tolerance	within ±20 PPM(5150 ~ 5815 MHz)
Spectrum Mask	≤ -20 @ ±41MHz offset (39Mhz ~ 41MHz) ≤ -28 @ ±80MHz offset (41MHz ~ 80Mhz) ≤ -40 @ ±120MHz offset (80MHz ~ 120Mhz)
Transmitter constellation error (rms EVM)	≤ -5dB@29.3Mbps, ≤ -10dB@58.5Mbps, ≤ -13dB@87.8Mbps, ≤ -16dB@117Mbps, ≤ -19dB@175.5Mbps, ≤ -22dB@234Mbps, ≤ -25dB@263.3Mbps, ≤ -27dB@292.5Mbps, ≤ -30dB@351Mbps, ≤ -32dB@390Mbps
Spurious Emissions	[5150 MHz ~ 5815 MHz (CH36 ~ 161)] < -36 dBm @ 30 MHz to 47 MHz < -54 dBm @ 47 MHz to 74 MHz < -36 dBm @ 74 MHz to 87,5 MHz < -54 dBm @ 87,5 MHz to 118 MHz < -36 dBm @ 118 MHz to 174 MHz < -54 dBm @ 174 MHz to 230 MHz < -36 dBm @ 230 MHz to 470 MHz < -54 dBm @ 470 MHz to 862 MHz < -36 dBm @ 862 MHz to 1 GHz < -30 dBm @ 1 GHz to 5.15 GHz < -30 dBm @ 5.35 GHz to 5.47 GHz < -30 dBm @ 5.725 GHz to 26.5 GHz
Rx Min input Sensitivity	PER ≤ 10% -76dBm@29.3Mbps, -73dBm@58.5Mbps, -71dBm@87.8Mbps

	-68dBm@117Mbps, -64dBm@175.5Mbps, -60dBm@234Mbps -59dBm@263.3Mbps, -58dBm@292.5Mbps, -53dBm@351Mbps, -51dBm@390Mbps
Rx Max input Sensitivity	≥ -30dBm @ PER ≤ 10%(5150 ~ 5815 MHz)
Rx Adjacent Channel Rejection	PER ≤ 10%, ACR ≥ 16dB@29.3Mbps, ACR ≥ 13dB@58.5Mbps, ACR ≥ 11dB@87.8Mbps, ACR ≥ 8dB@117Mbps, ACR ≥ 4dB@175.5Mbps, ACR ≥ 0dB@234Mbps ACR ≥ -1dB@263.3Mbps, ACR ≥ -2dB@292.5Mbps ACR ≥ -7dB@351Mbps, ACR ≥ -9dB@390Mbps ※ACR shall be measured by setting the desired signal's strength 3 dB above the rate-dependent sensitivity specified in min input sensitivity

16) Bluetooth transmitter specification

Item	Spec.		Min	Typ.	Max	Unit
Output Power	DH5 PRBS9	Nominal Pwr	-6	-	+20	dBm
		Peak Pwr	-	-	+23	dBm
Power Density	DH5 PRBS9	@100kHz BW		-	+20	dBm
Frequency Range	DH5 PRBS9	-30dBm @100kHz BW	2400	-	2483	MHz
Tx Output Spectrum (20dB BW)	DH5 PRBS9	$\Delta f = f_H - f_L$		-	1	MHz
Tx Output Spectrum (Adjacent Output Power)	DH5 PRBS9	@M-N = 2		-	-20	dBm
		@M-N >= 3		-	-40	dBm
Modulation Index	DH5 11110000	$f1_{AVG}$	140	-	175	kHz
	DH5 10101010	$f2_{MAX}$	115	-		kHz
		$f2_{AVG}/f1_{AVG}$	0.8	-		
Initial Carrier Freq. Tolerance	DH5 PRBS9		-75	-	+75	kHz
Carrier Frequency Drift	DH1 10101010	Freq. Drift	-25	-	+25	kHz
		Drift Rate	-20	-	+20	kHz/50us
	DH3 10101010	Freq. Drift	-40	-	+40	kHz
		Drift Rate	-20	-	+20	kHz/50us
	DH5 10101010	Freq. Drift	-40	-	+40	kHz
		Drift Rate	-20	-	+20	kHz/50us
Out of Band Spurious Emission	DH1 PRBS9	@ 30MHz ~ 12.75GHz	20			dBc

17) Bluetooth receiver specification

Item	Spec.		Min	Typ.	Max	Unit
Sensitivity (Single Slot Packet)	DH1 PRBS9	BER @ 0.1%		-	-70	dBm
Sensitivity (Multi Slot Packet)	DH5 PRBS9	BER @ 0.1%		-	-70	dBm
C/I Performance	DH1 PRBS9	Co-Channel -60dBm@ BER0.1%		-	11	dB
		C/I @1MHz -60dBm@ BER 0.1%		-	0	
		C/I @2MHz -60dBm@ BER 0.1%		-	-30	
		C/I @≥3MHz -67dBm@ BER0.1%		-	-40	
		C/I @Image -67dBm@ BER 0.1%		-	-9	
		C/I @1MHz Image -67dBm@ BER 0.1%		-	-20	
Blocking Performance	DH1 PRBS9	-10dBm @30M ~2 GHz		-	-67	dBm
		-27dBm @2 ~ 2.4 GHz				
		-27dBm @2.5 ~ 3 GHz				
		-10dBm @3 ~ 12.75 GHz				
Intermodulation Performance	DH1 PRBS9	Δf = +5MHz (CW) Δf = +10MHz (BT) BER @ 0.1%		-	-64	dBm
		Δf = -5MHz (CW) Δf = -10MHz (BT) BER @ 0.1%		-	-64	dBm
Maximum Input Level	DH1 PRBS9	BER @ 0.1%	-20	-		dBm

18) NFC

Operate below 3 mode.

1) Card mode : Smart Card capability for mobile device(recognition distance : over 20mm)

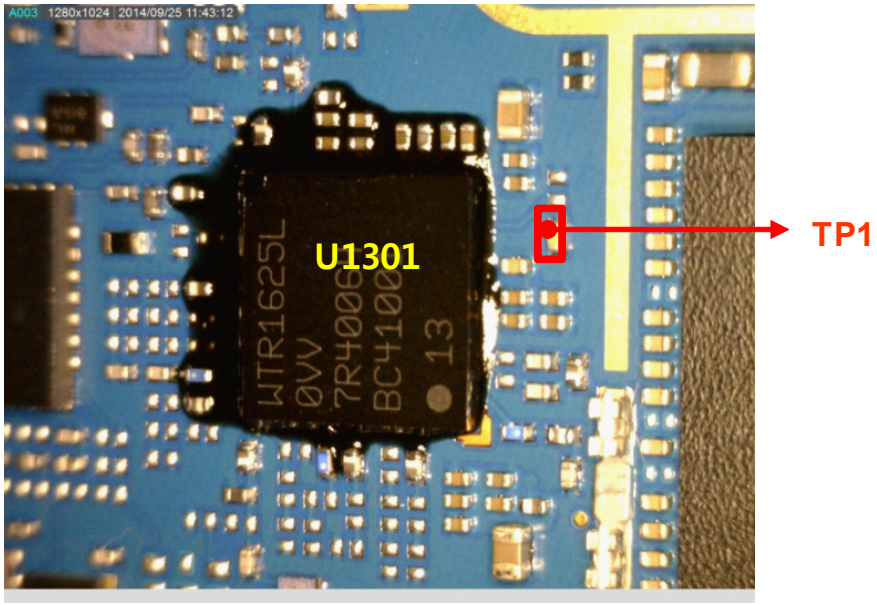
2) Reader mode : Get information from tag(recognition distance : over 20mm)

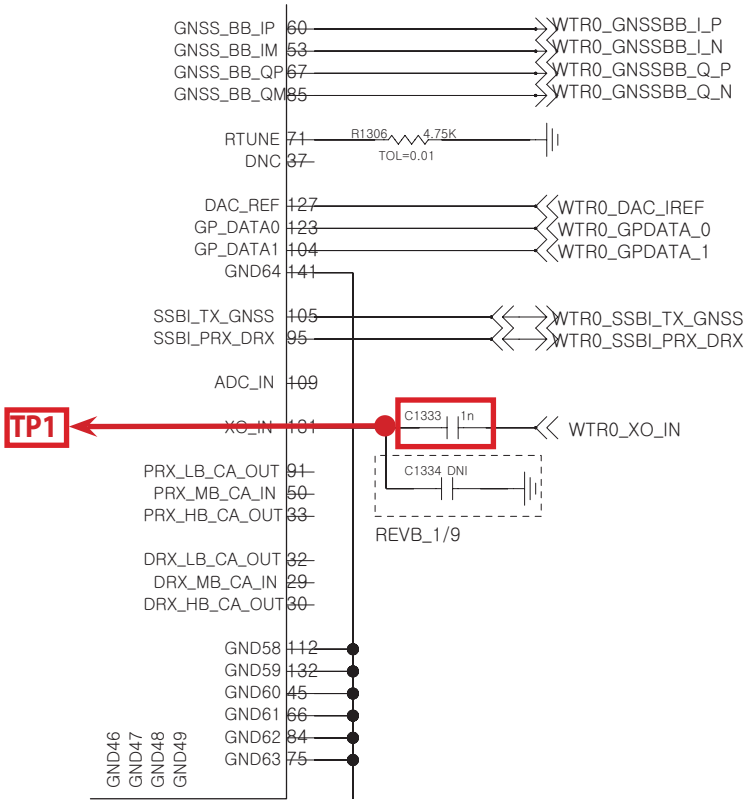
3) Peer-to-peer mode : Device to device communication(recognition distance : over 5mm)

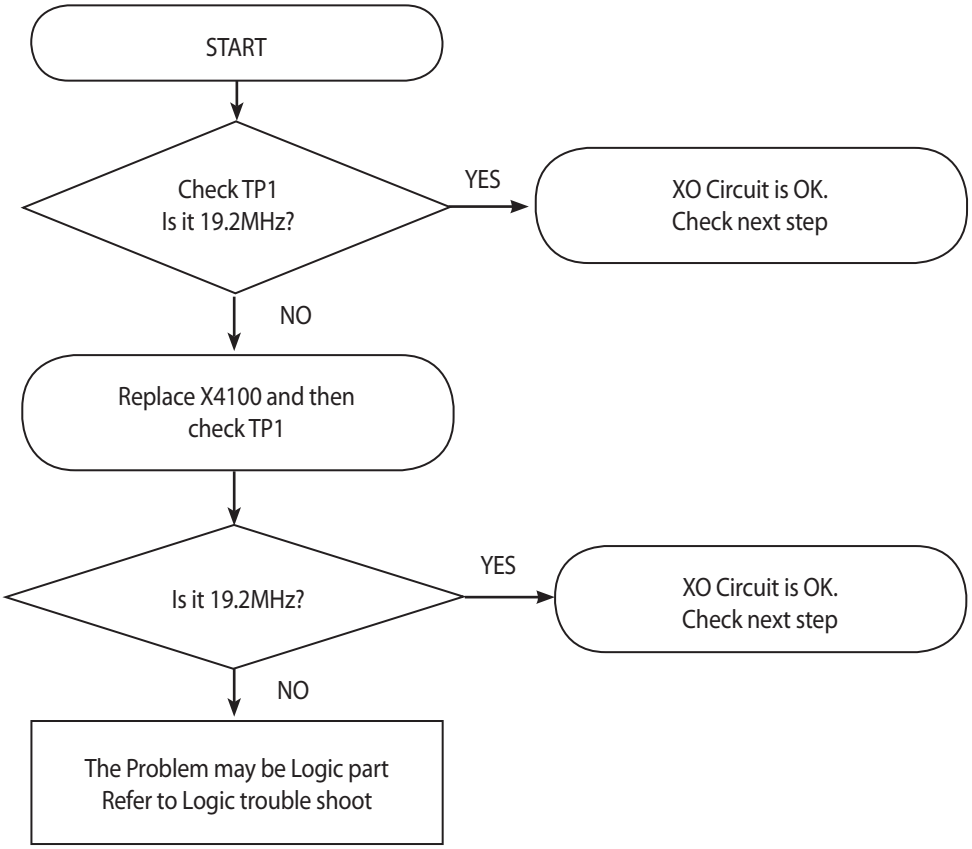
3. TROUBLE SHOOTING

3.1 Checking XO Block

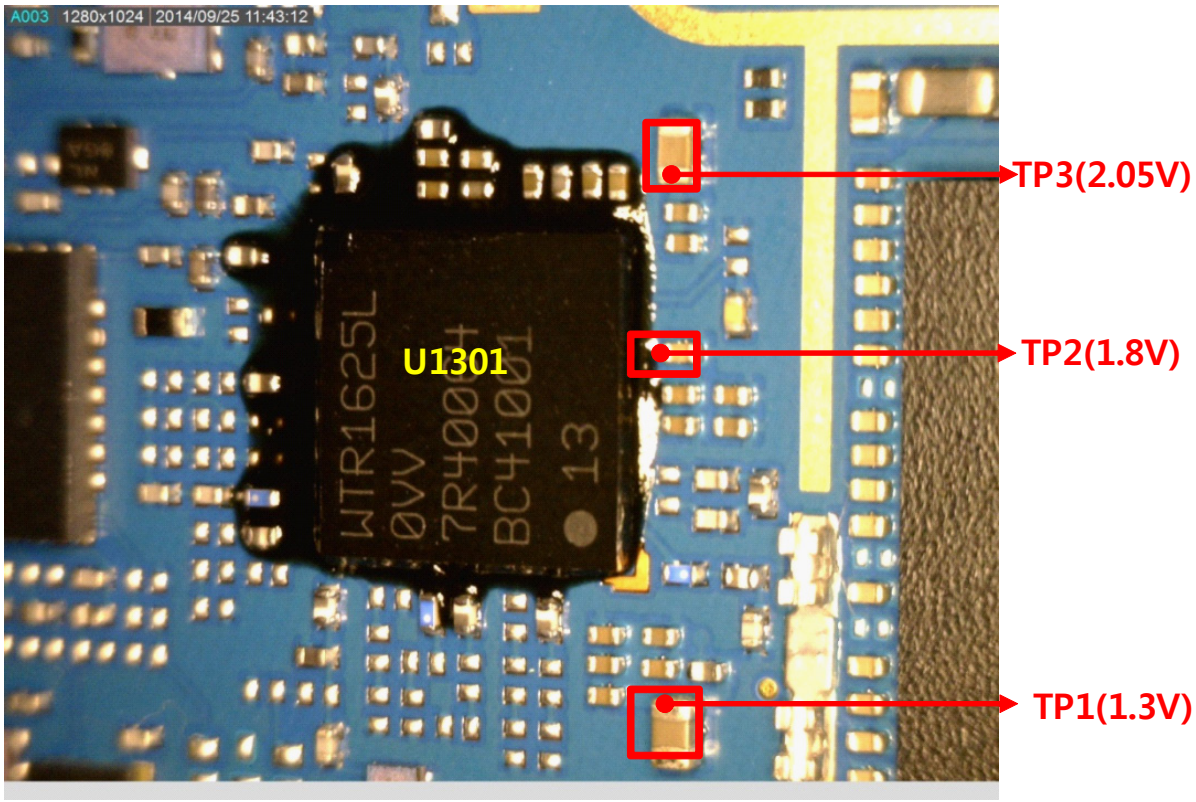
The output frequency(19.2MHz) of XO(X4100) is used as the reference one of WTR1625L and PM8941 internal VCO

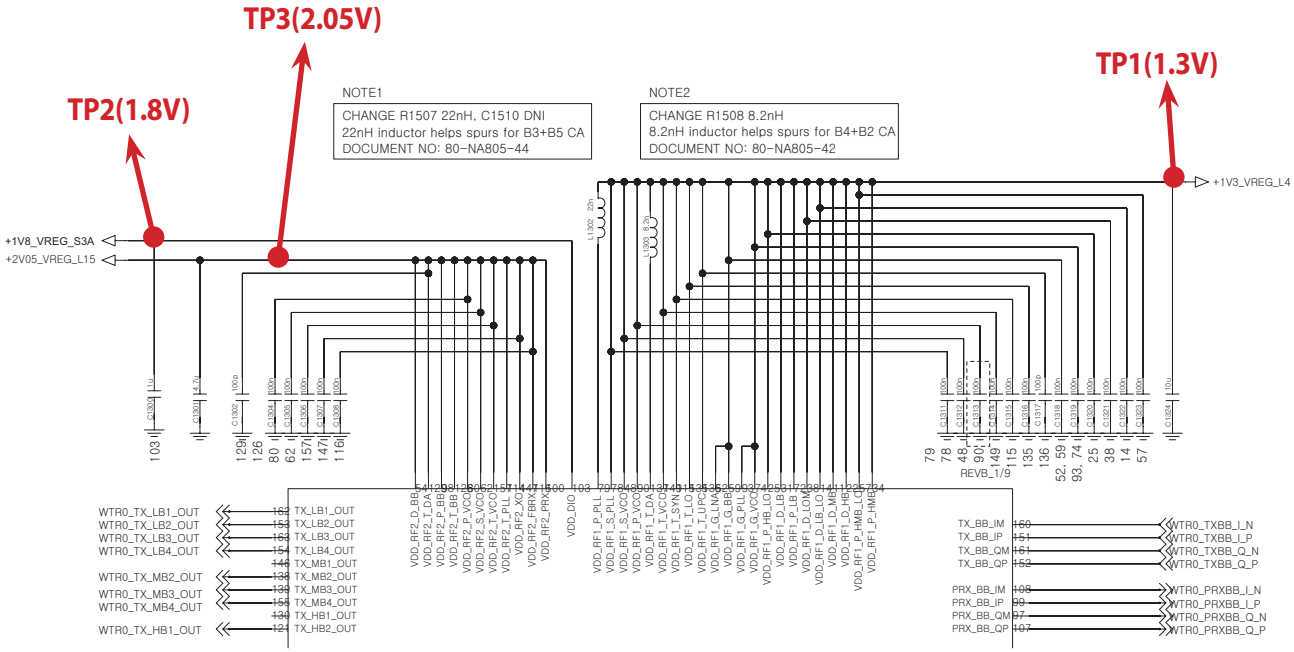


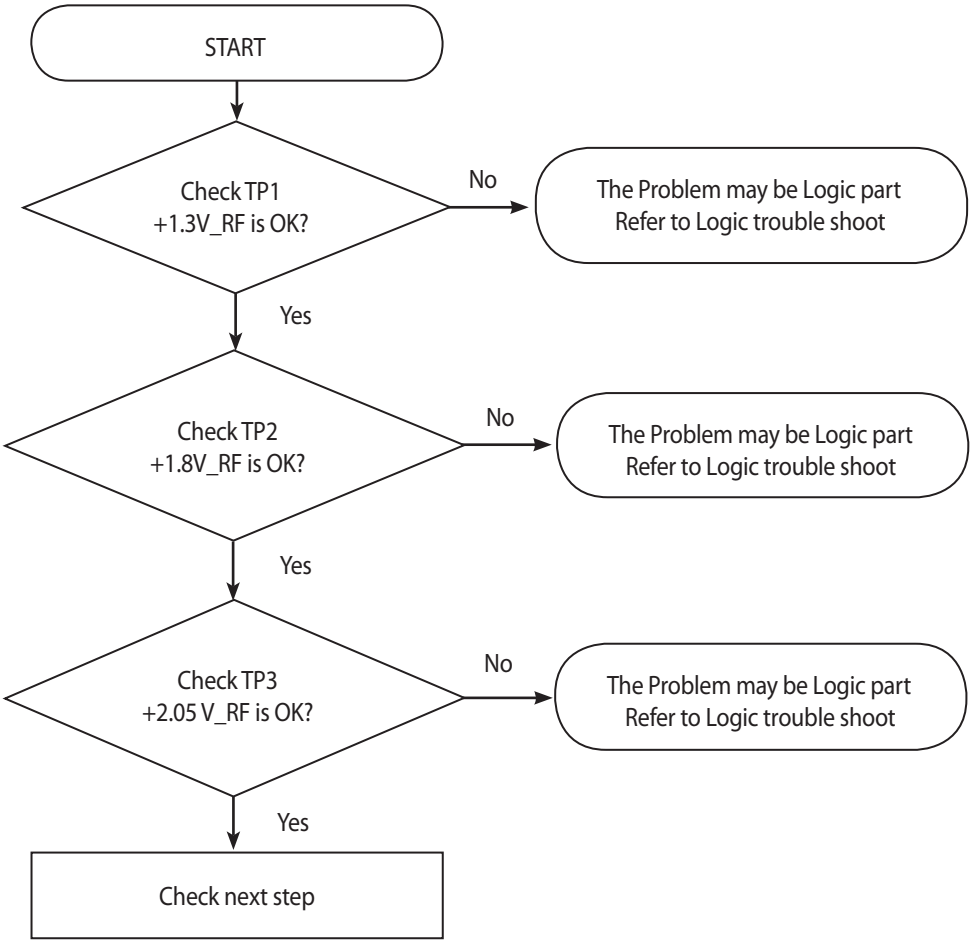




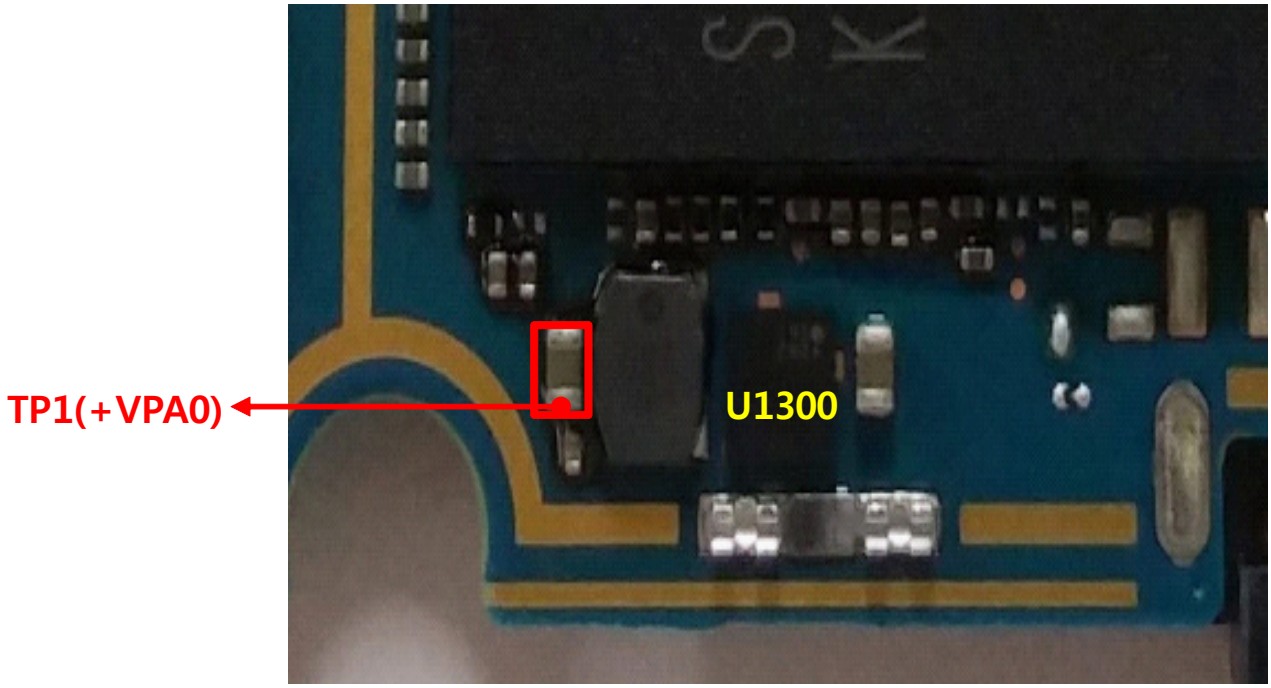
3.2 Checking Transceiver DC Power Supply Circuit Block

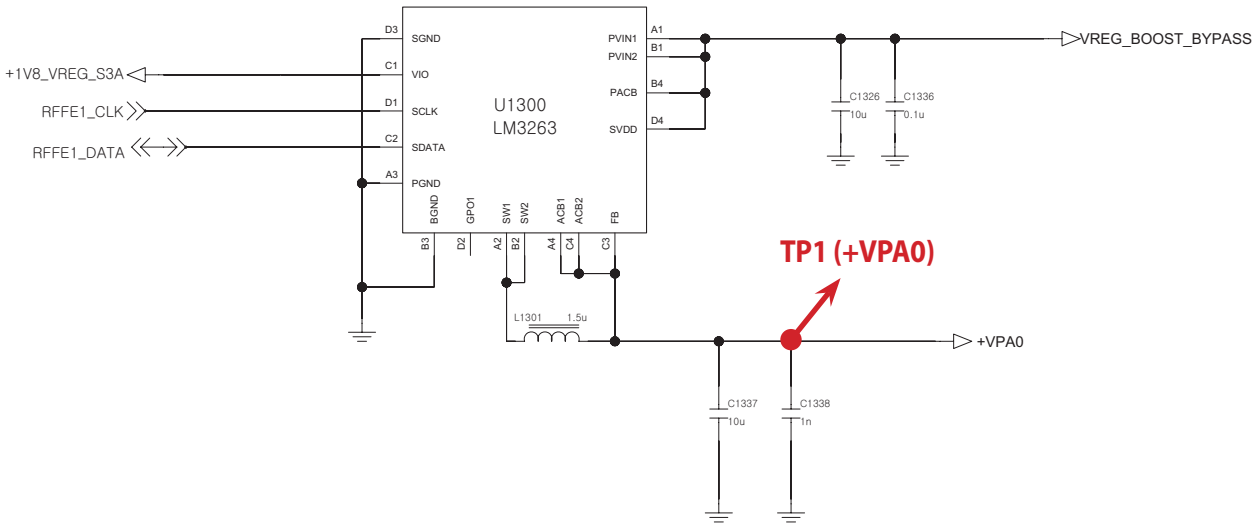


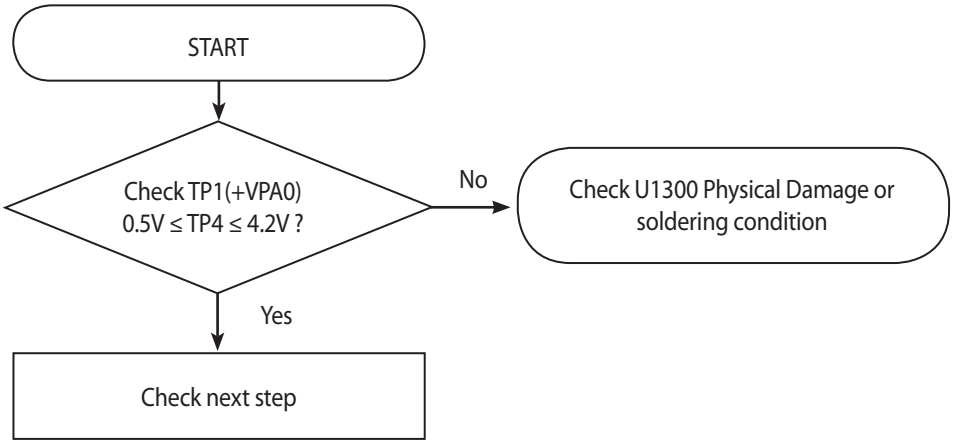




3.3 Checking DC-DC Block

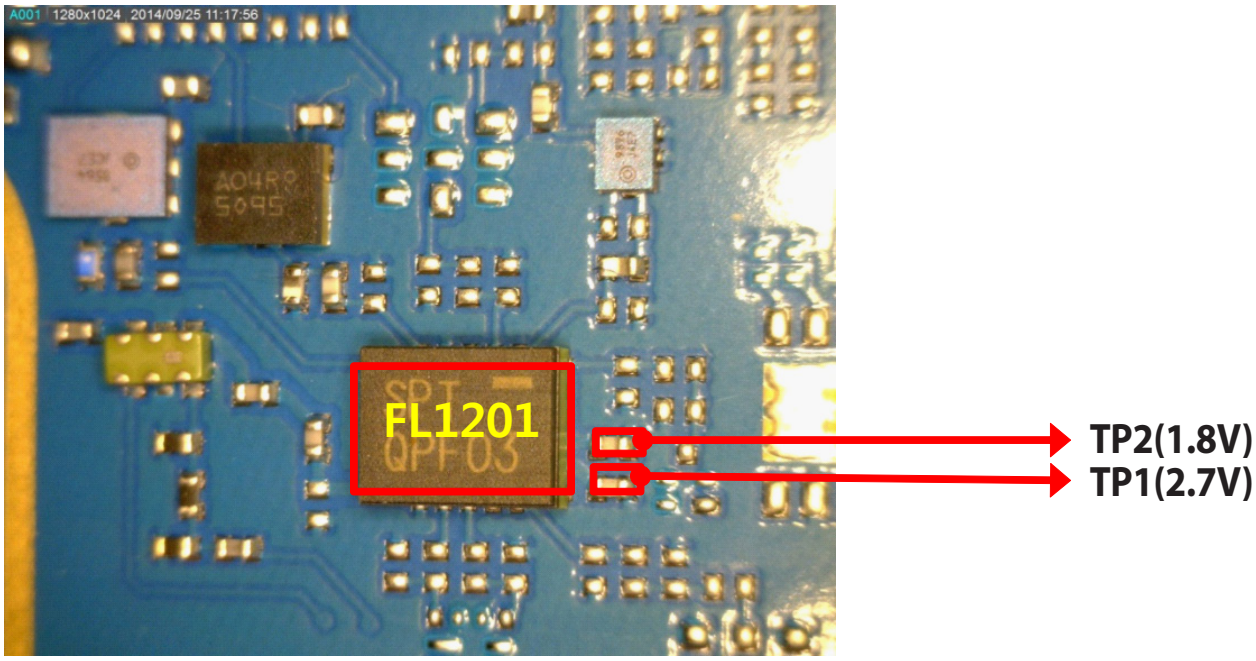


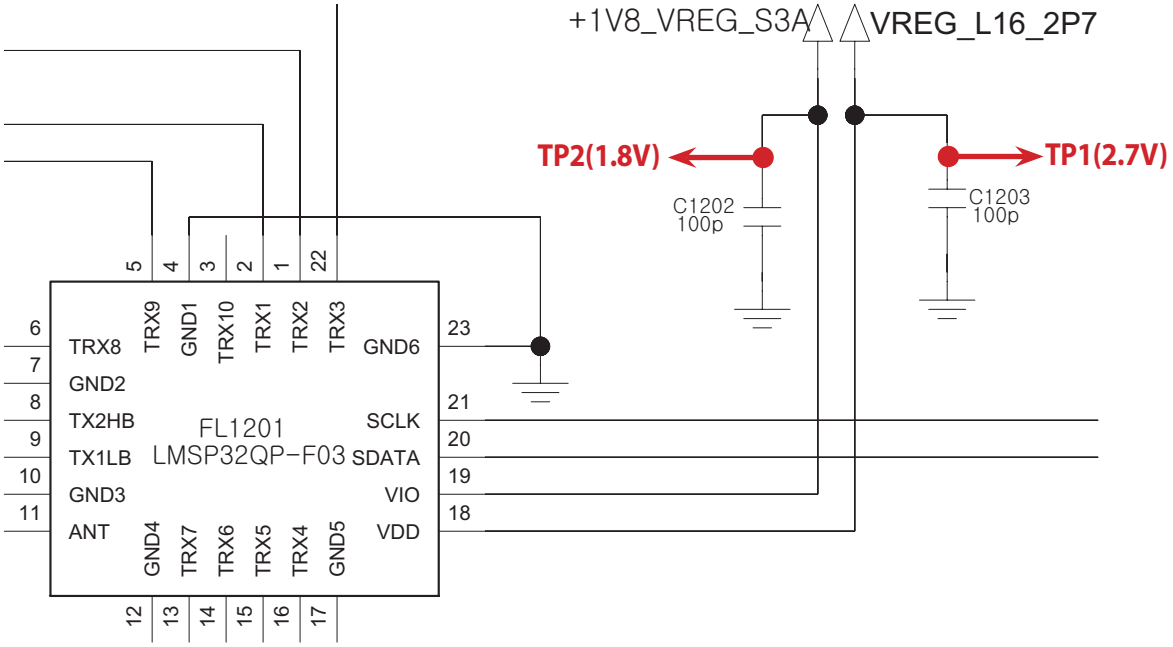


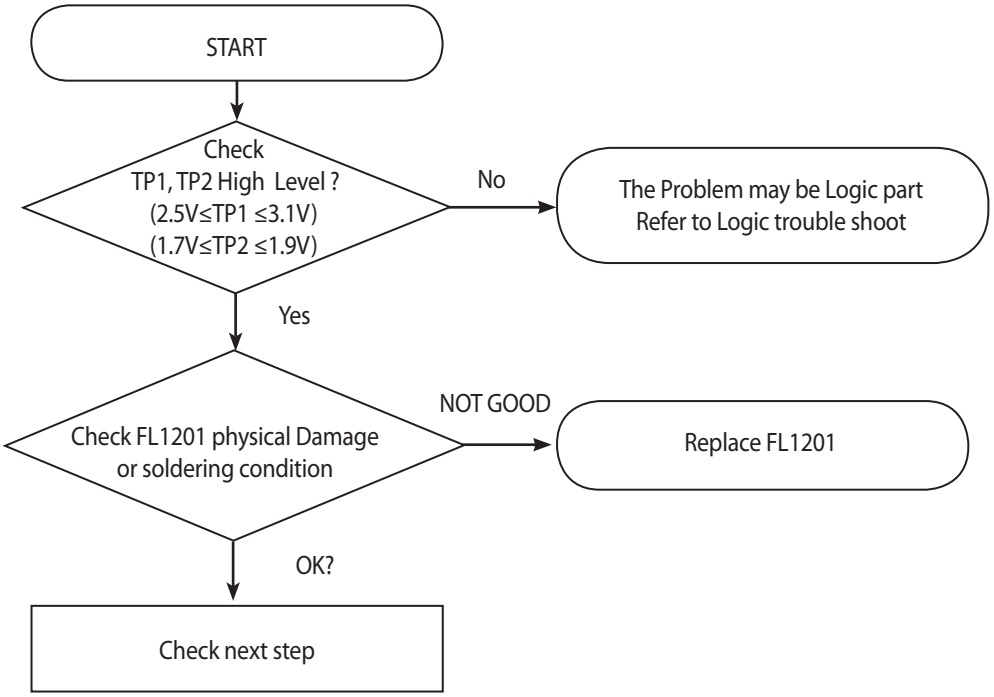


3.4 ASM(Antenna Switch Module) Block

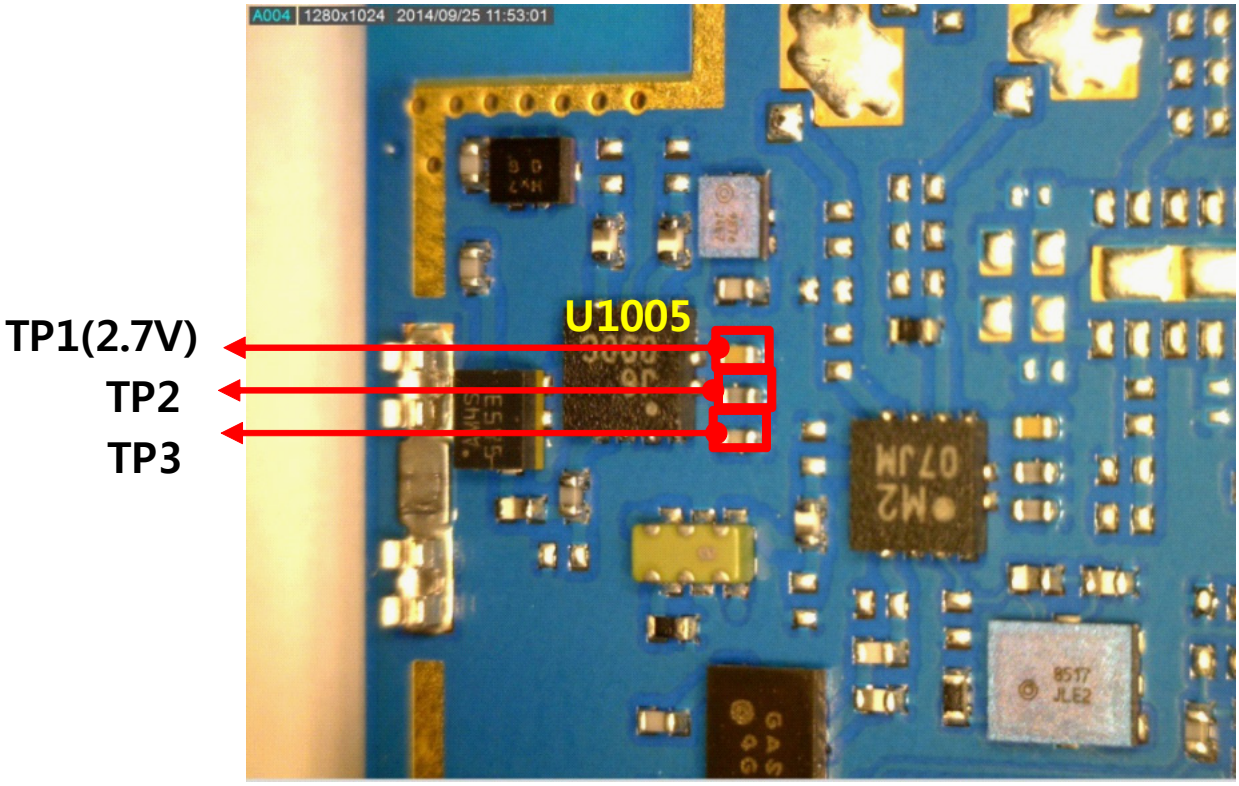
3.4.1 Checking ASM (LTE B2/4/5/12/17/25, CDMA BC0/1) Block

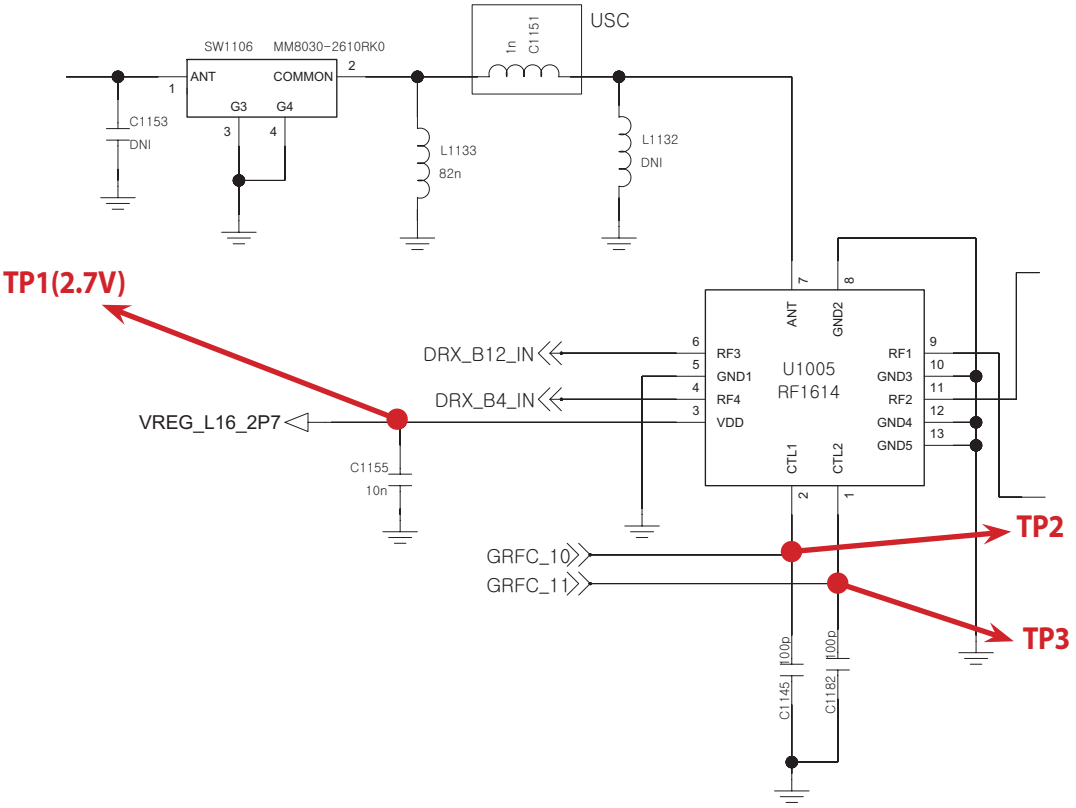


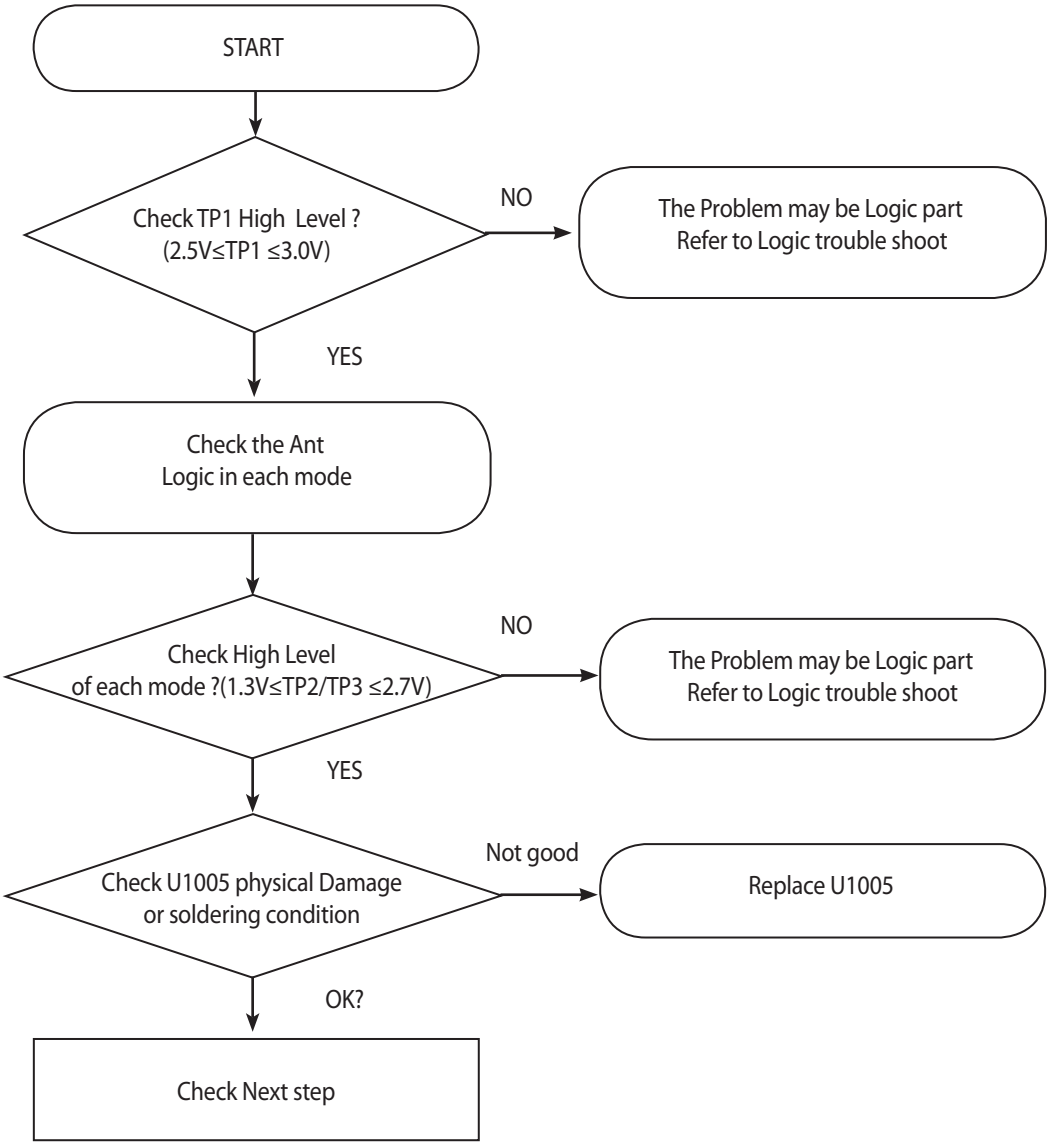




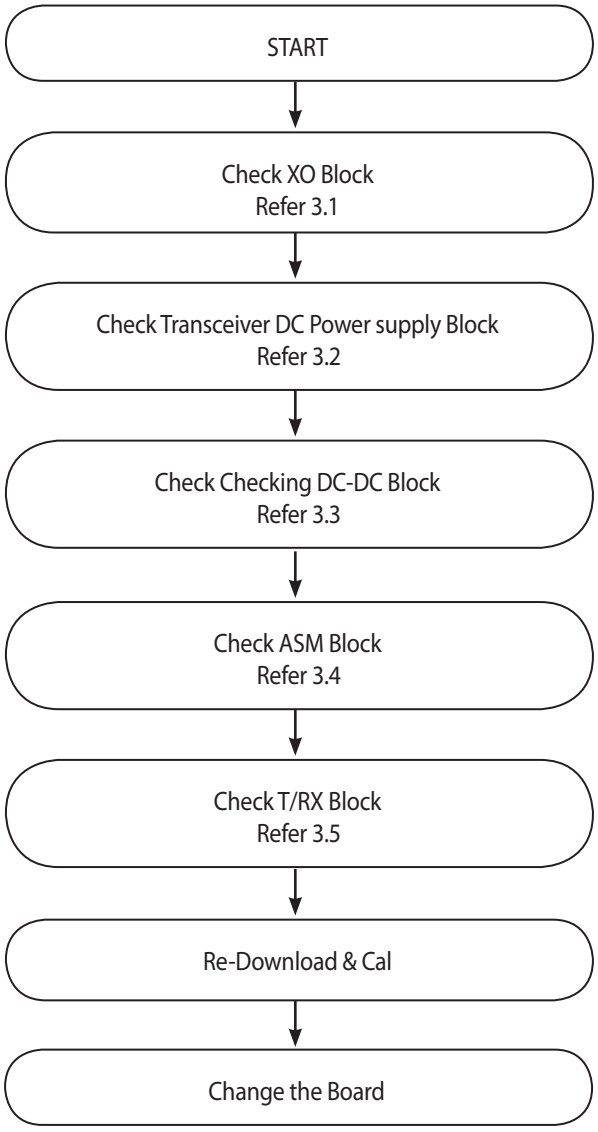
3.4.2 Checking SP4T (DRX) Block



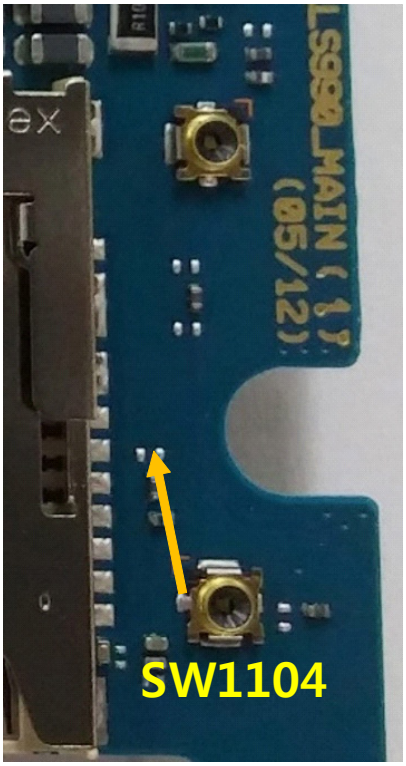




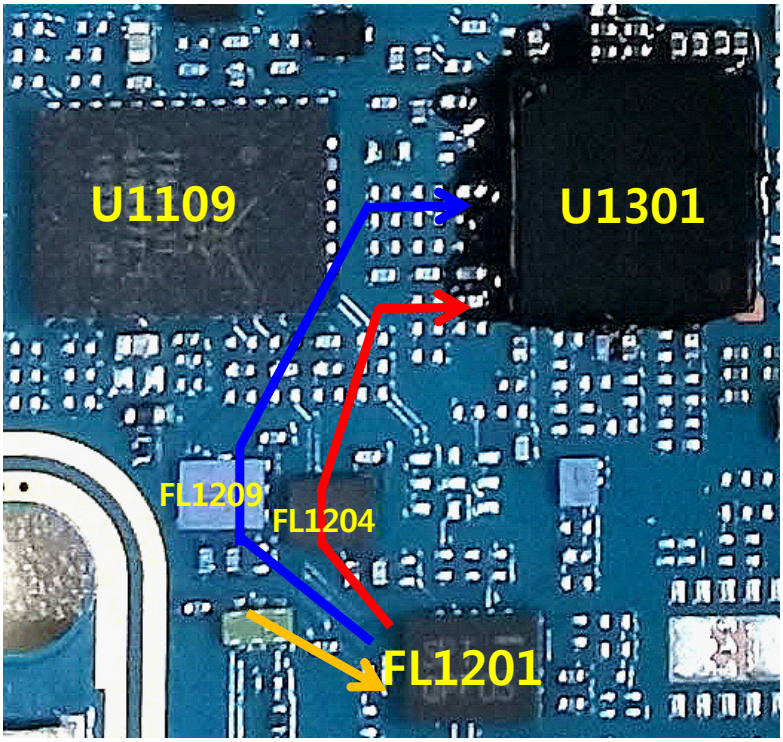
3.5 CDMA(BC0/1) RF Part



3.5.1 CDMA BC0/1 Rx



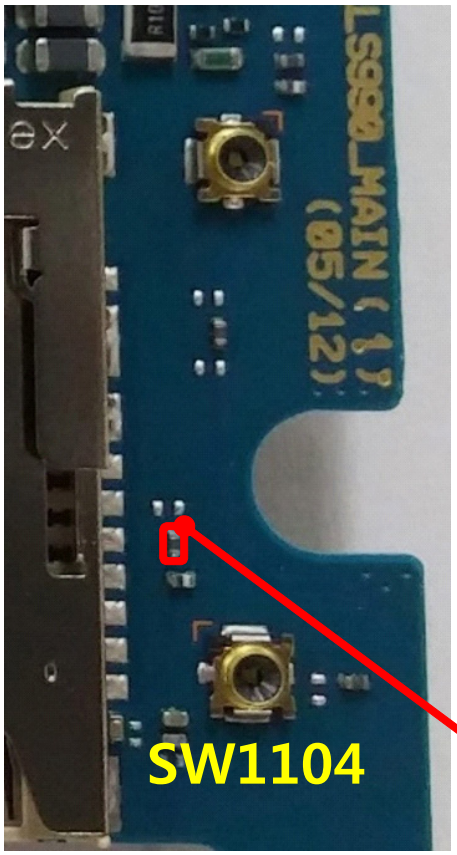
Bottom

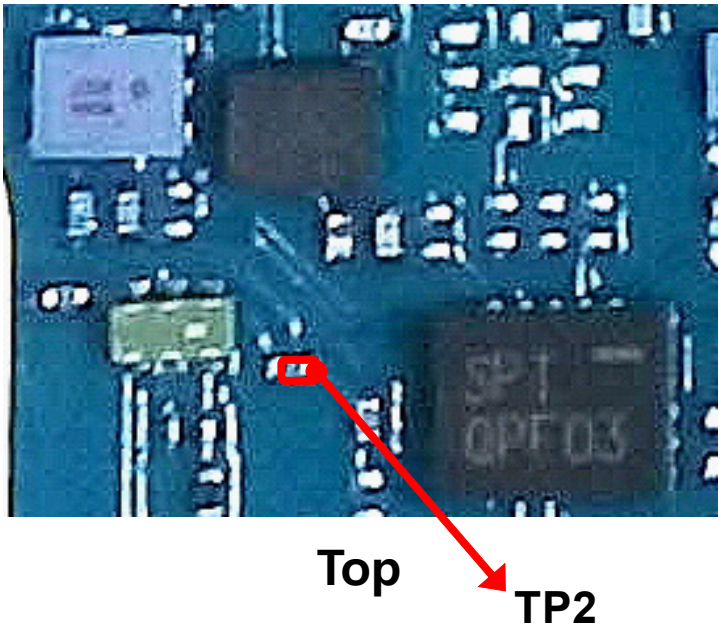


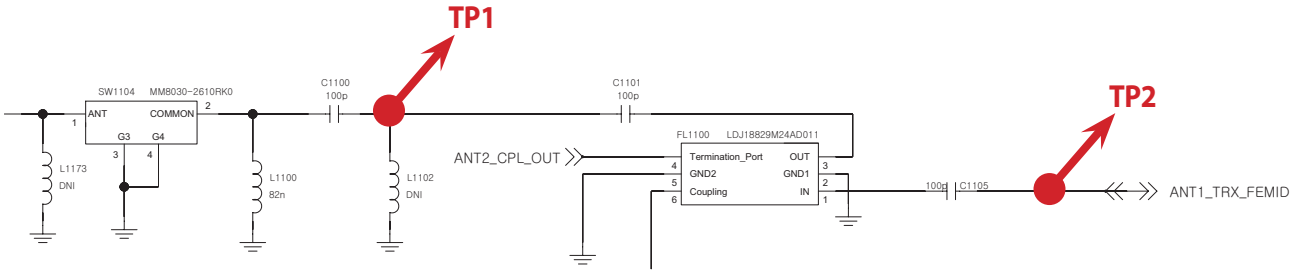
Top

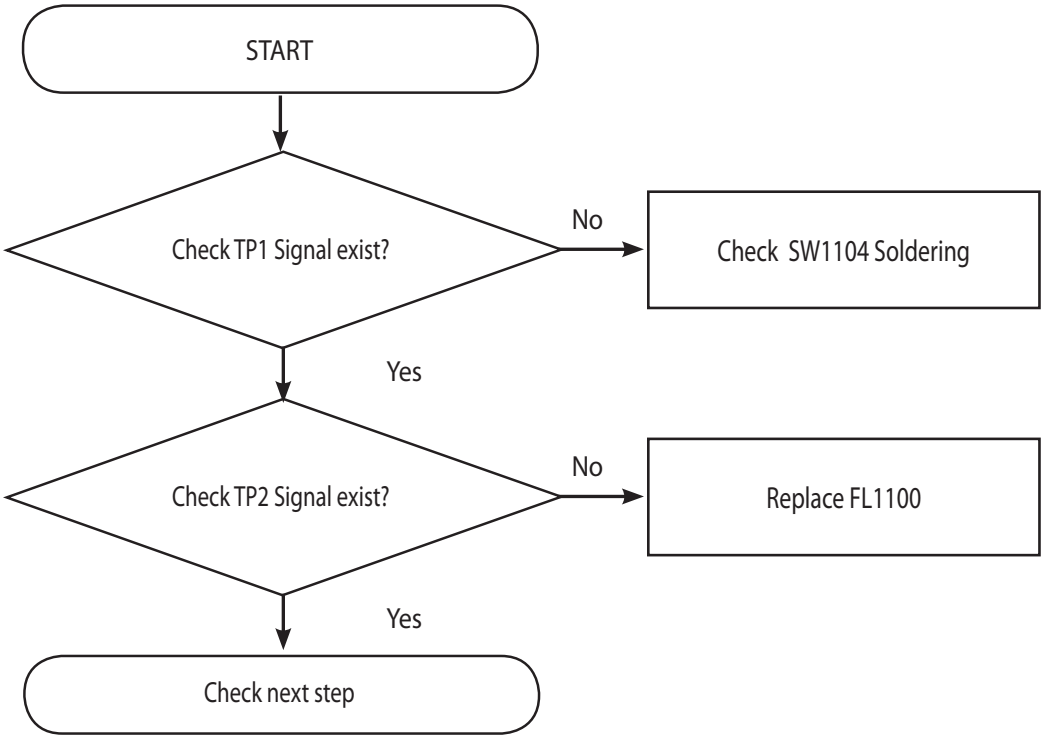
1. CDMA BC1 RX PATH
2. CDMA BC0 RX PATH
3. COMMON T/RX PATH

3.5.1.1 Checking RF Switch & Coupler

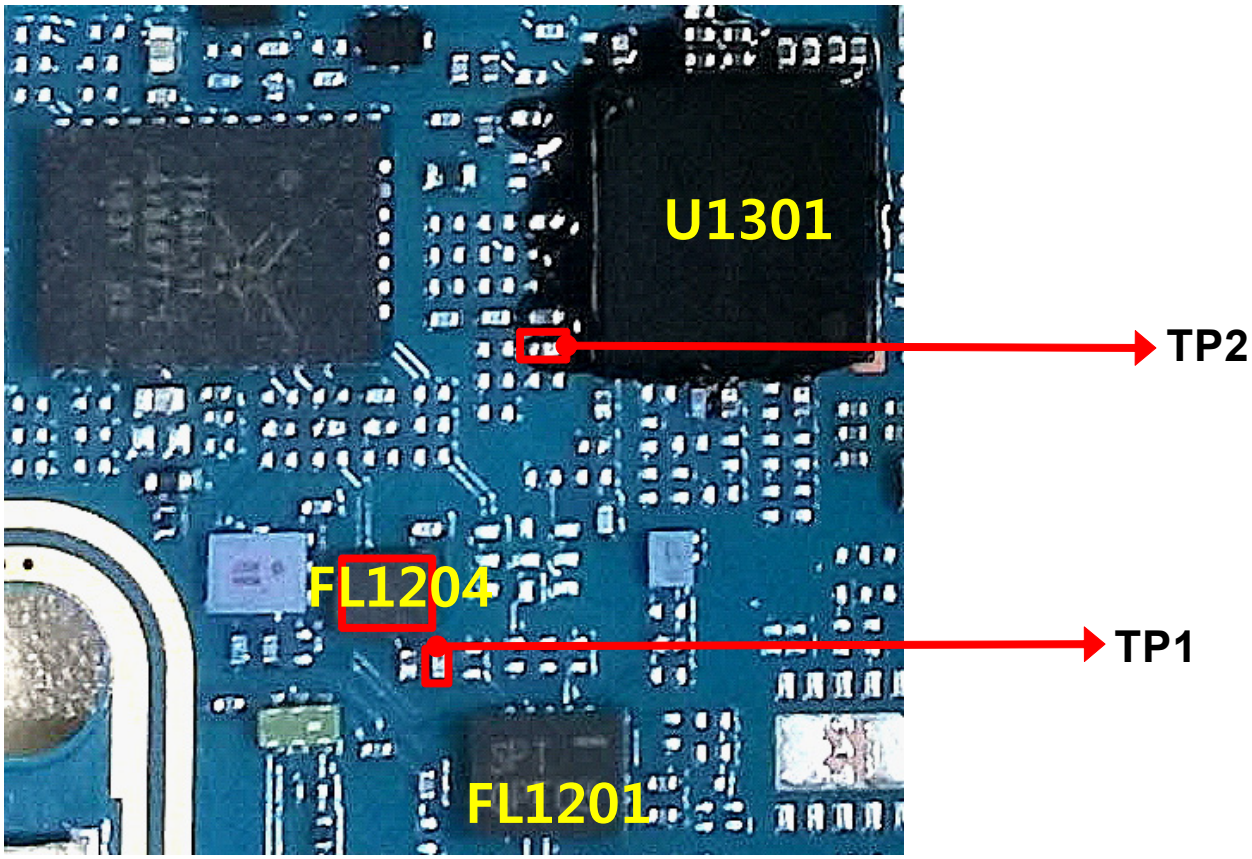


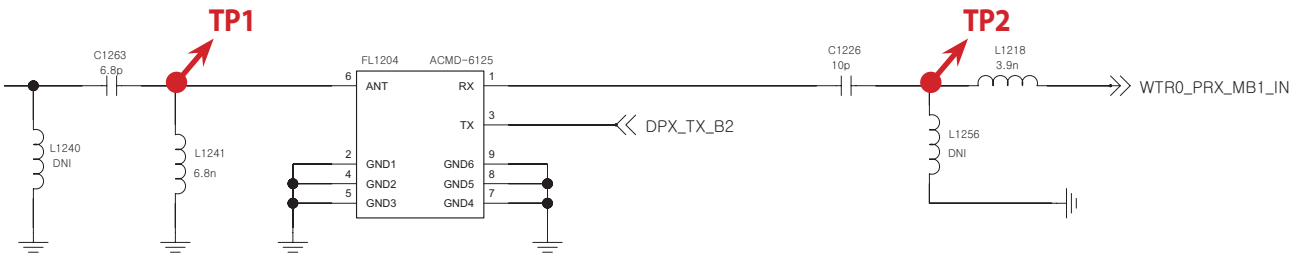


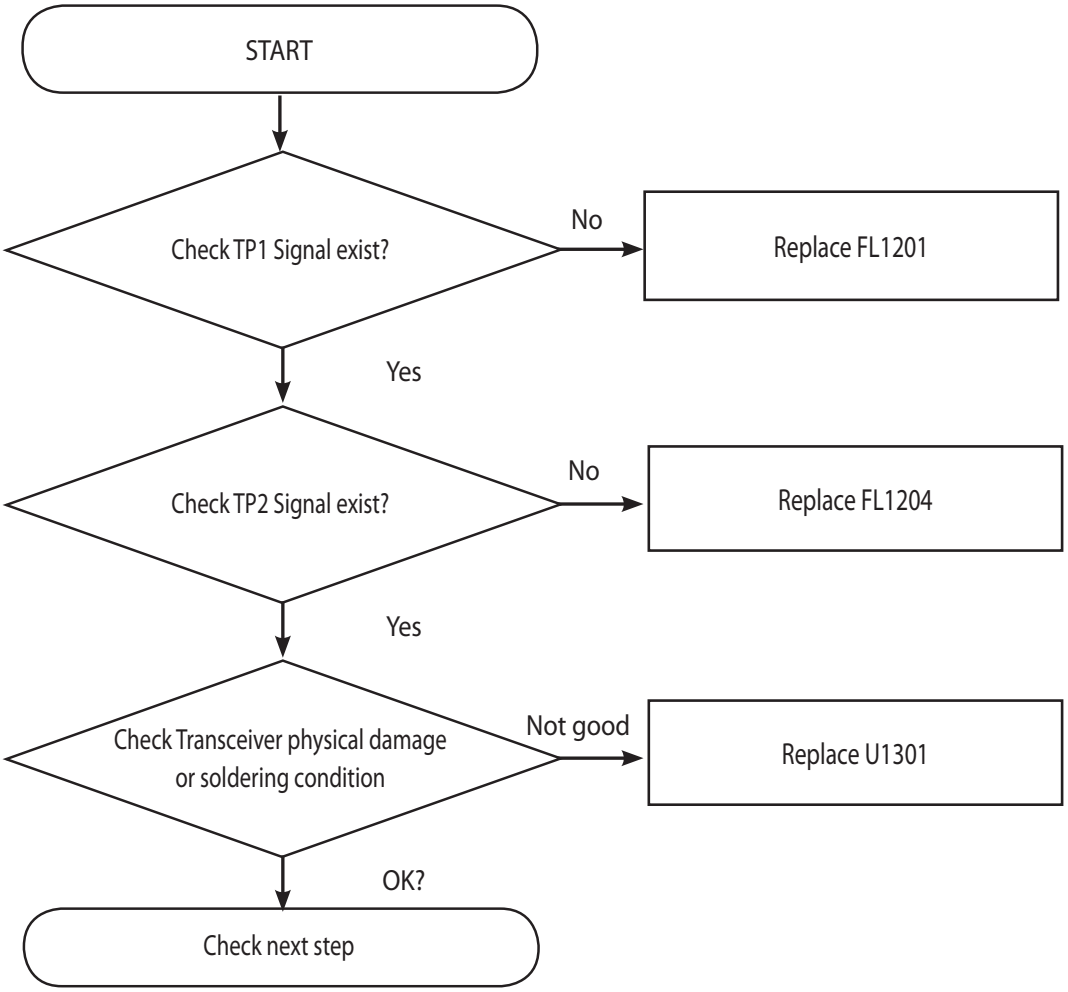




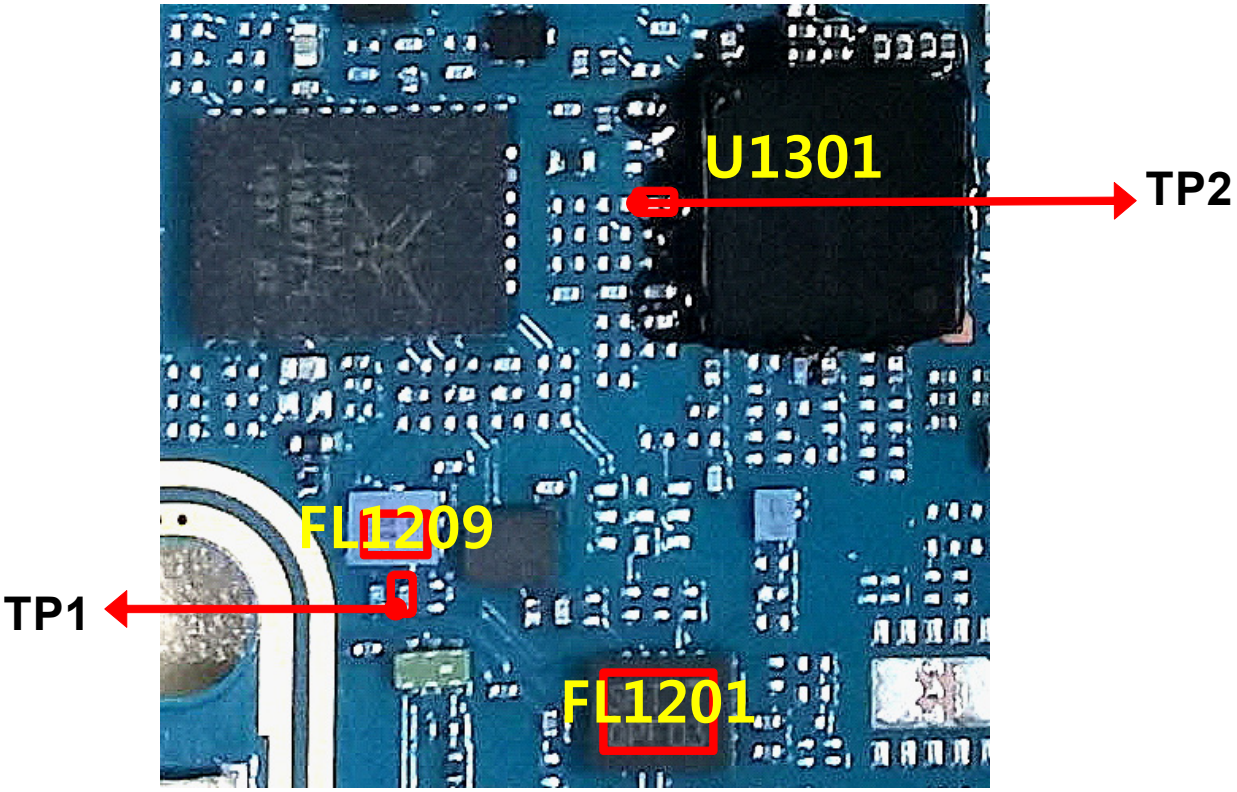
3.5.1.2 Checking RF signal path(BC1)

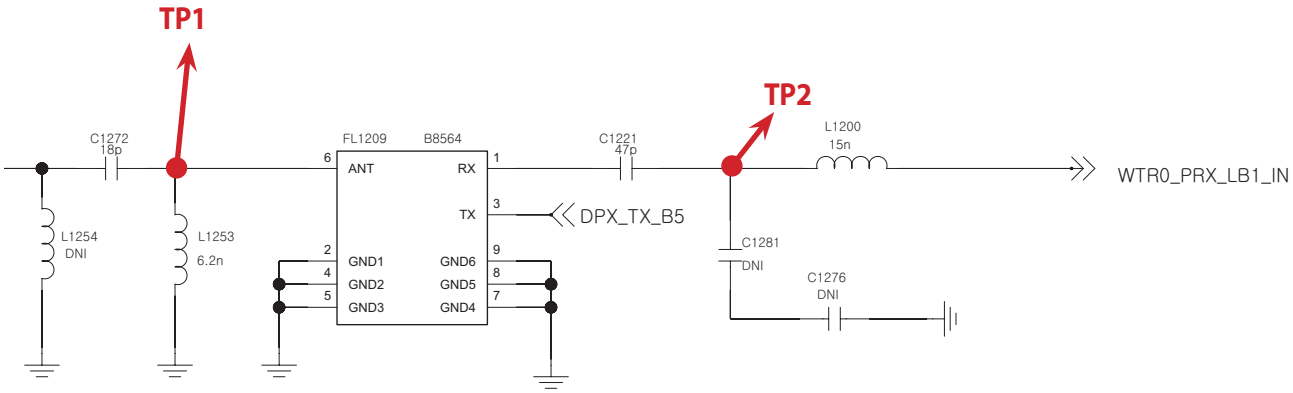


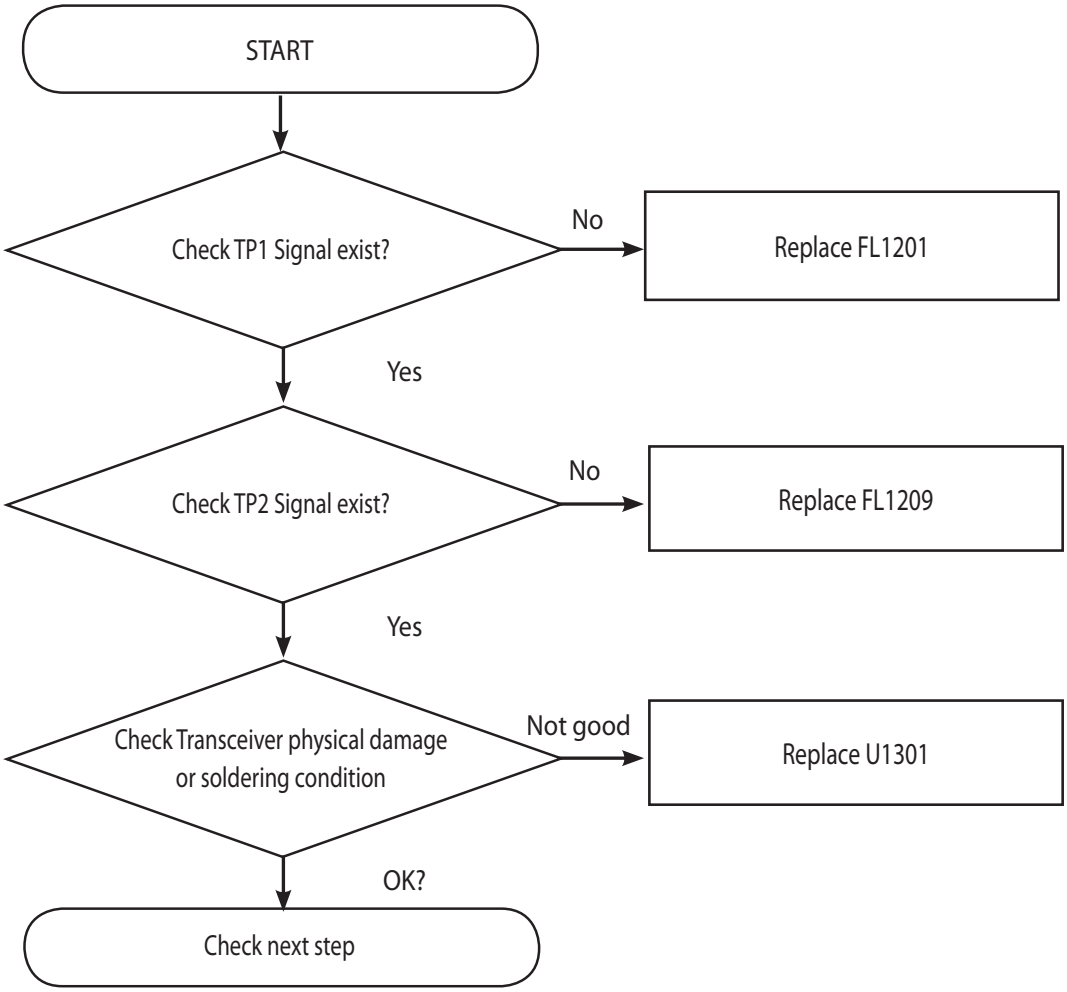




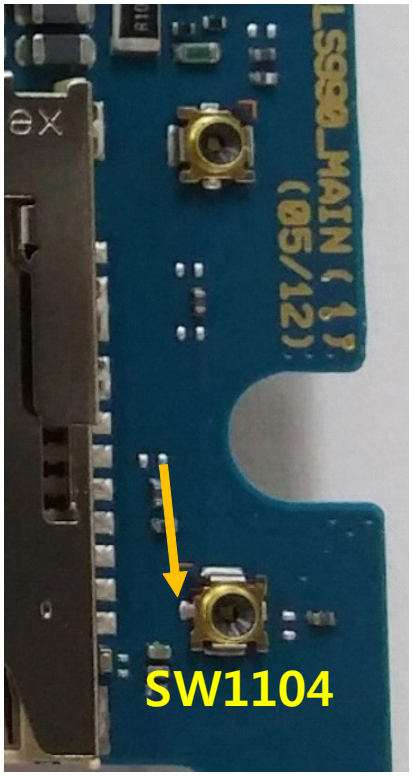
3.5.1.3 Checking RF signal path(BC0)



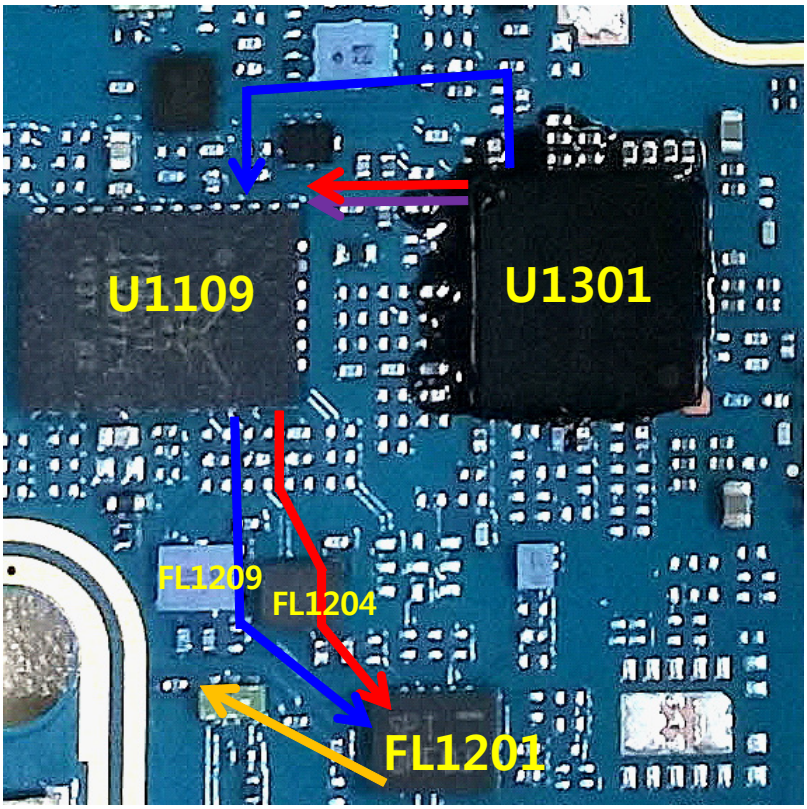




3.5.2 CDMA BC0/1 Tx



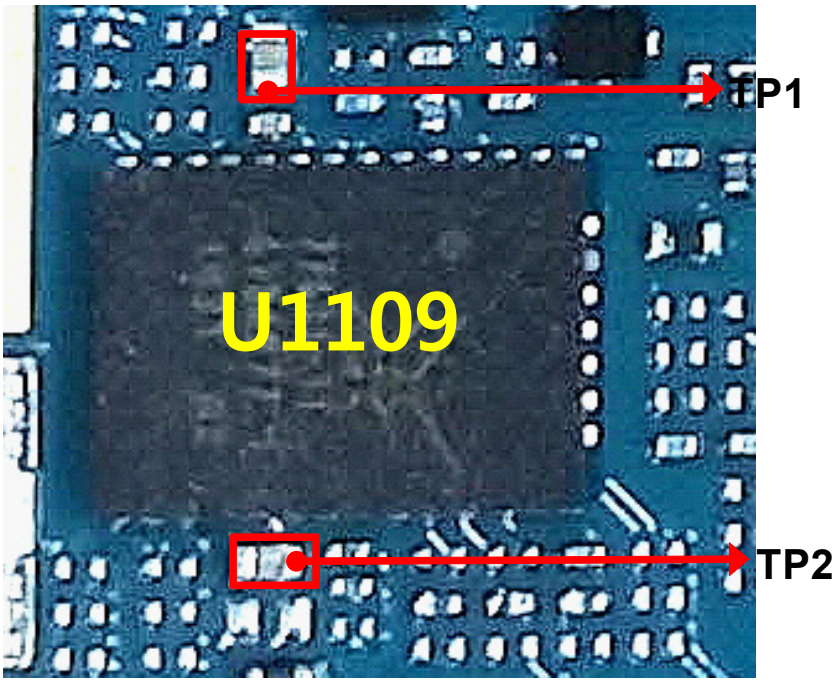
Bottom

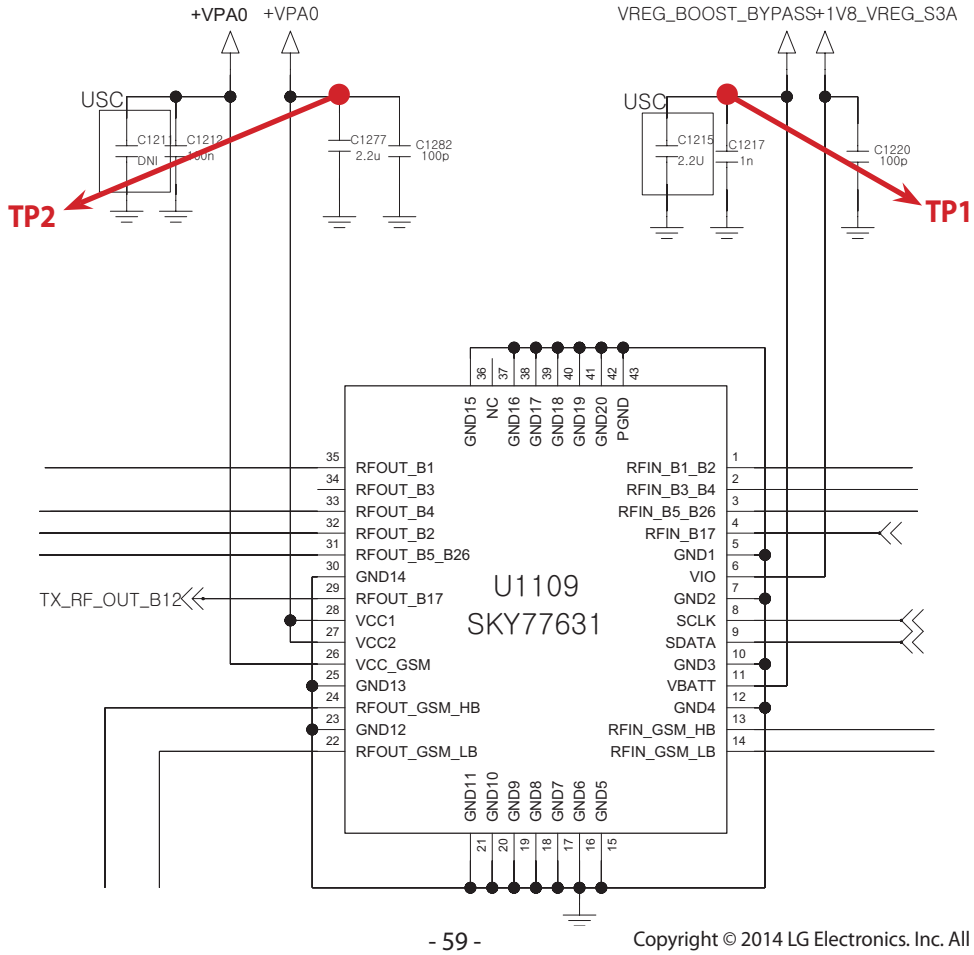


Top

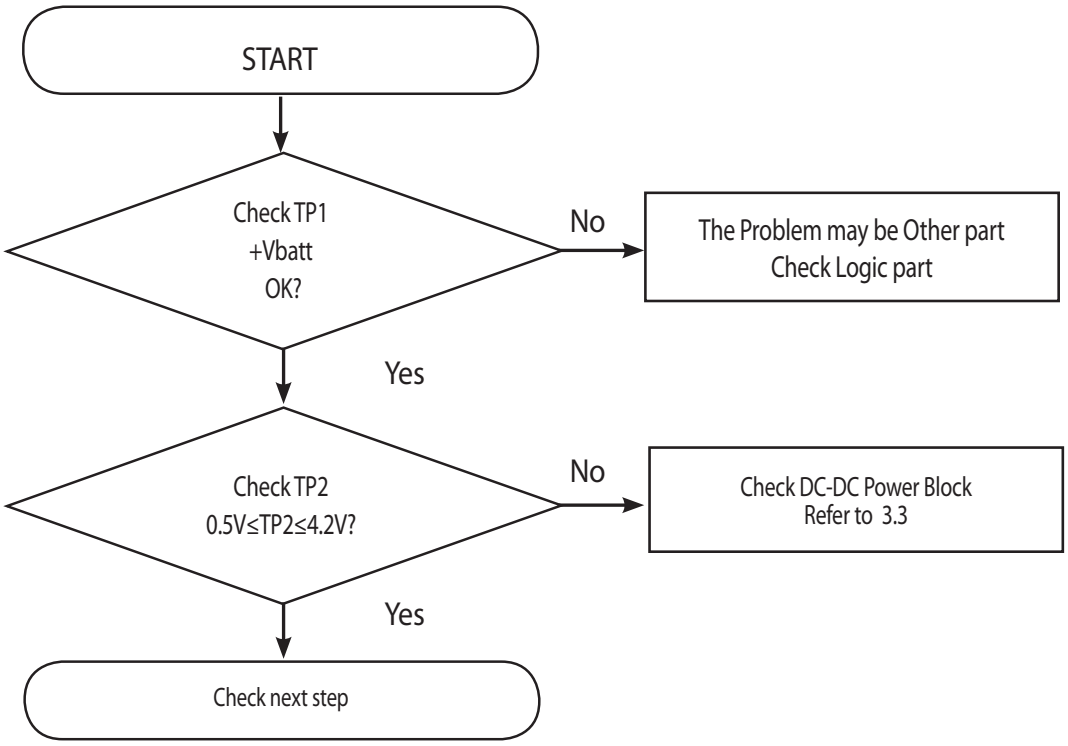
1. CDMA BC1 TX PATH
2. CDMA BC0 TX PATH
3. COMMON T/RX PATH

3.5.2.1 Checking WCDMA PAM DC Power&Control Circuit

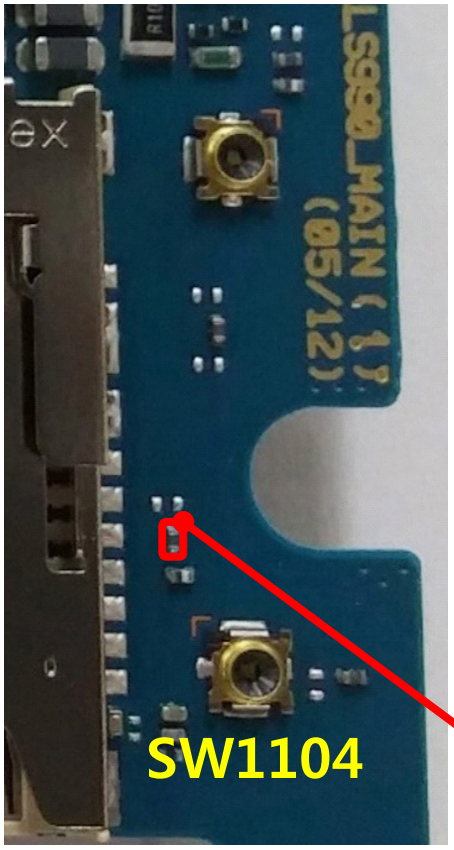




3.5.2.2 Checking CDMA PAM DC Power Circuit



3.5.2.3 Checking RF Switch & Coupler



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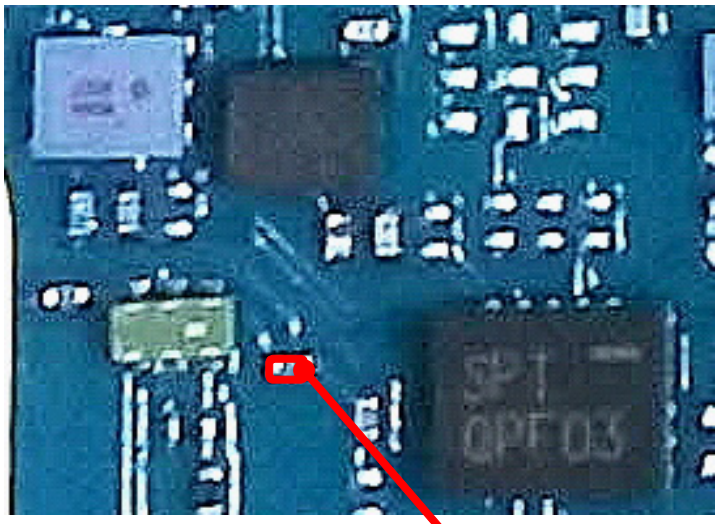
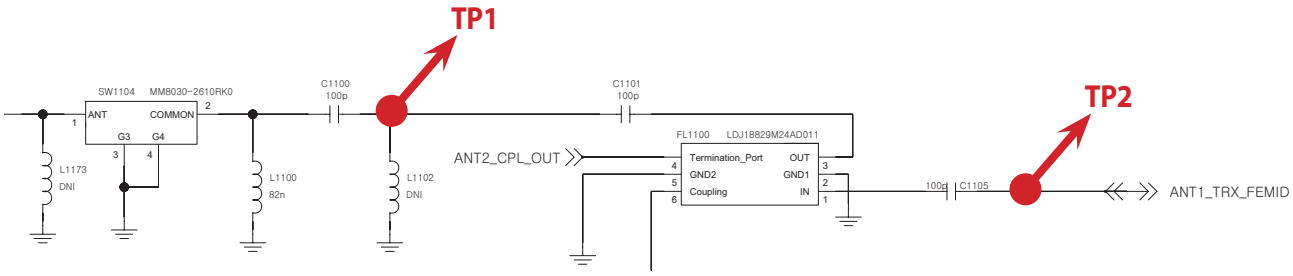
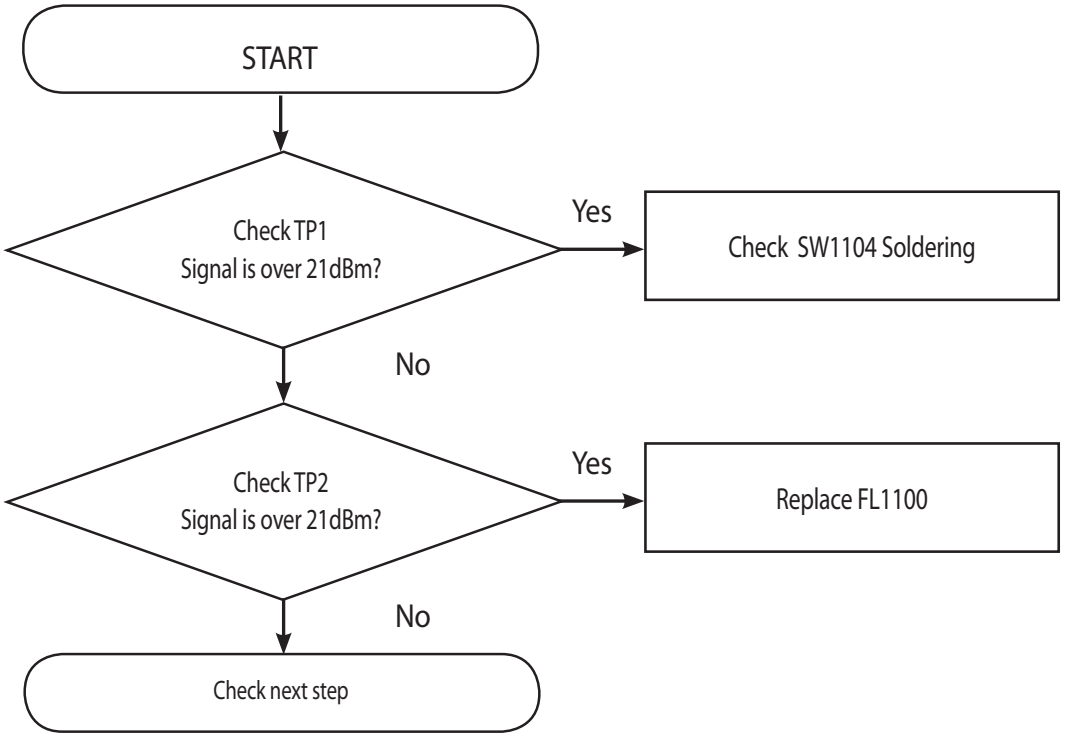
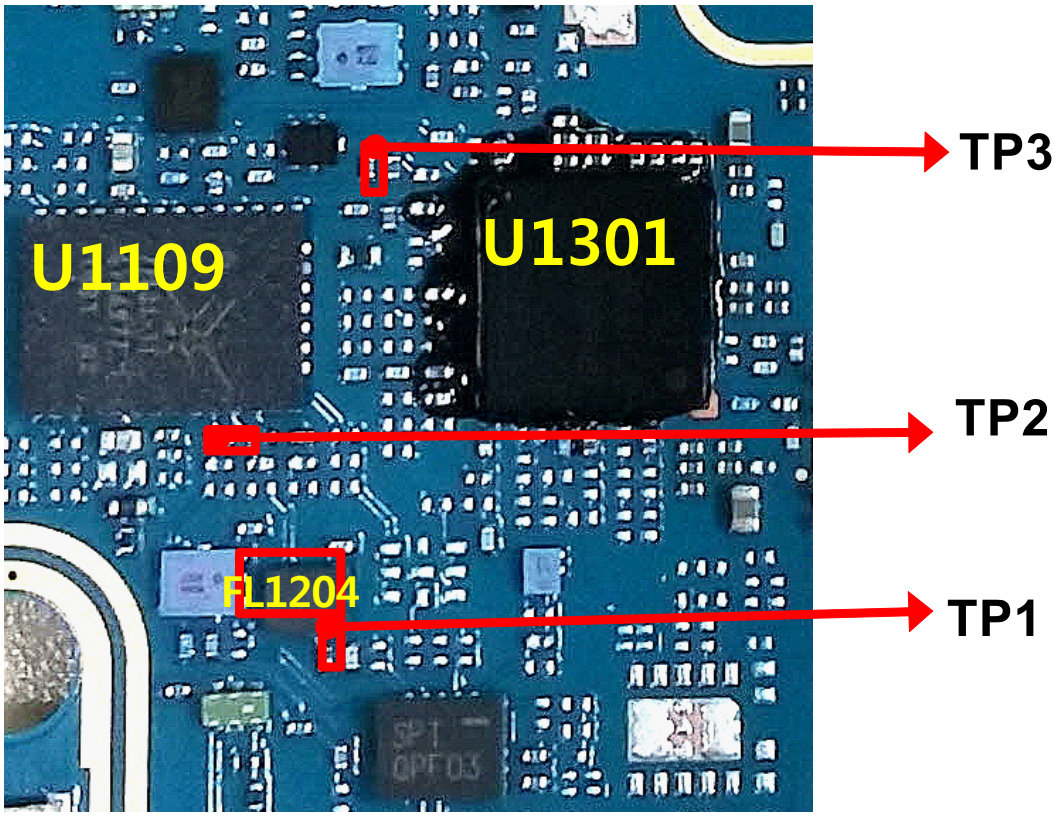
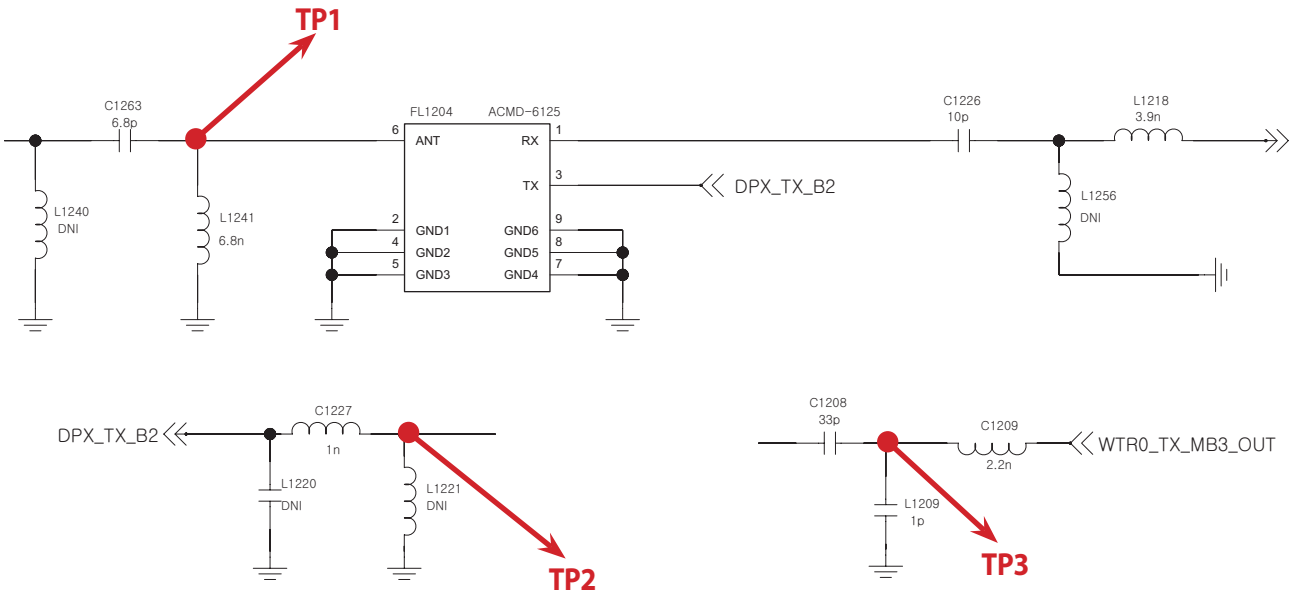


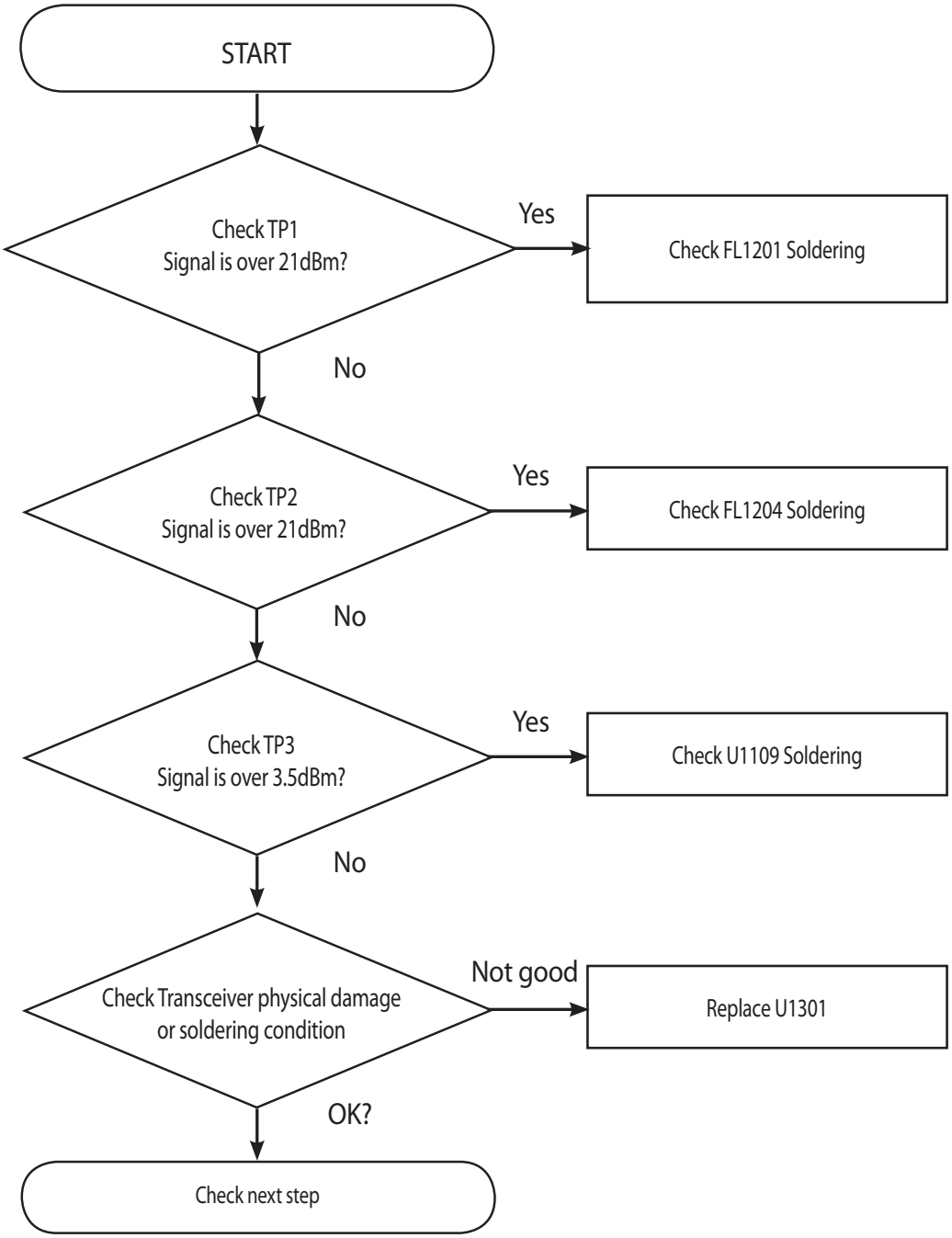




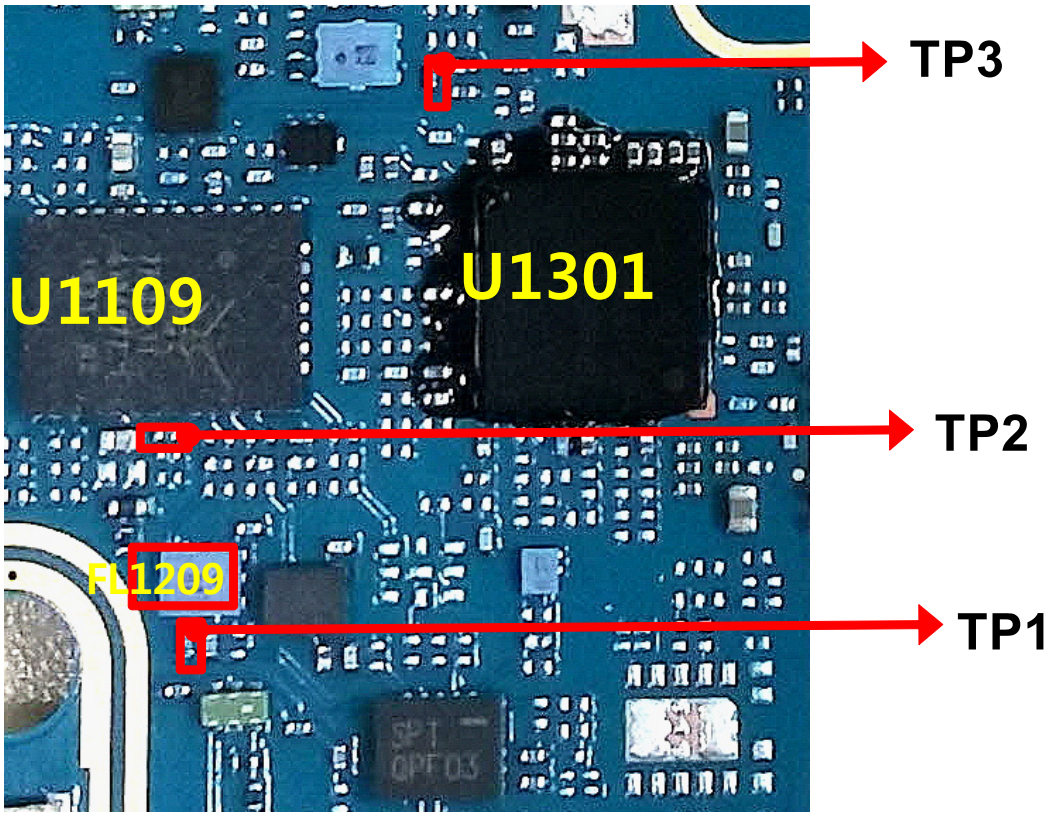
3.5.2.4 Checking RF signal path(BC1)

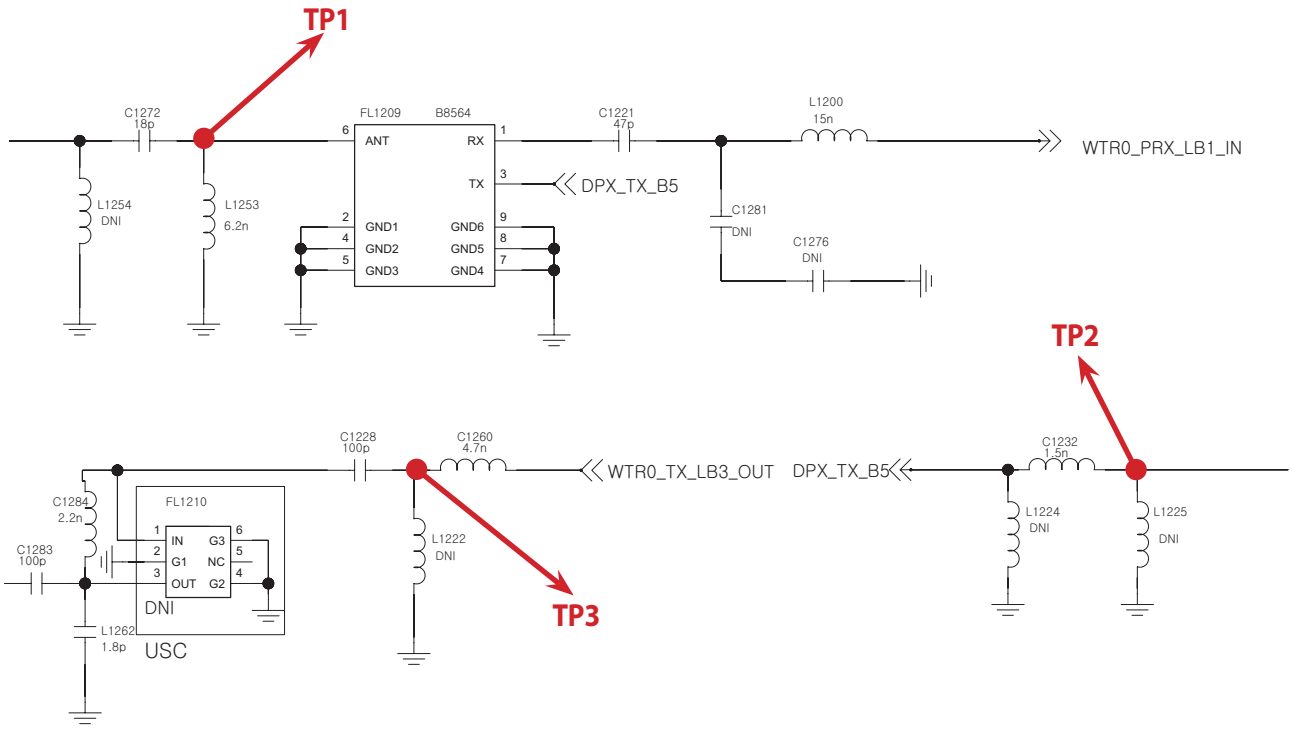


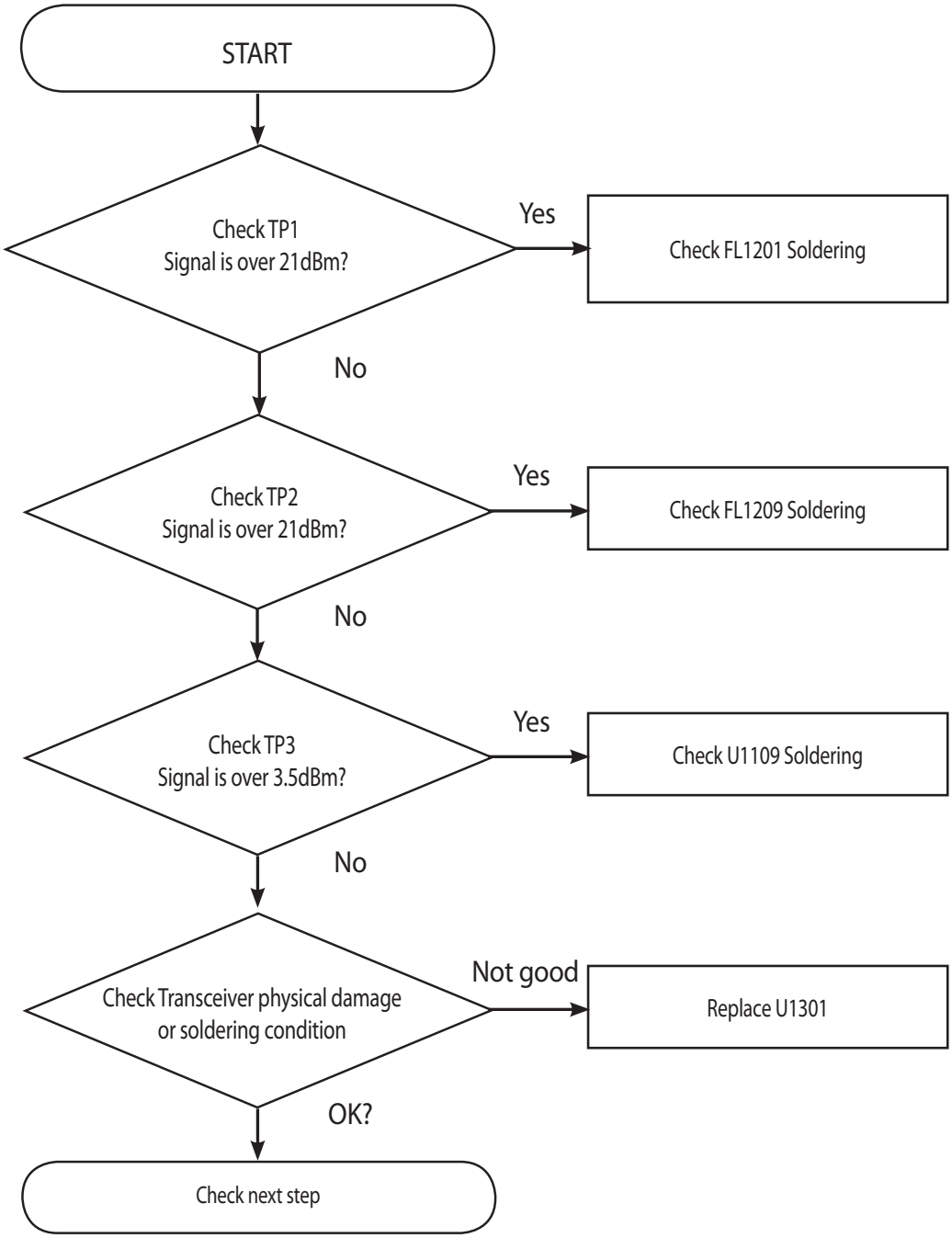




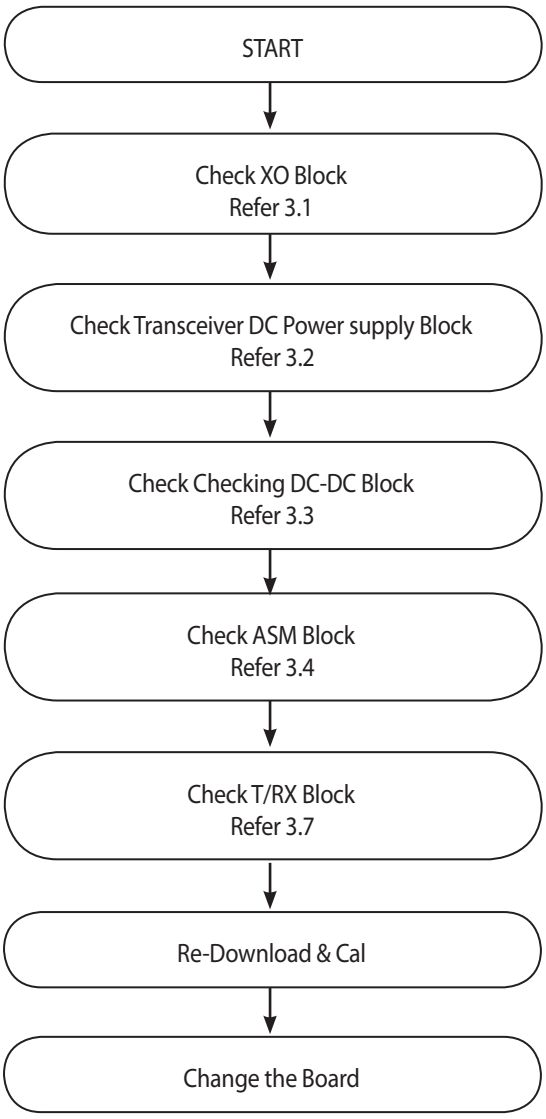
3.5.2.5 Checking RF signal path(BC0)



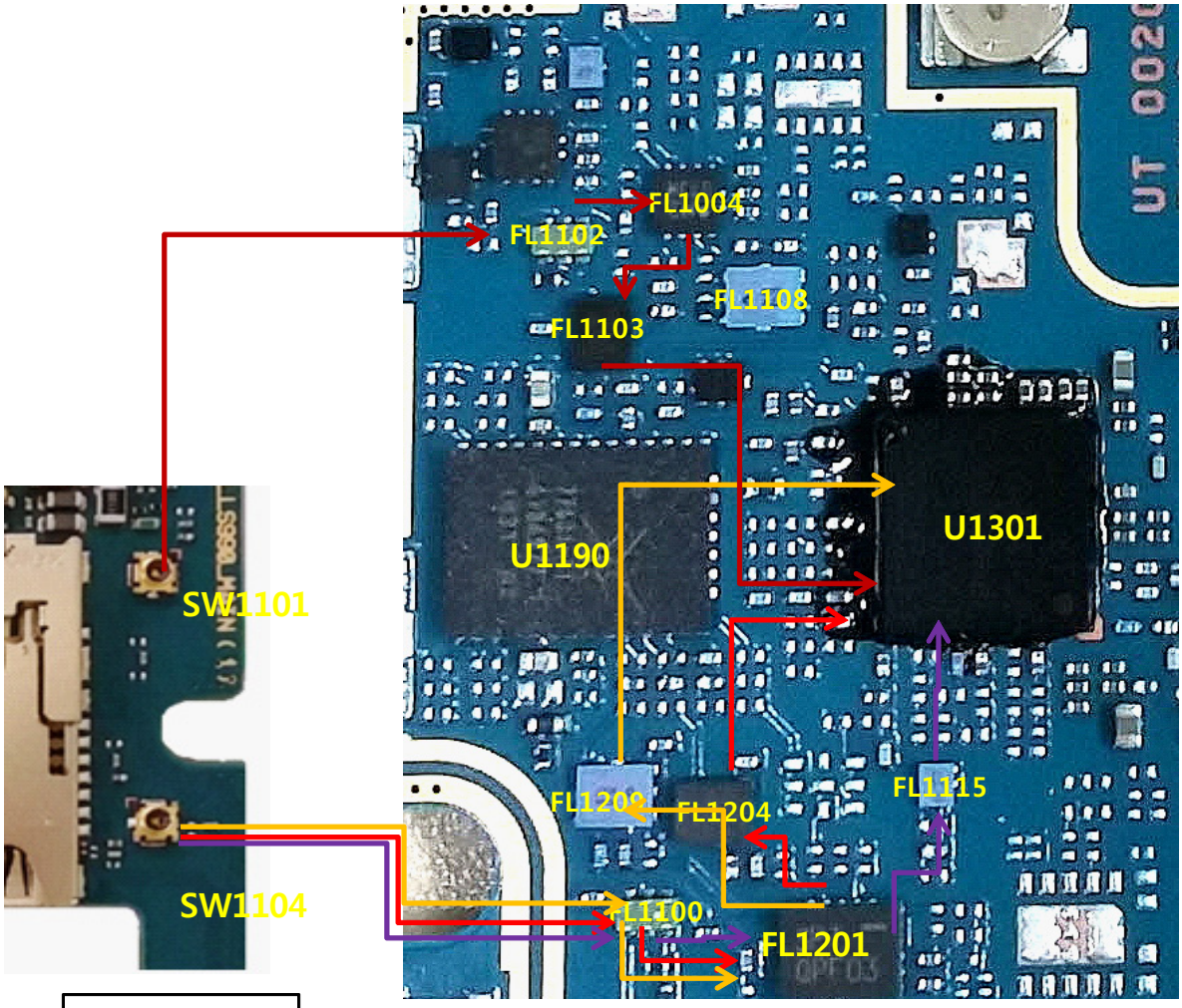




3.6 LTE RF Part

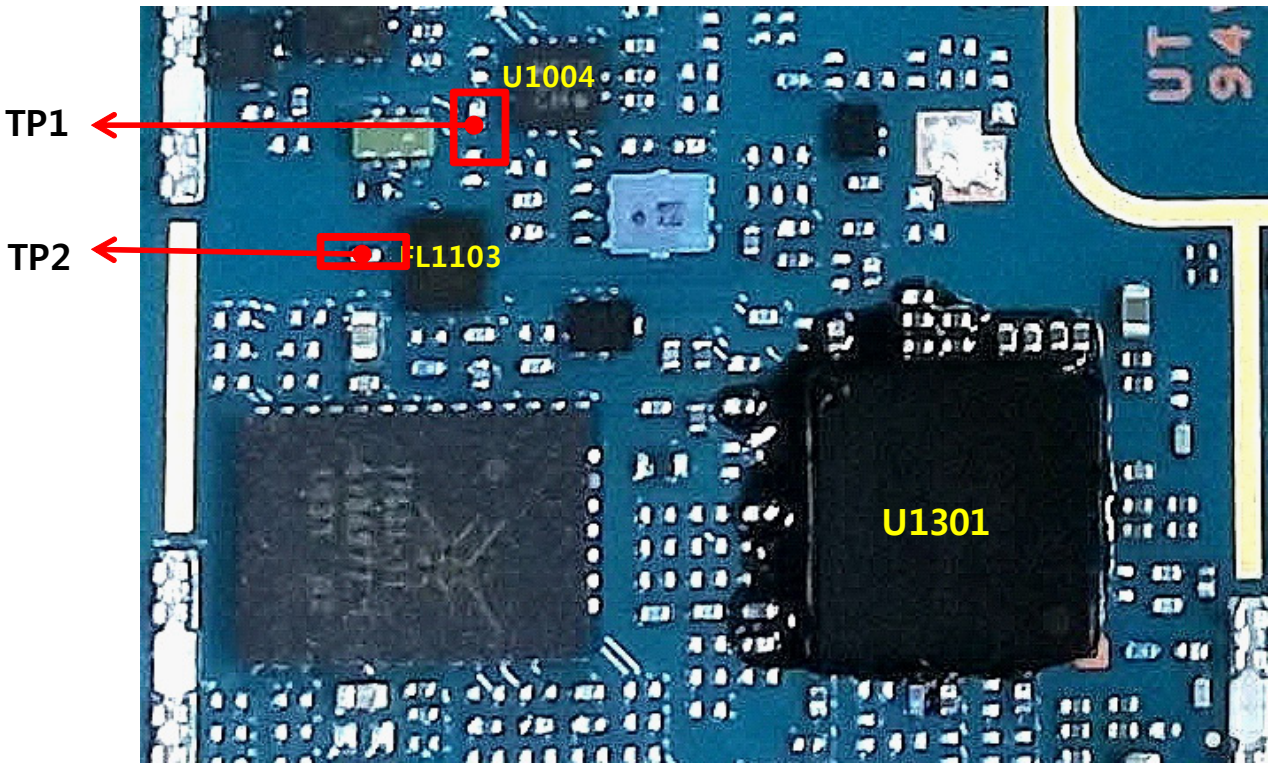


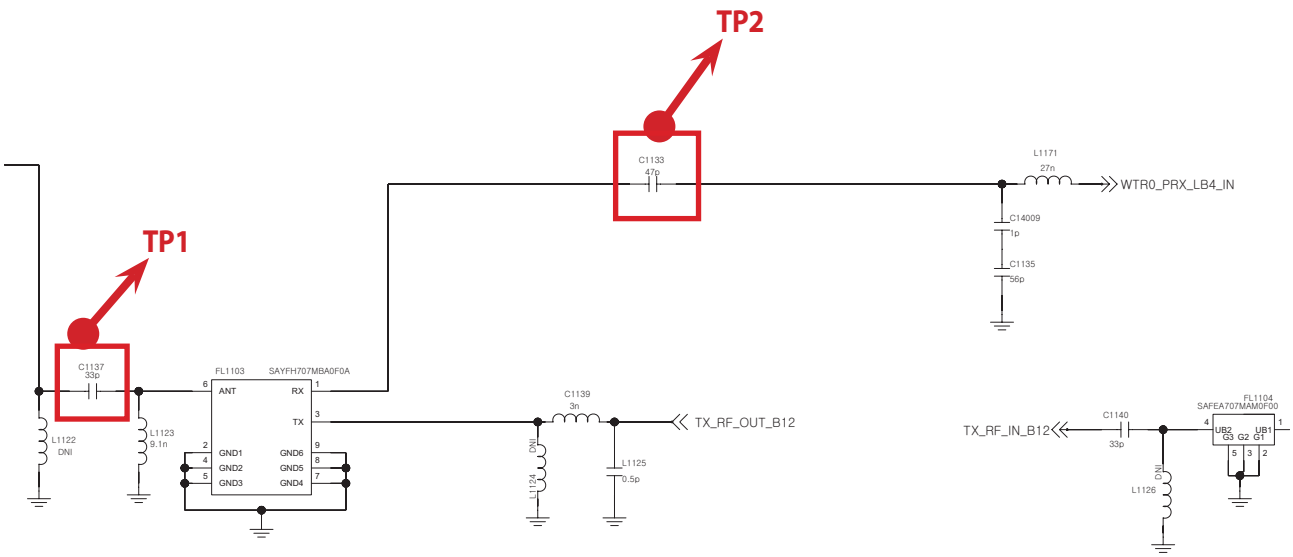
3.6.1 LTE B2/4/5/12/17/25 PRX

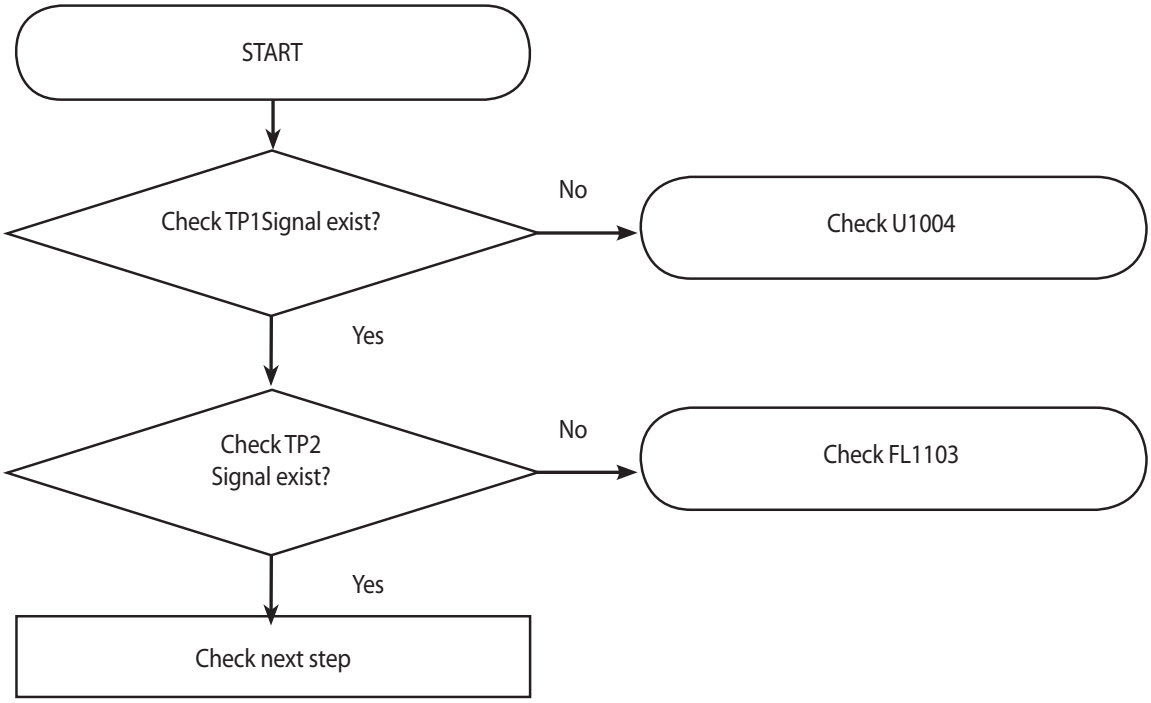


1. LTE B2/25 / CDMA(BC1)_ PRX PATH
2. LTE B5/ CDMA(BC0)_ PRX PATH
3. LTE B4 PRX PATH
4. LTE B12/17_PRX PATH

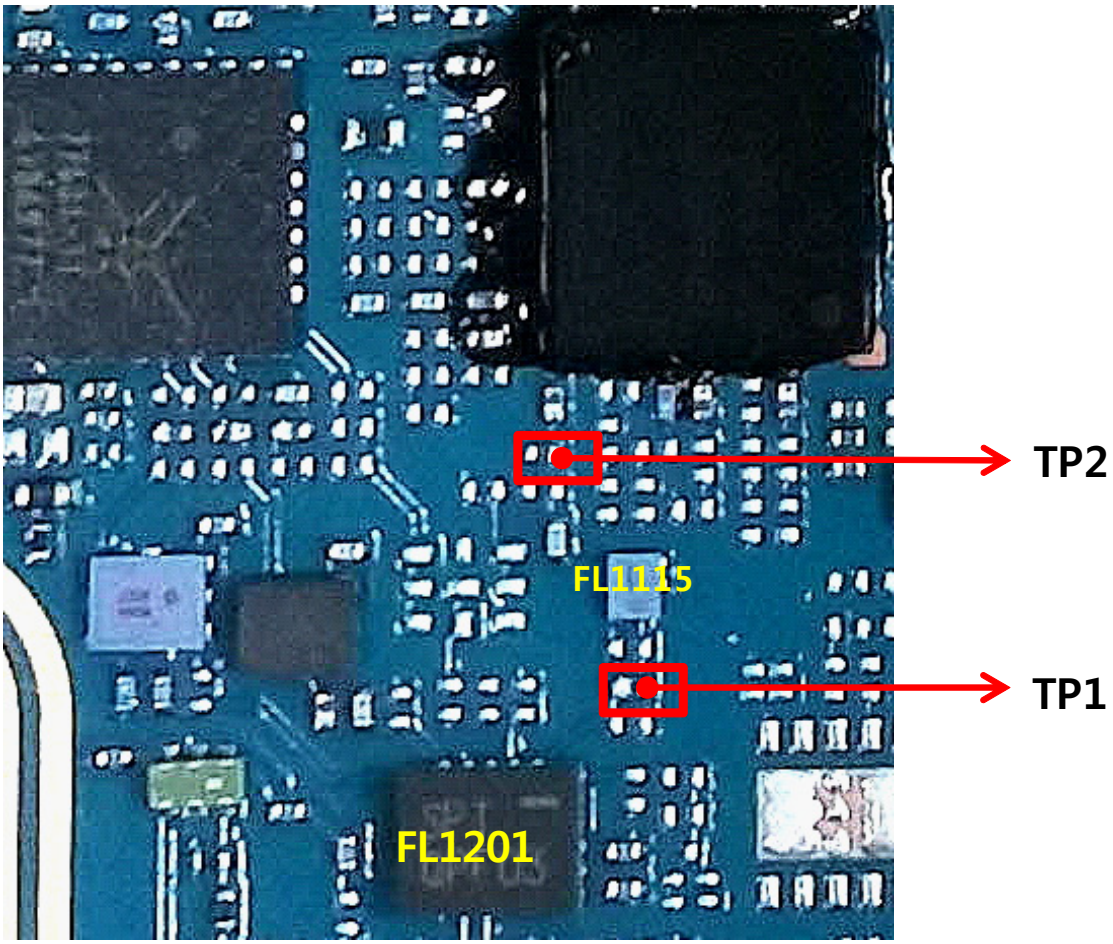
3.6.1.1 Checking RF signal path (B12/B17)

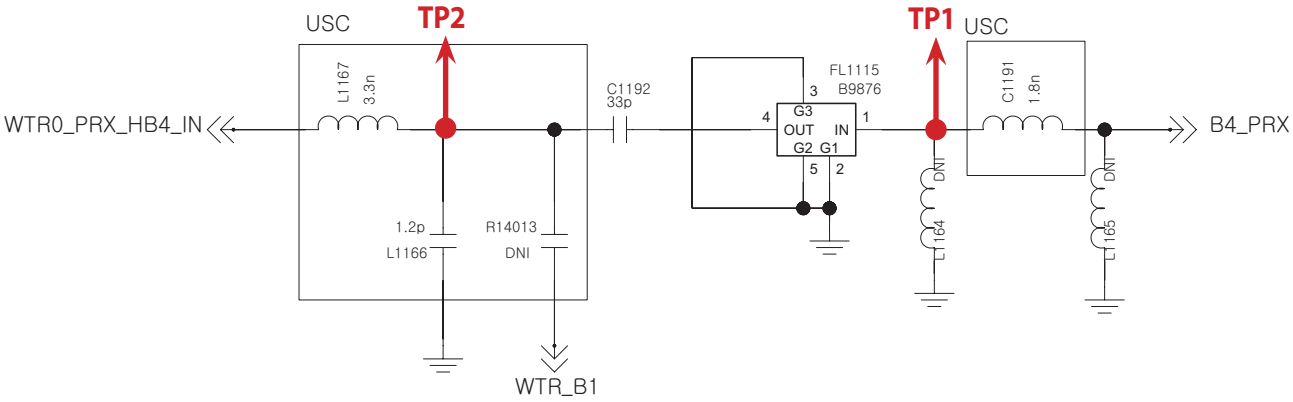


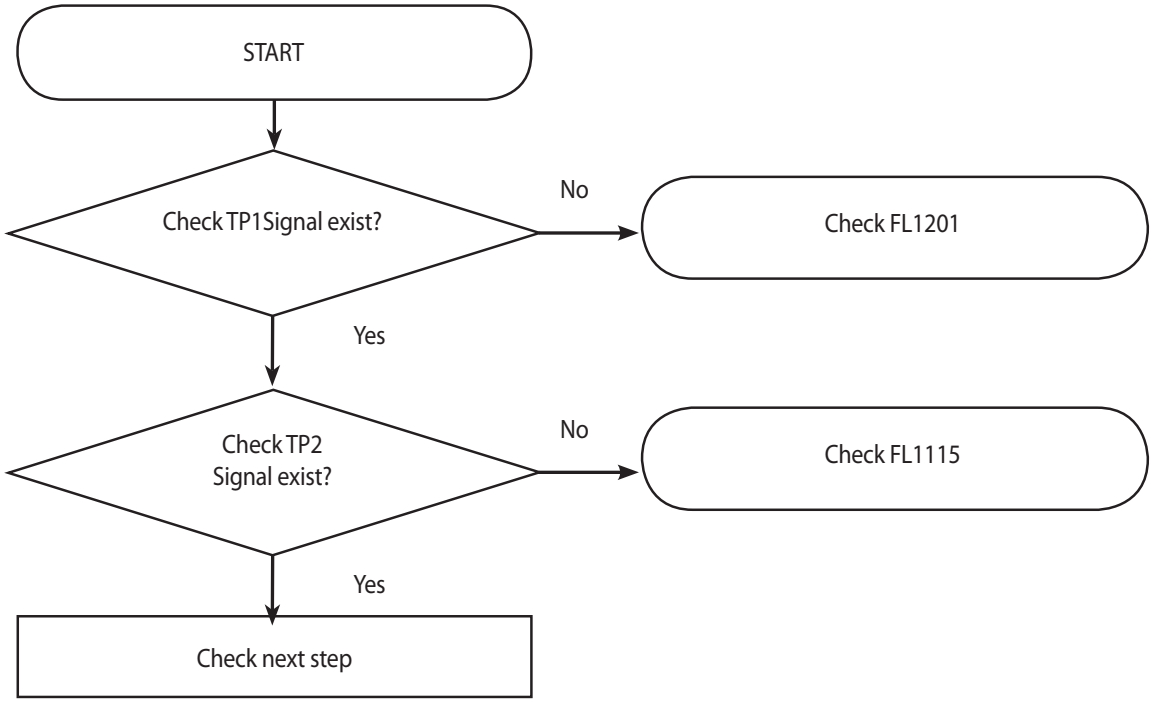




3.6.1.2 Checking RF signal path (B4)







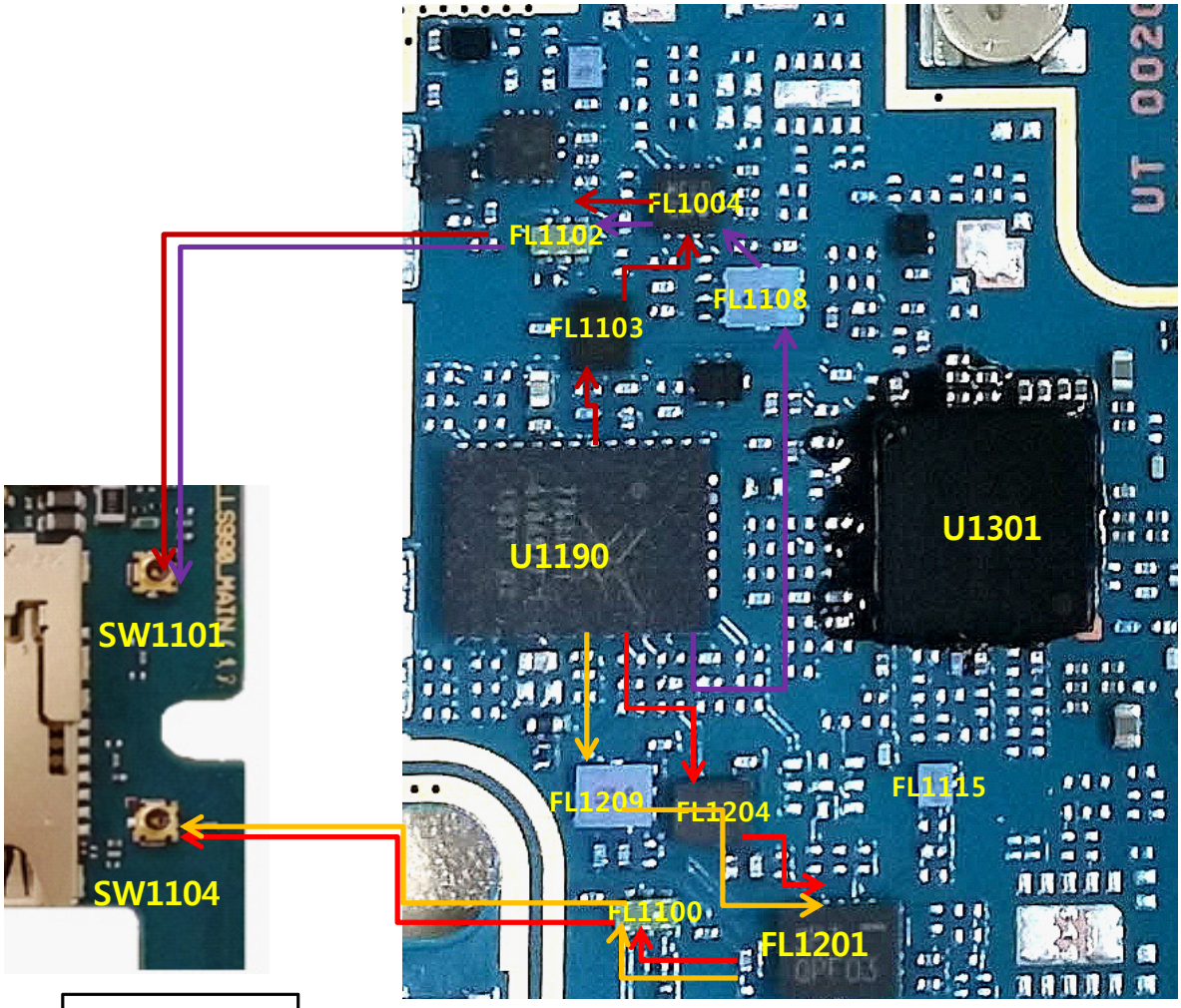
3.6.1.3 Checking RF signal path (B2/25)

Refer to 3. 5. 1
CDMA BC1 Co-banding

3.6.1.4 Checking RF signal path (B5)

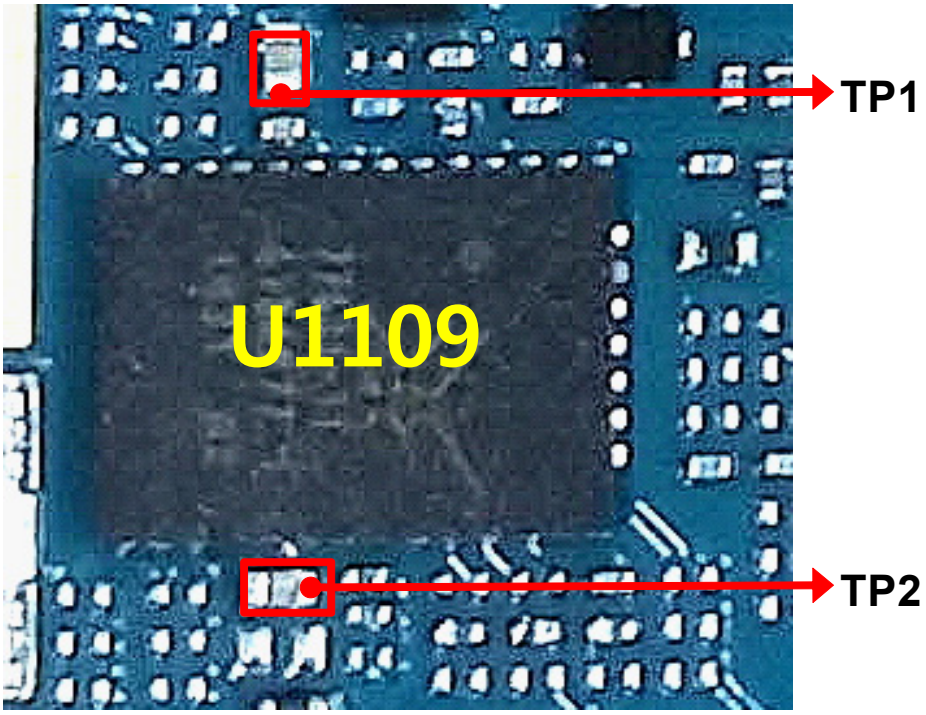
Refer to 3. 5. 1
CDMA BC0 Co-banding

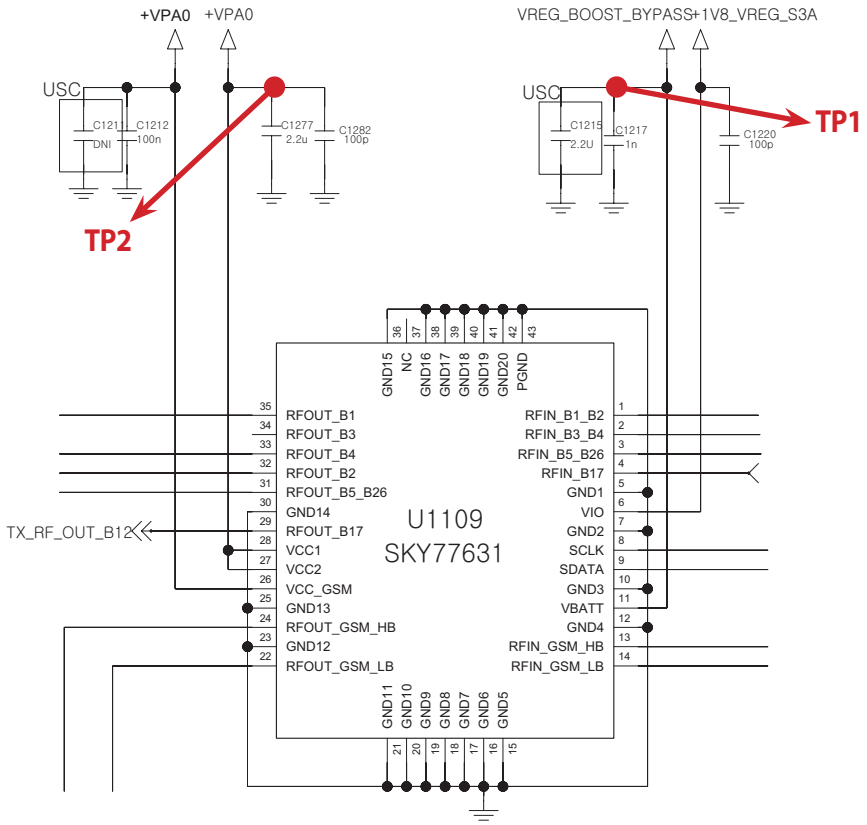
3.6.2 LTE B2/4/5/12/17/25 TX

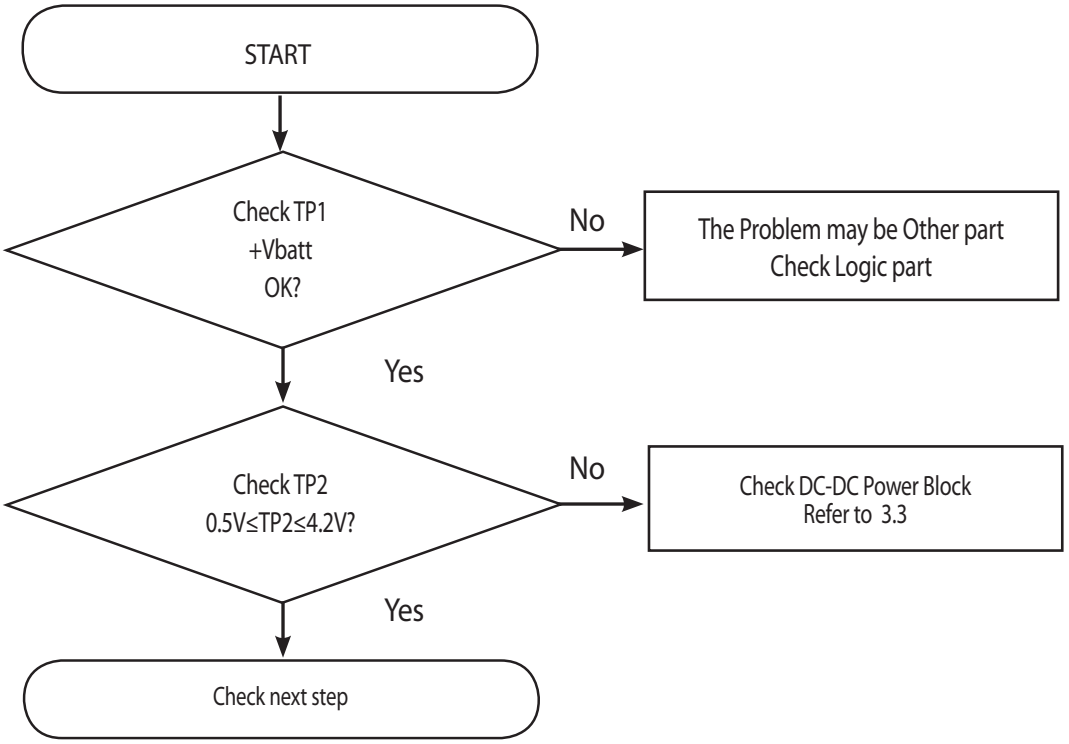


1. LTE B2/25 / CDMA(BC1)_ TX PATH
2. LTE B5/ CDMA(BC0)_ TX PATH
3. LTE B4 TX PATH
4. LTE B12/17_TX PATH

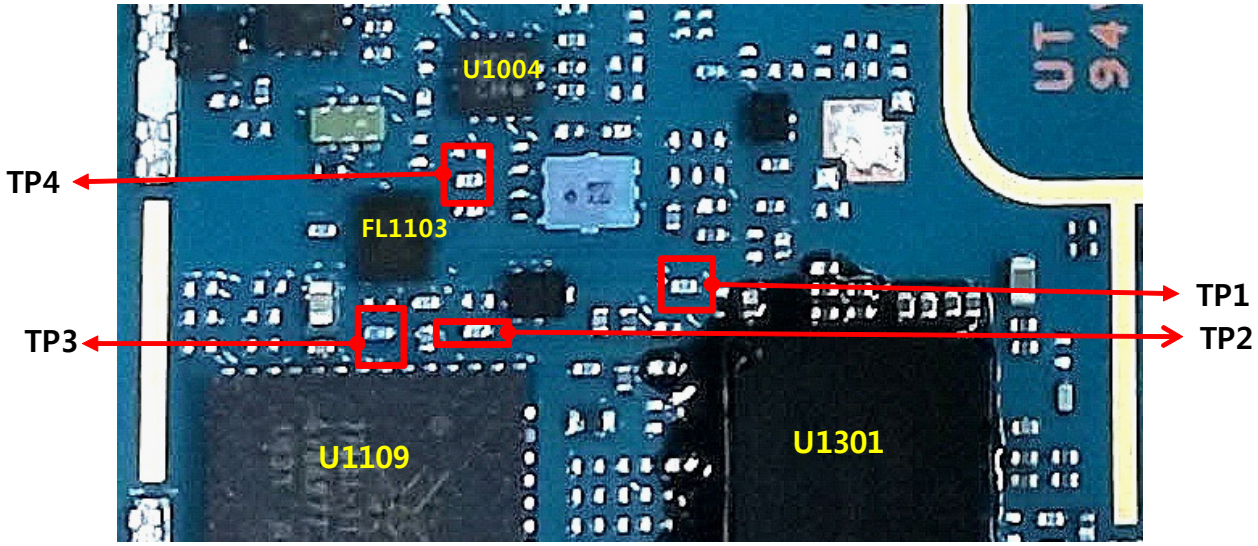
3.6.2.1 Checking LTE PAM DC Power Circuit

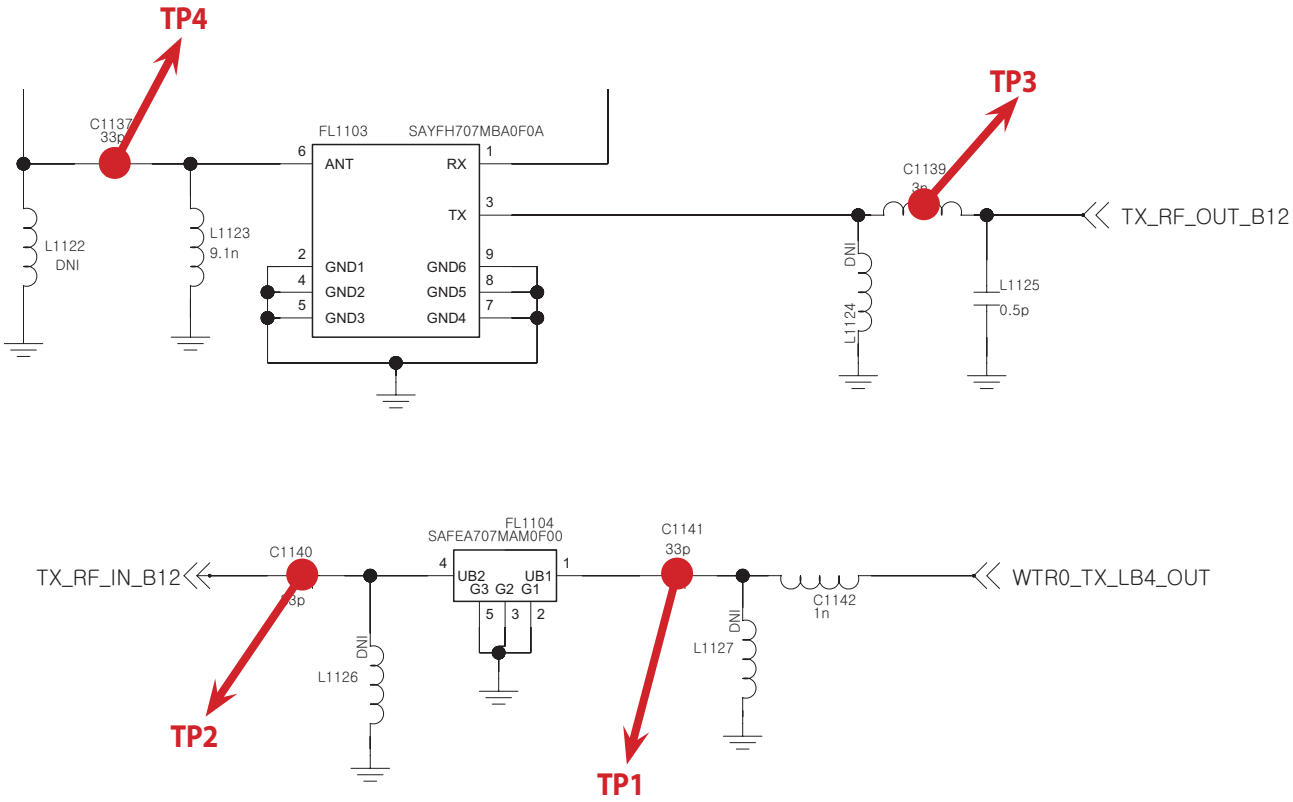


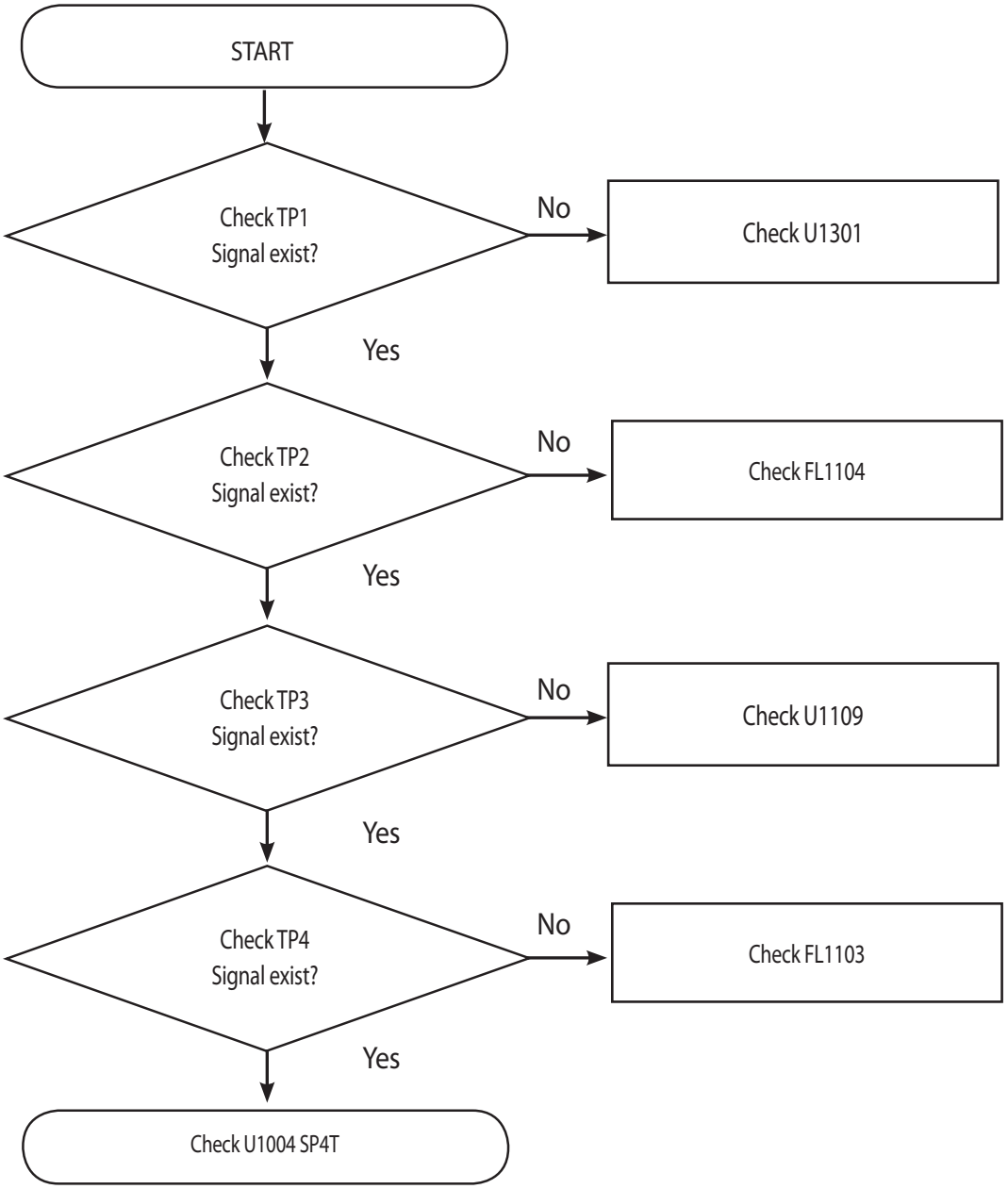




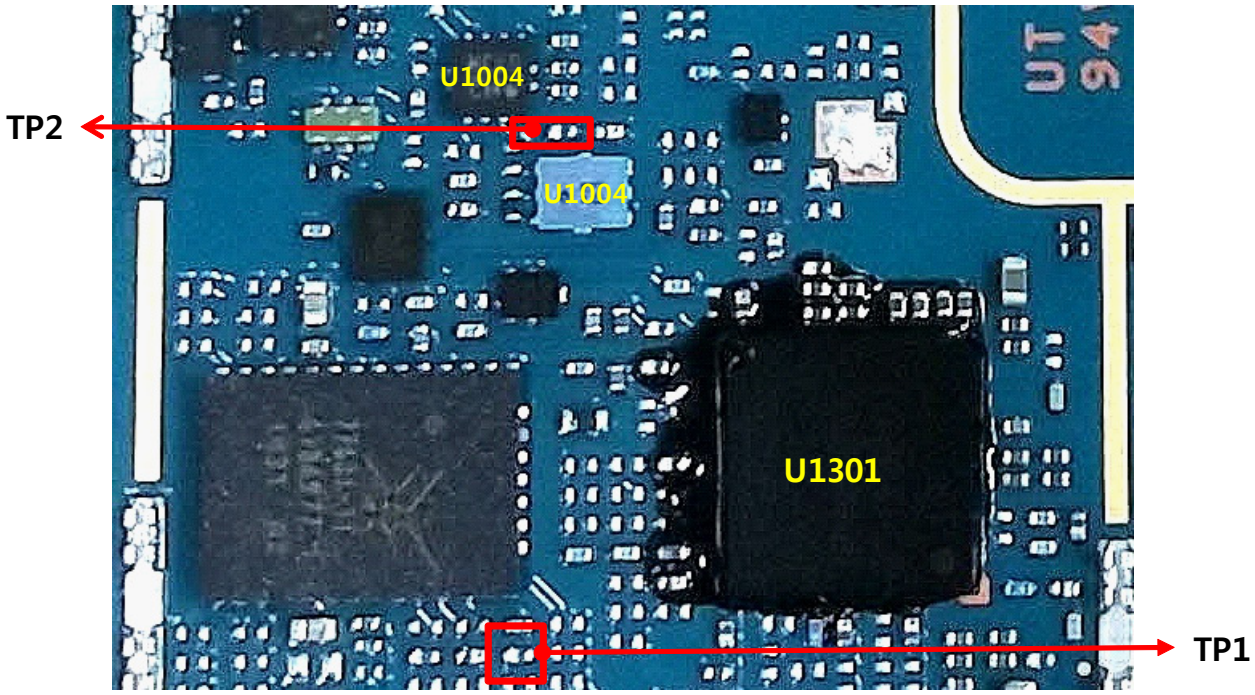
3.6.2.2 Checking RF signal path(B12/B17)

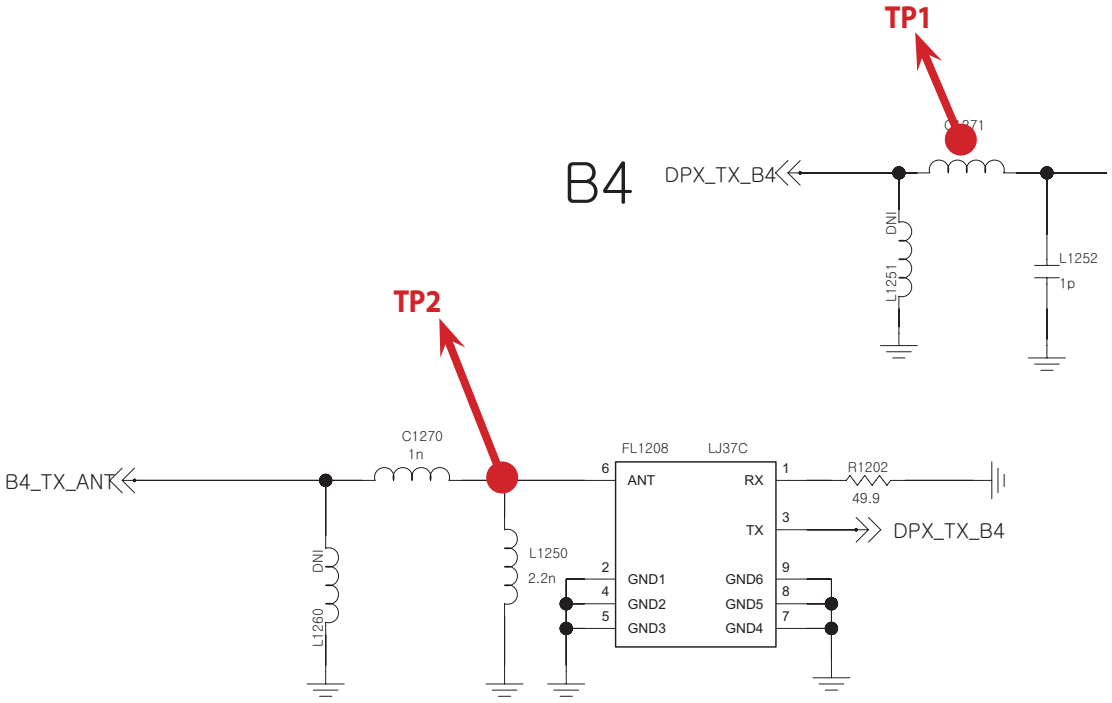


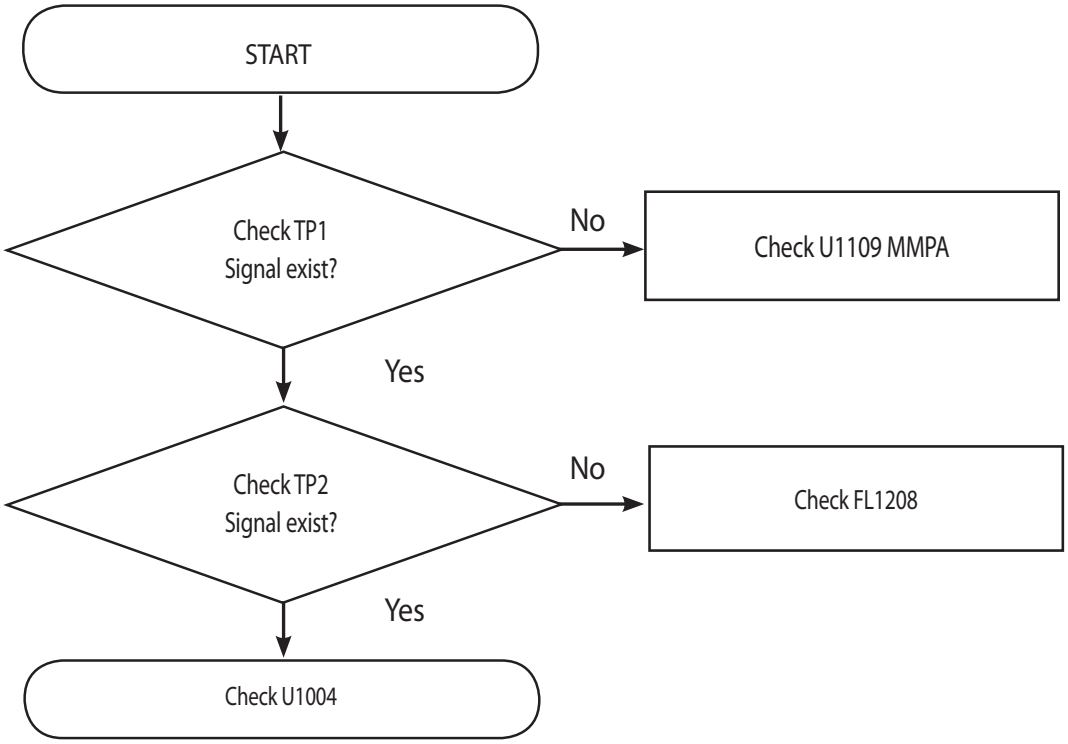




3.6.2.3 Checking RF signal path(B4)







3.6.2.4 Checking RF signal path(B2/25)

Refer to 3. 5. 2
CDMA BC1 Co-banding

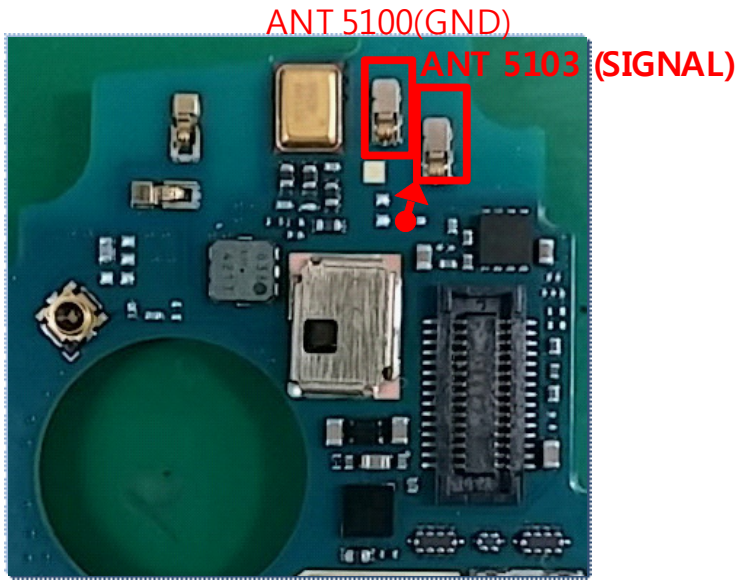
3.6.2.5 Checking RF signal path(B5)

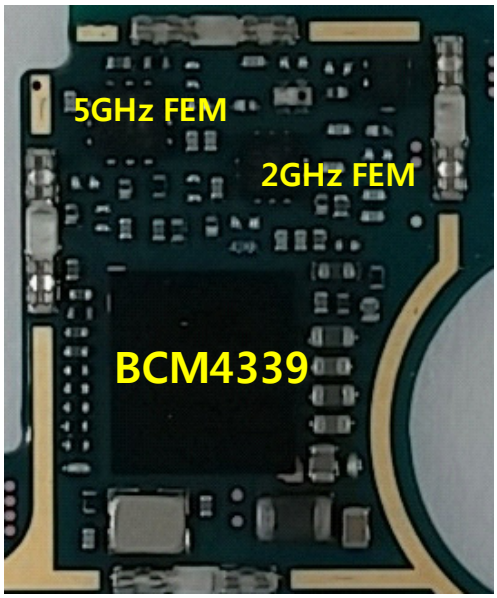
Refer to 3. 5. 2
CDMA BC0 Co-banding

3.7 BT&WIFI PART

BOTTOM

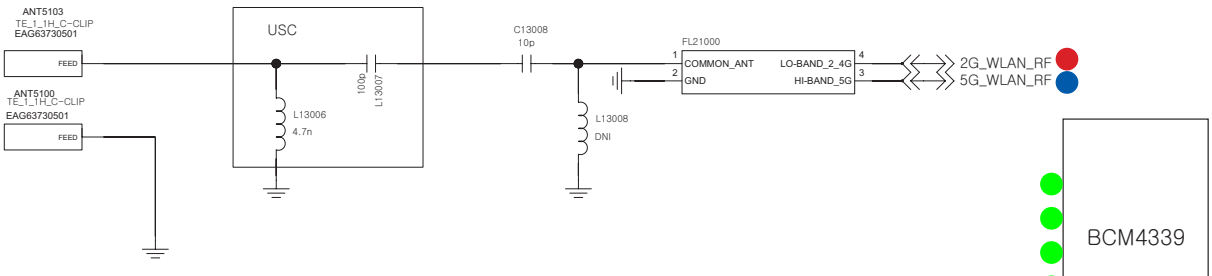
TOP



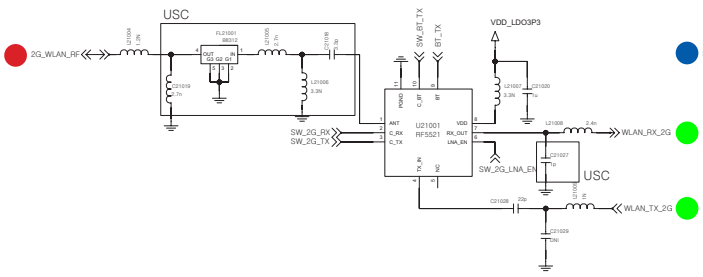


● ● ● : Connection line

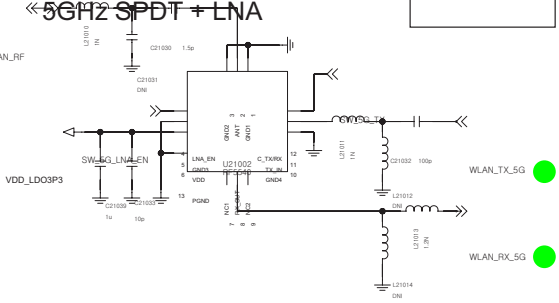
Diplexer(2.4G/5G BPF)



2.4GHz SP3T + LNA



5GHz SPDT + LNA



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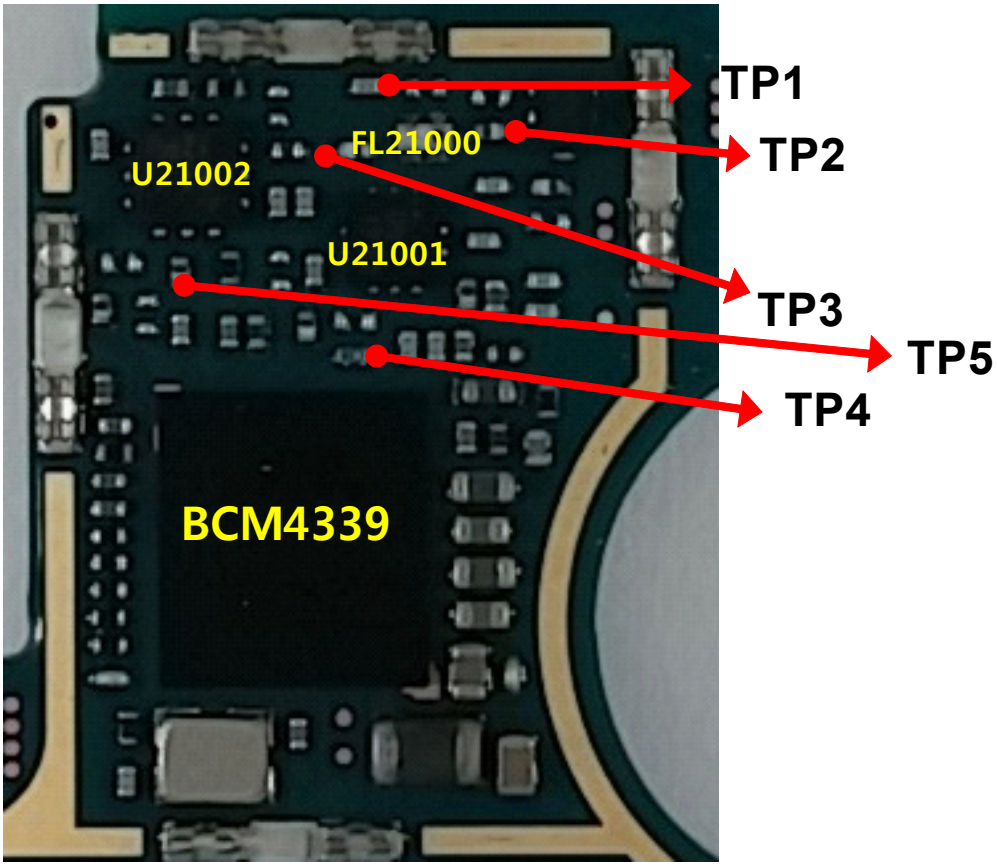
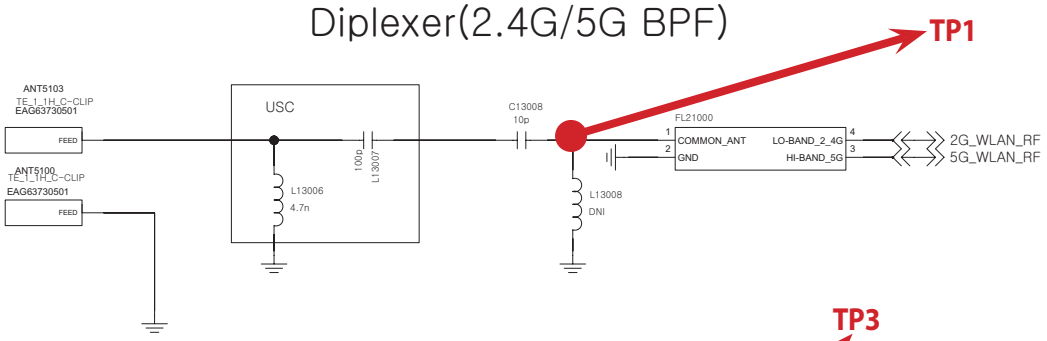
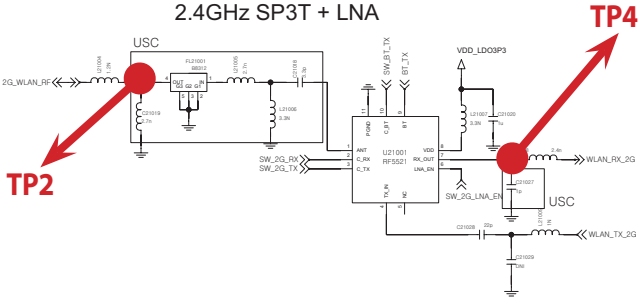


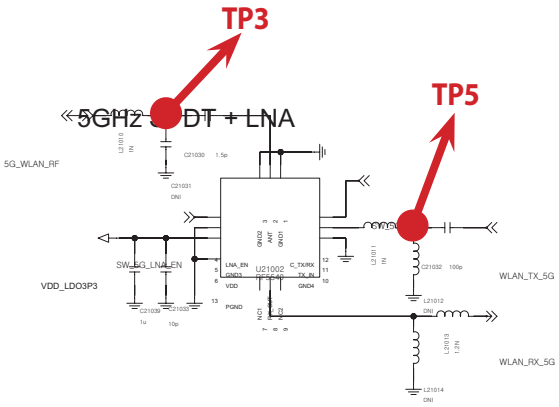
Diplexer(2.4G/5G BPF)

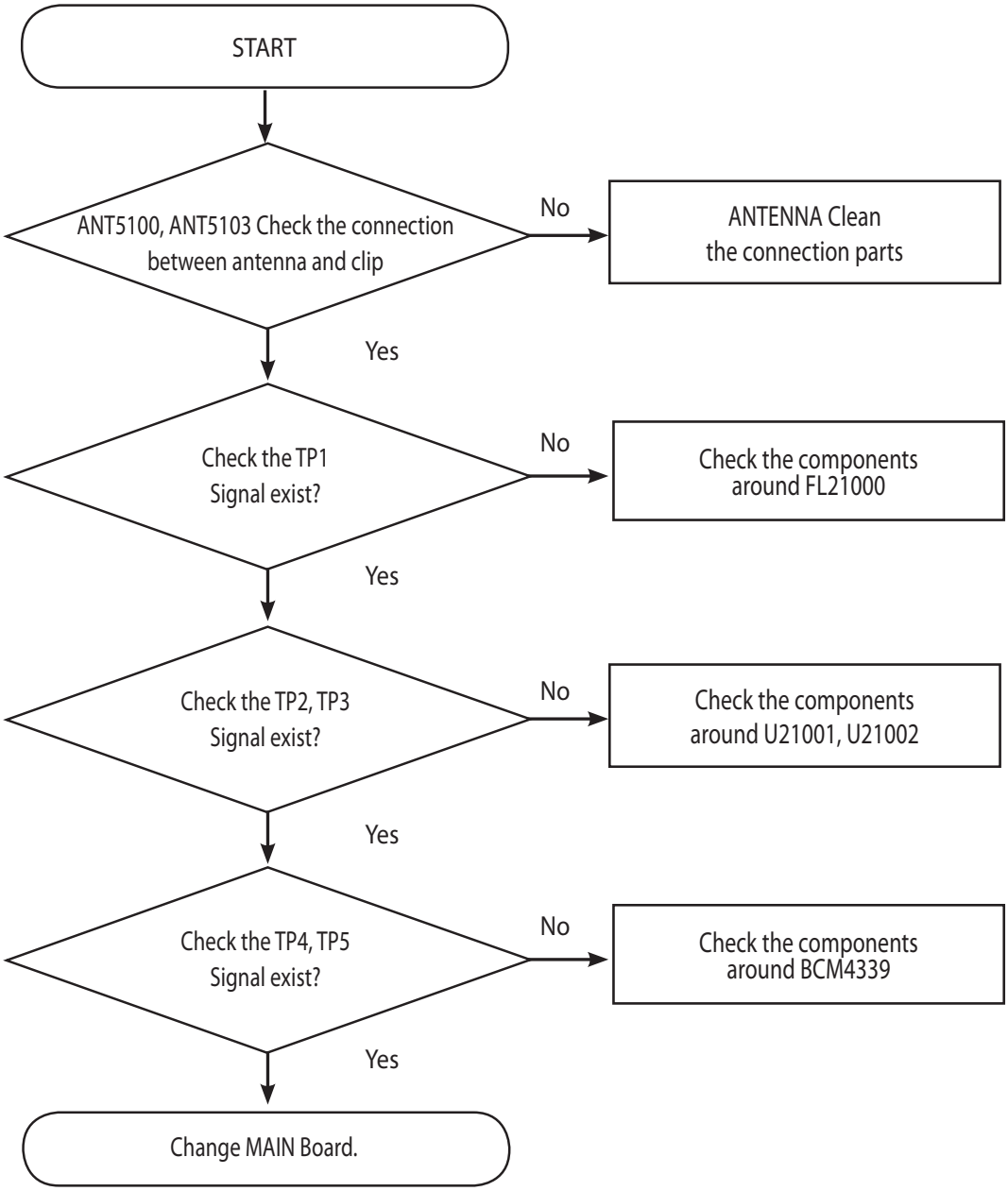


2.4GHz SP3T + LNA

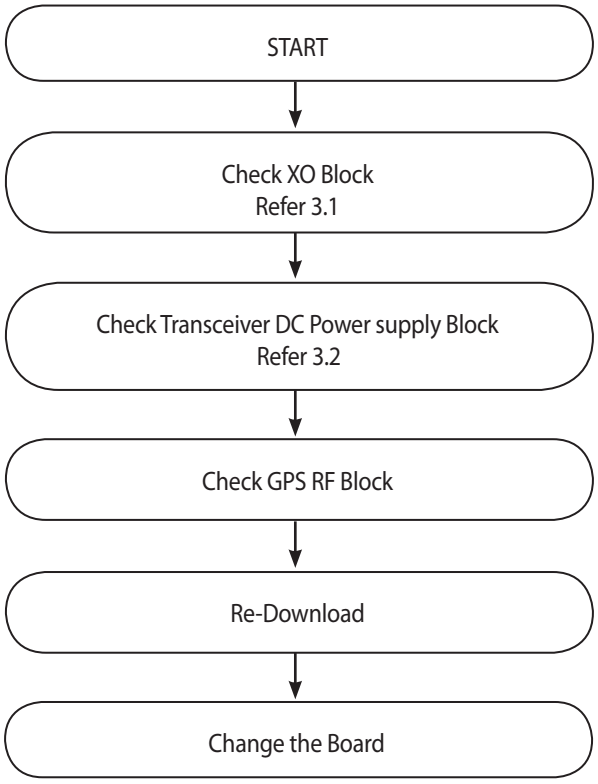


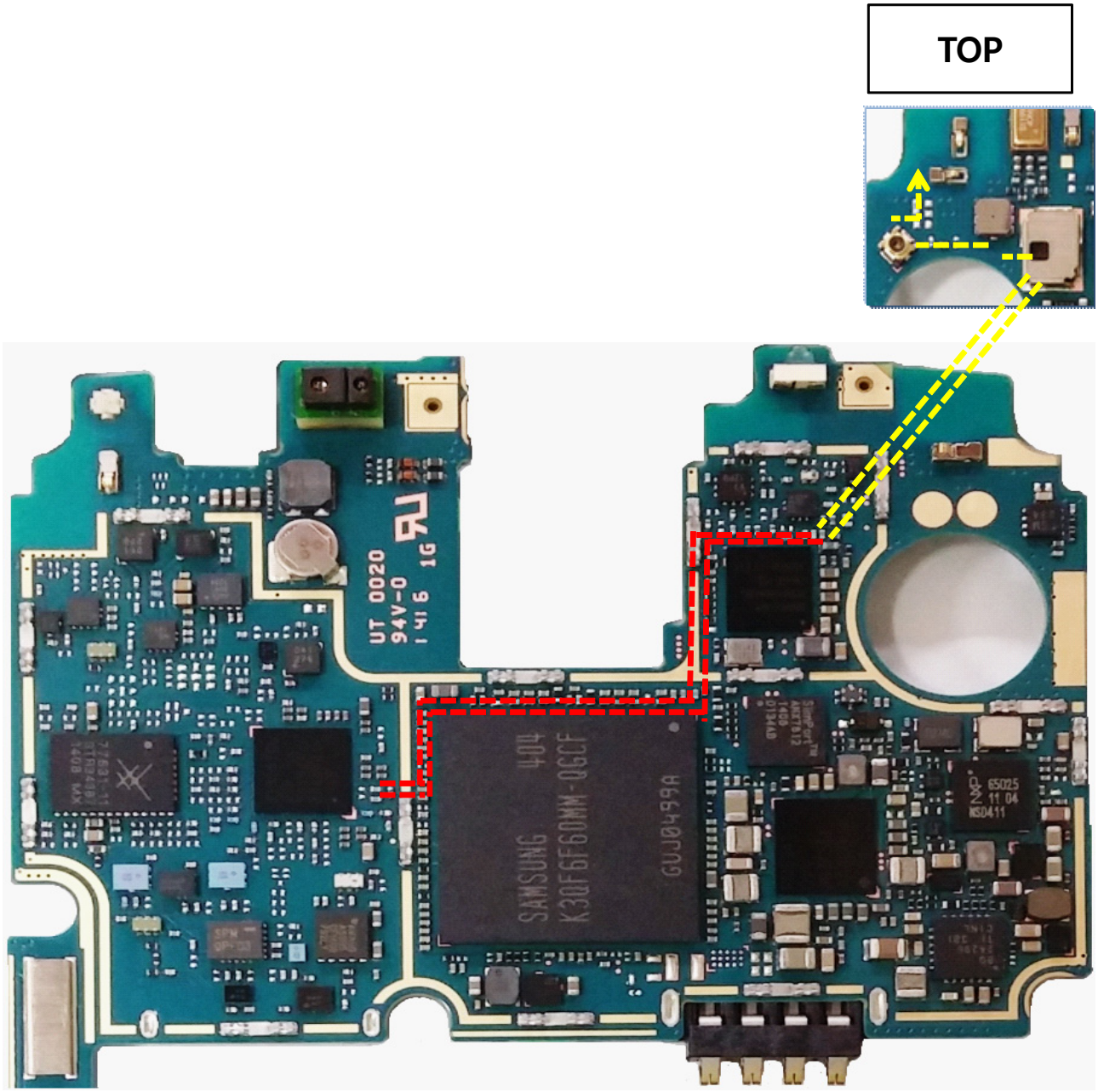
5GHz SP3T + LNA



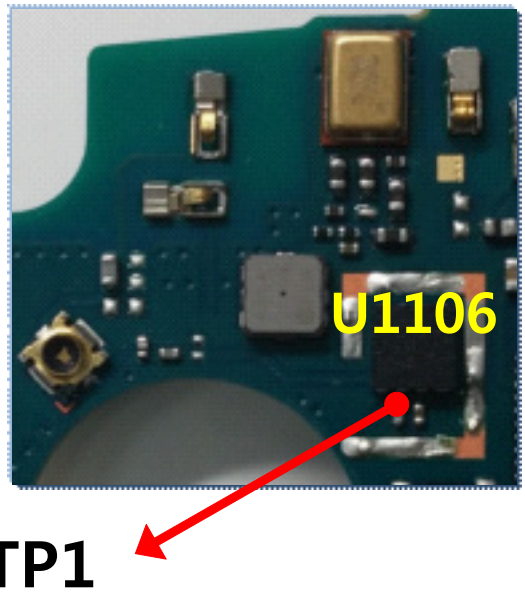


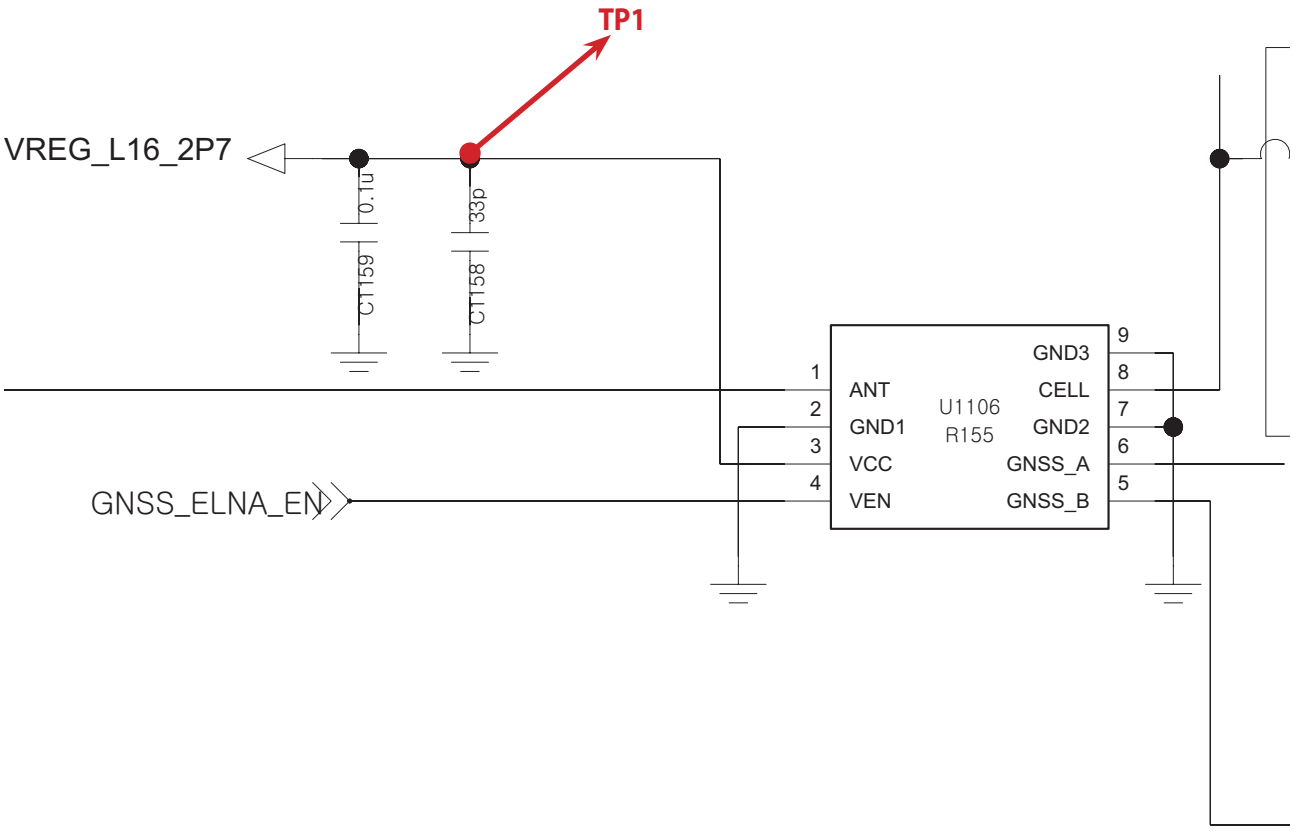
3.8 GPS Part

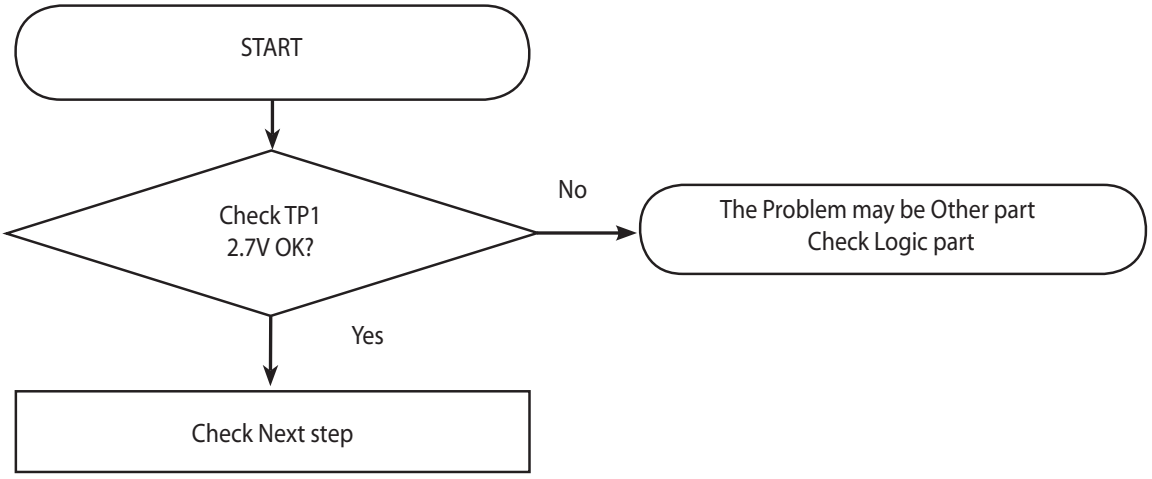




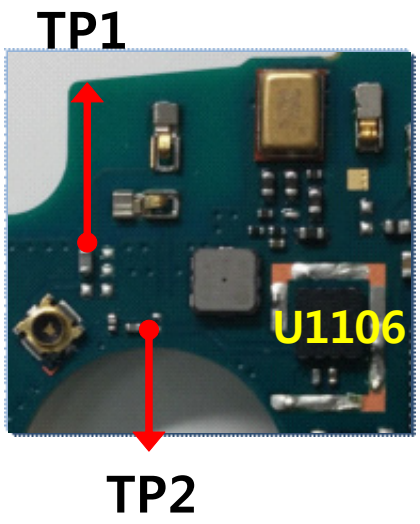
3.8.1 Checking GPS LNA DC Power Circuit

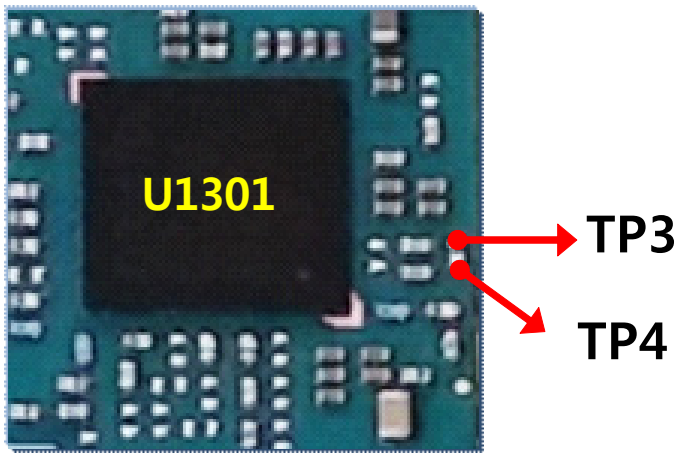


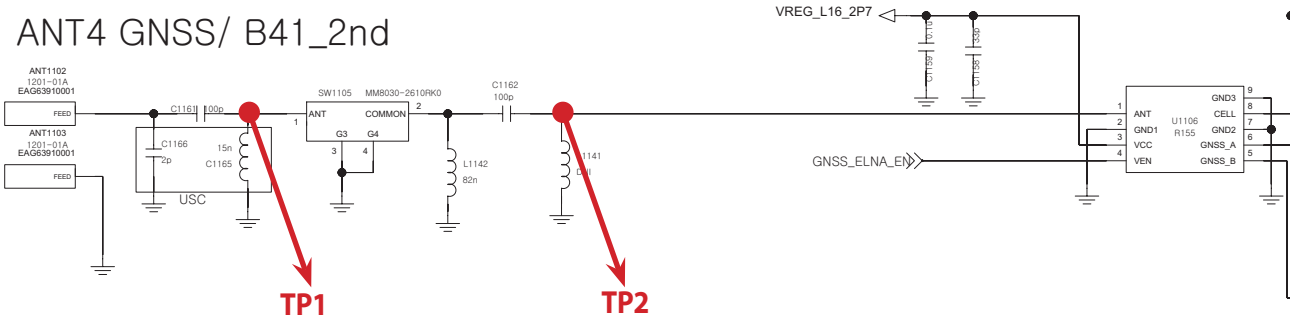


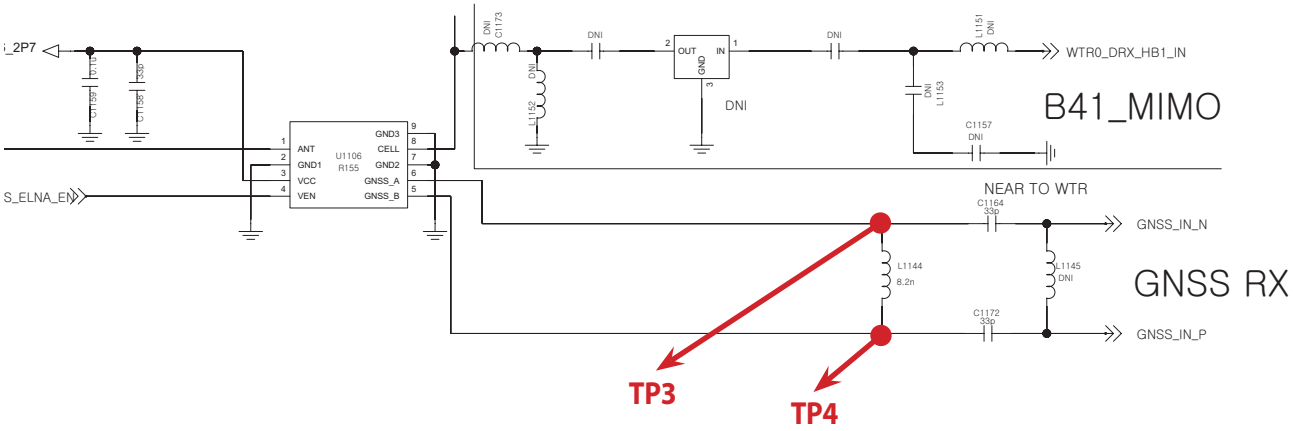


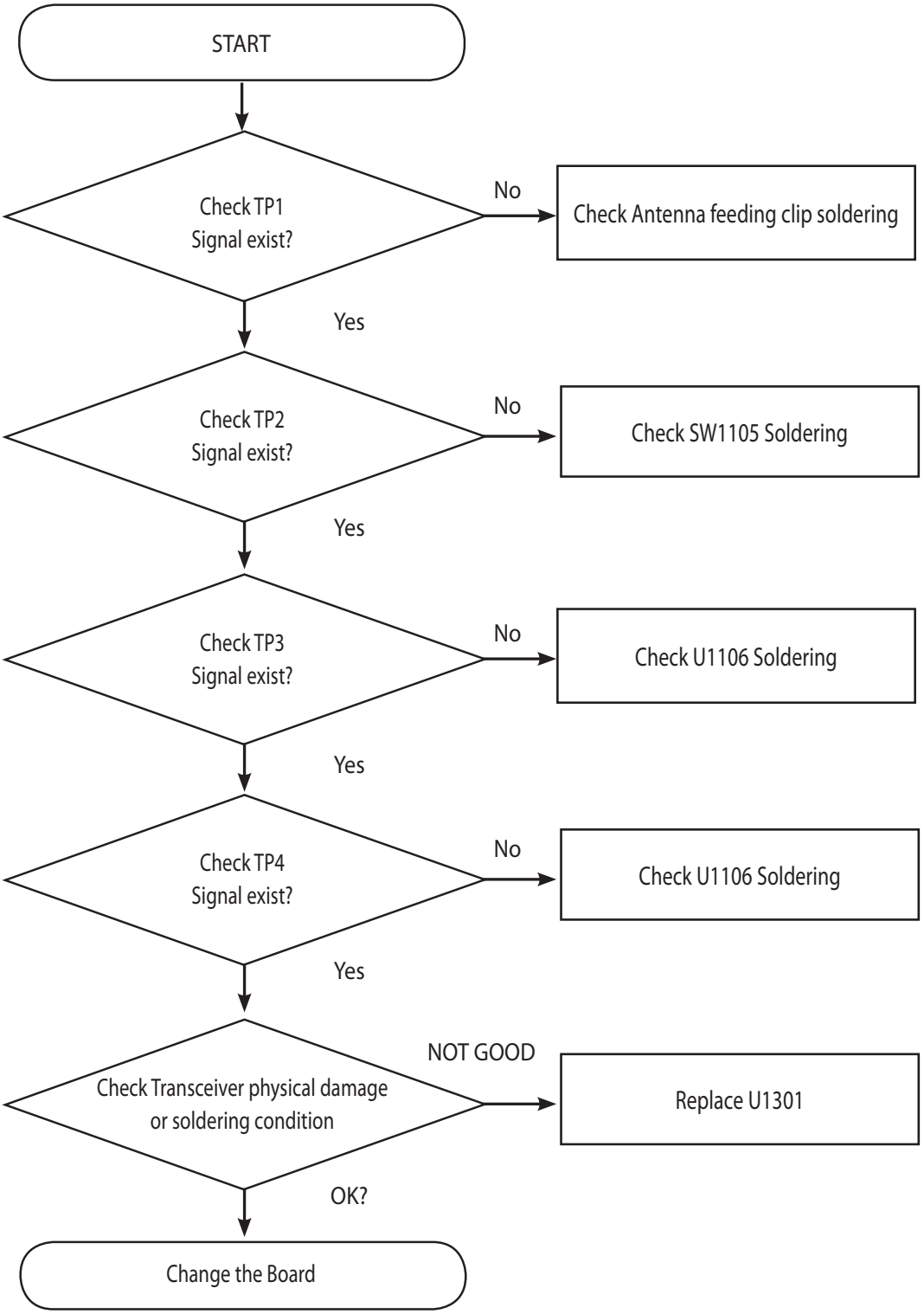
3.8.2 Checking GPS RF Signal path



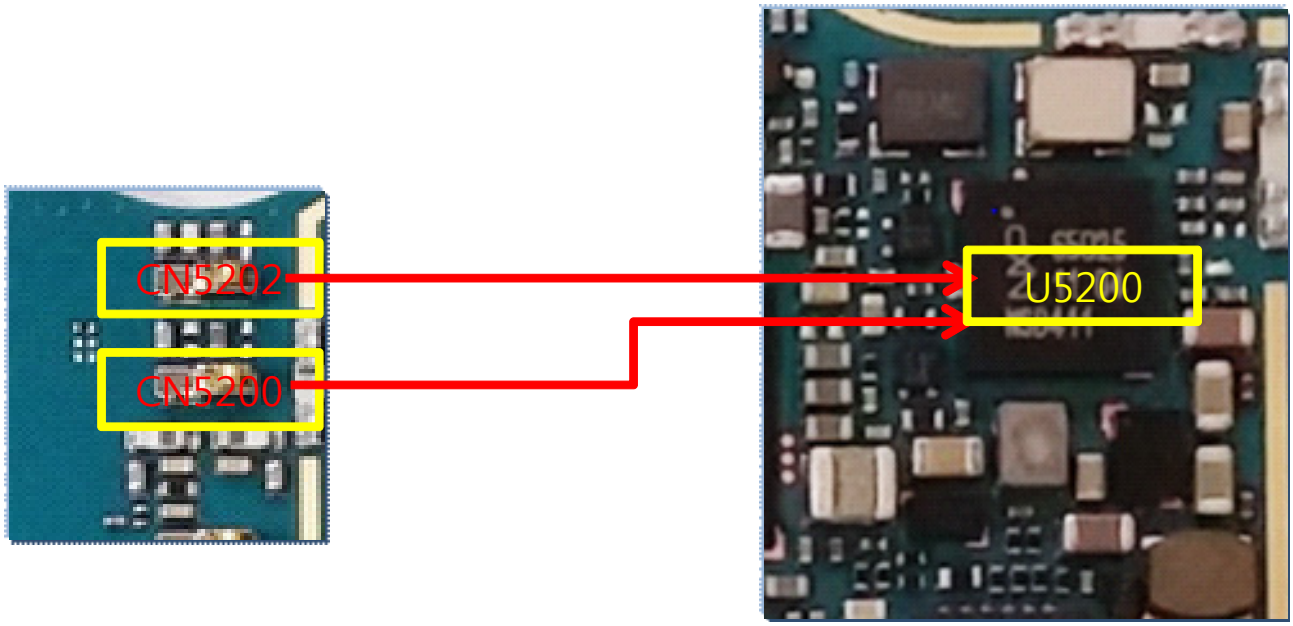


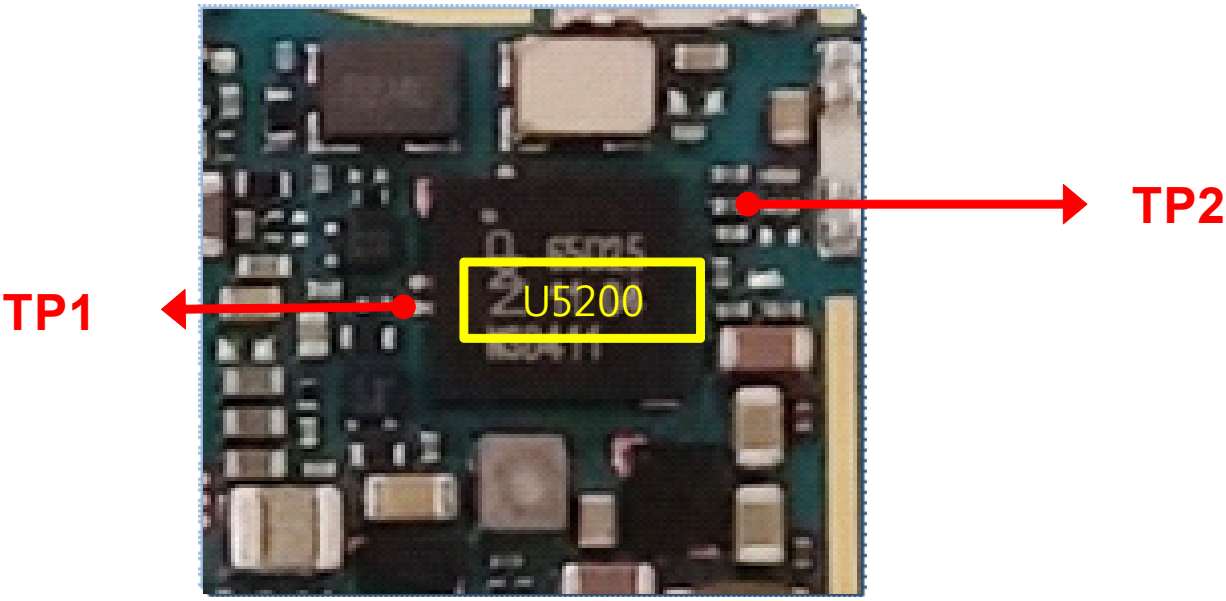


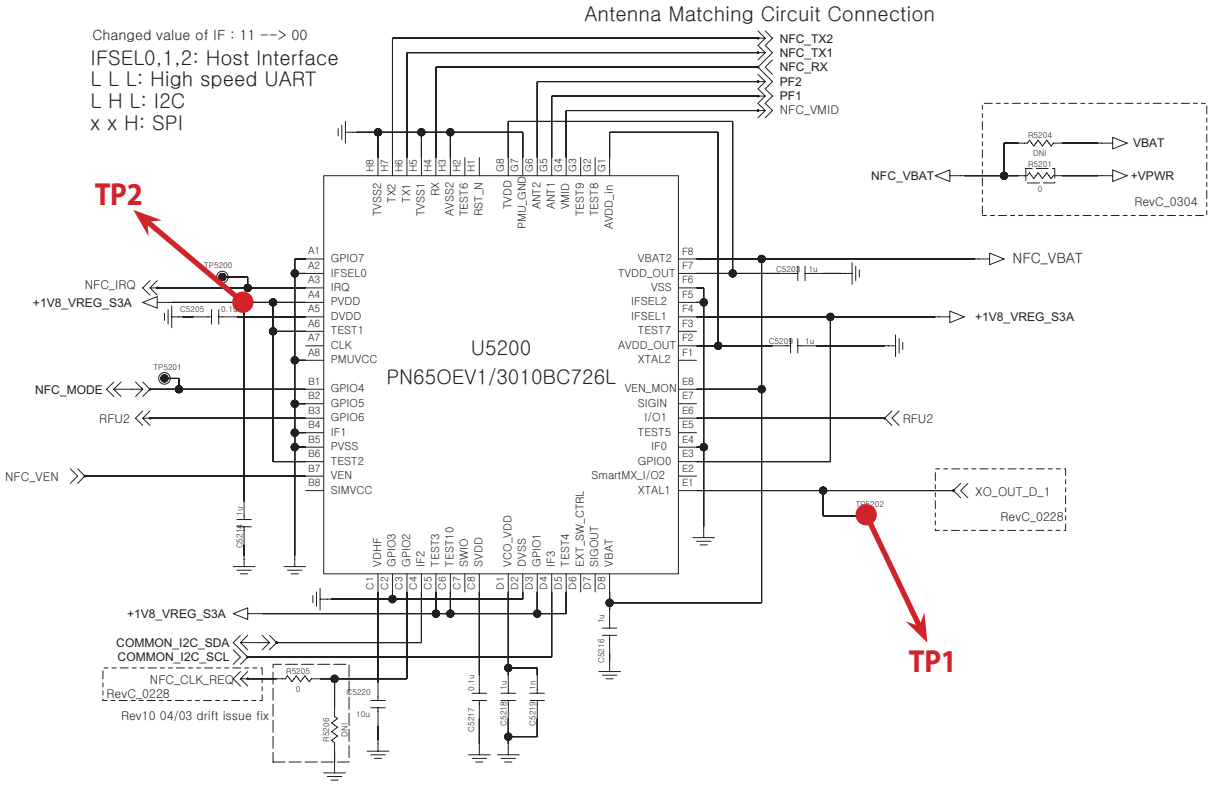


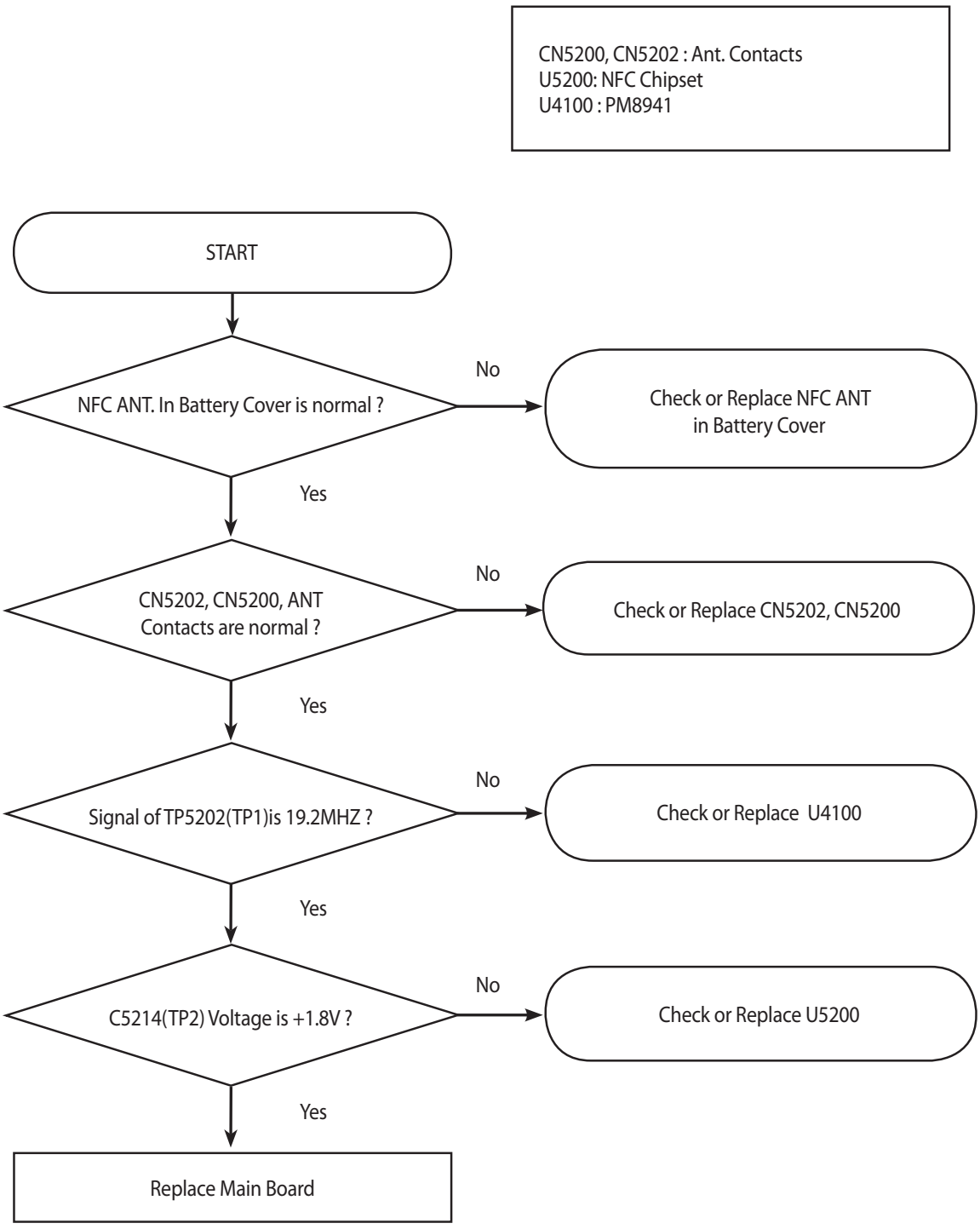


3.9 NFC Part

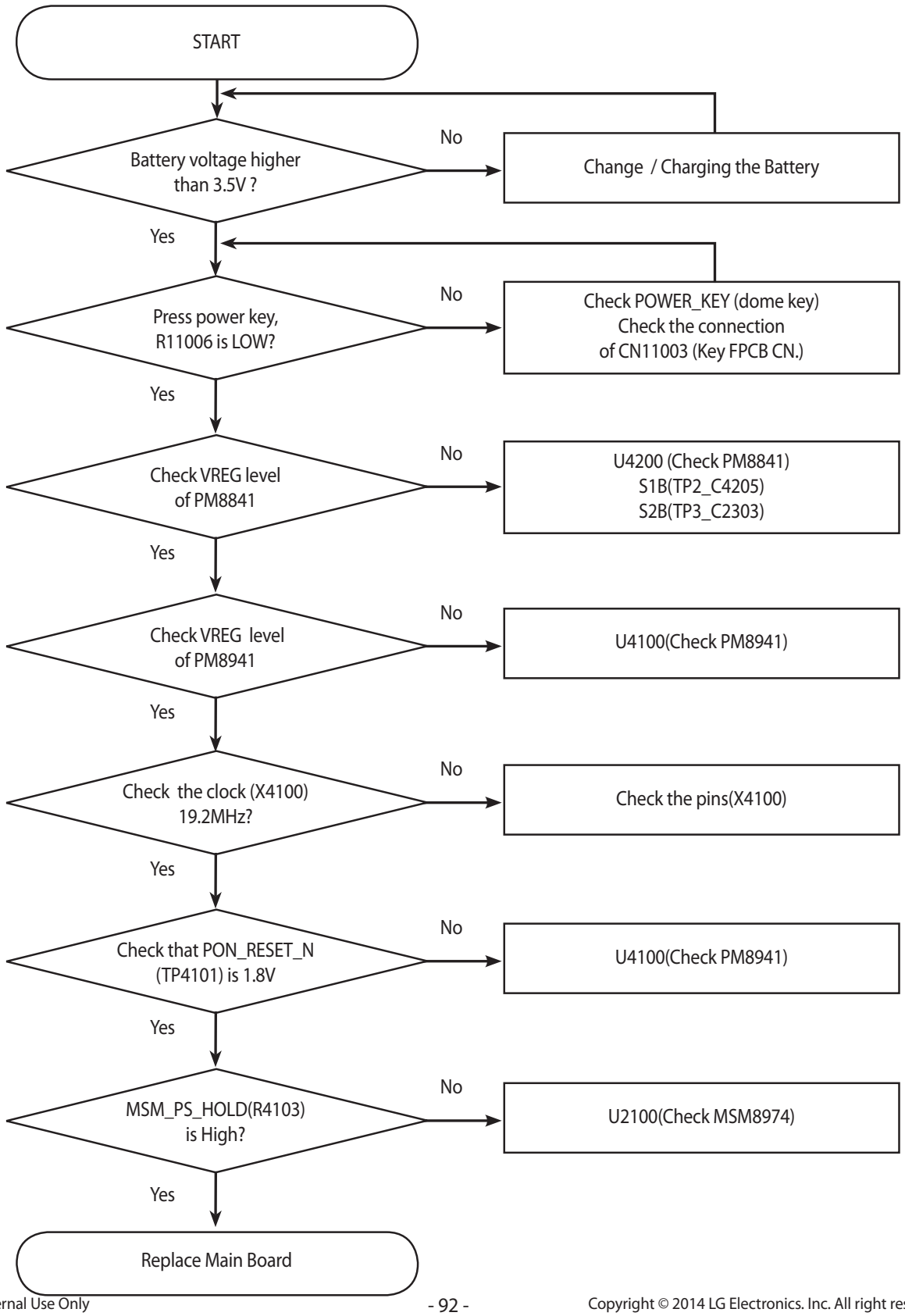


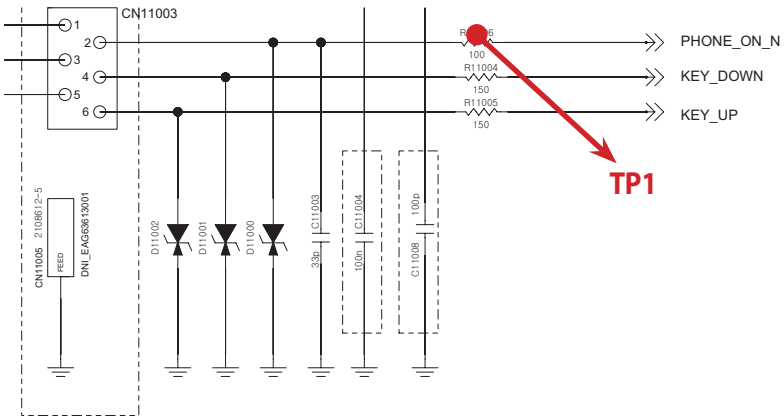


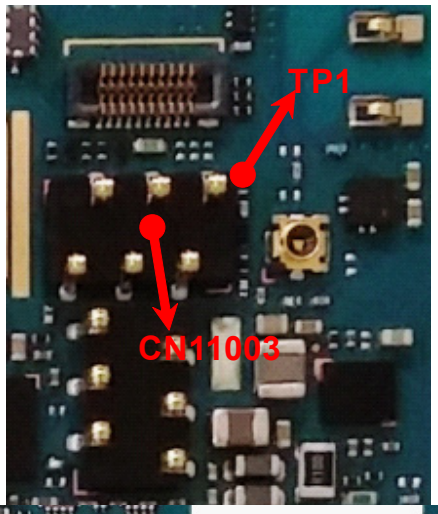


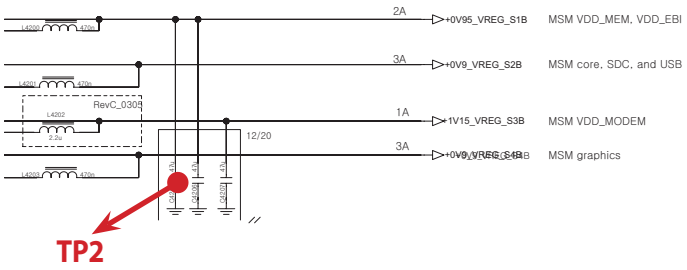


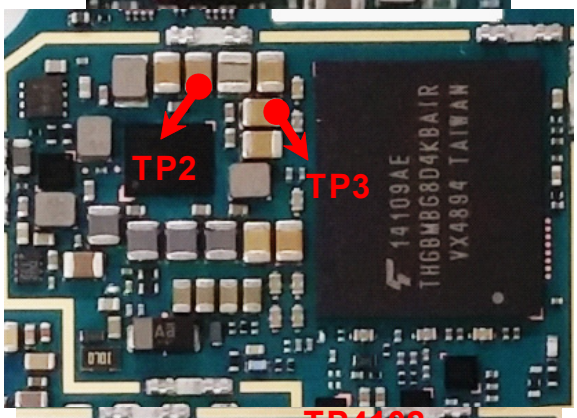
3.10 Power & Charger

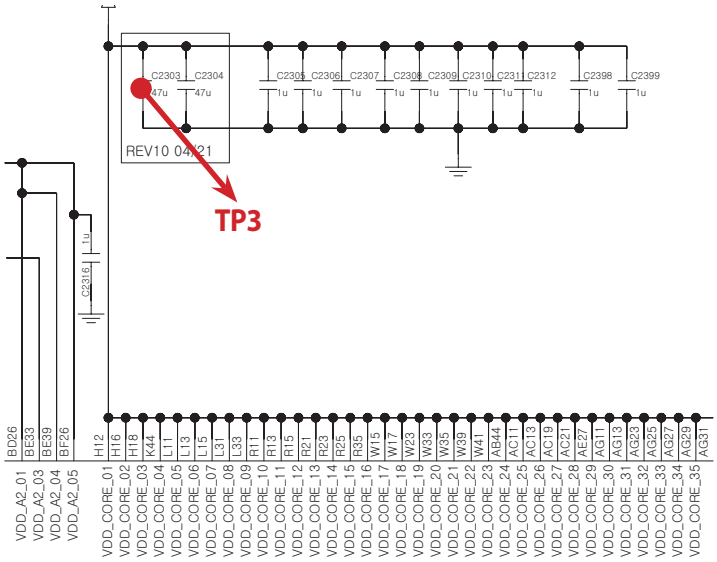


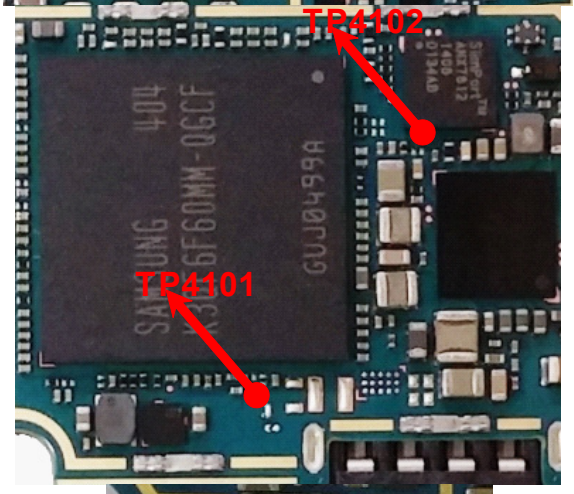


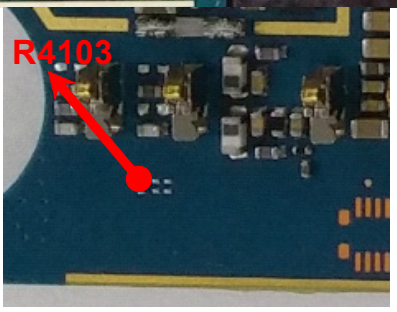


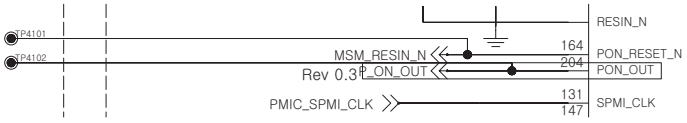




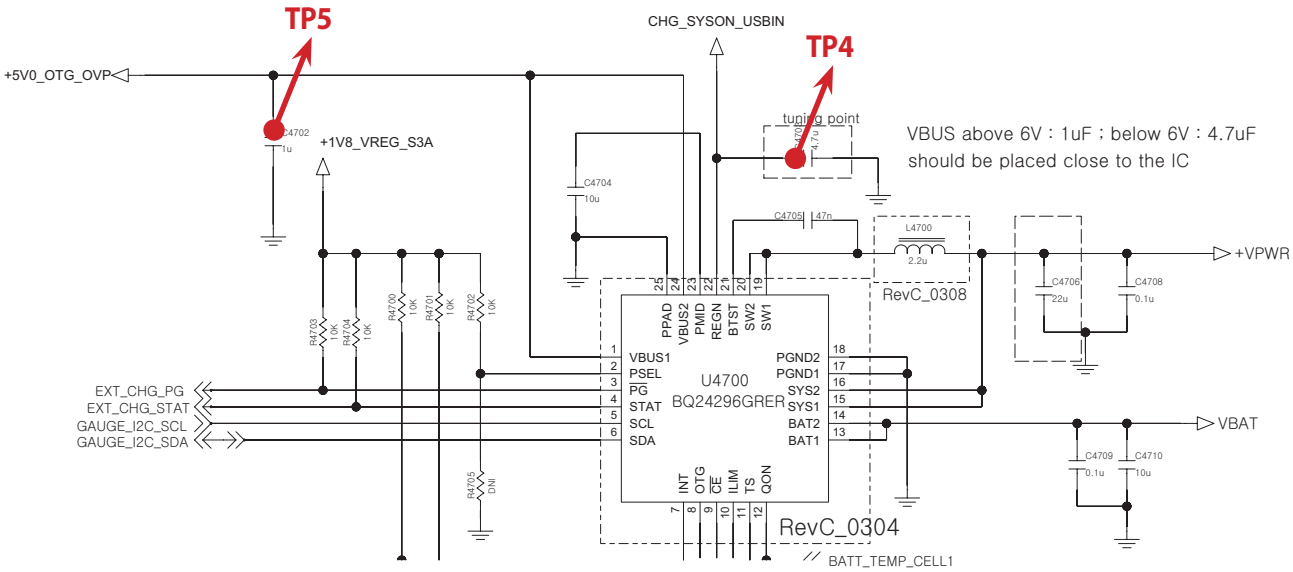


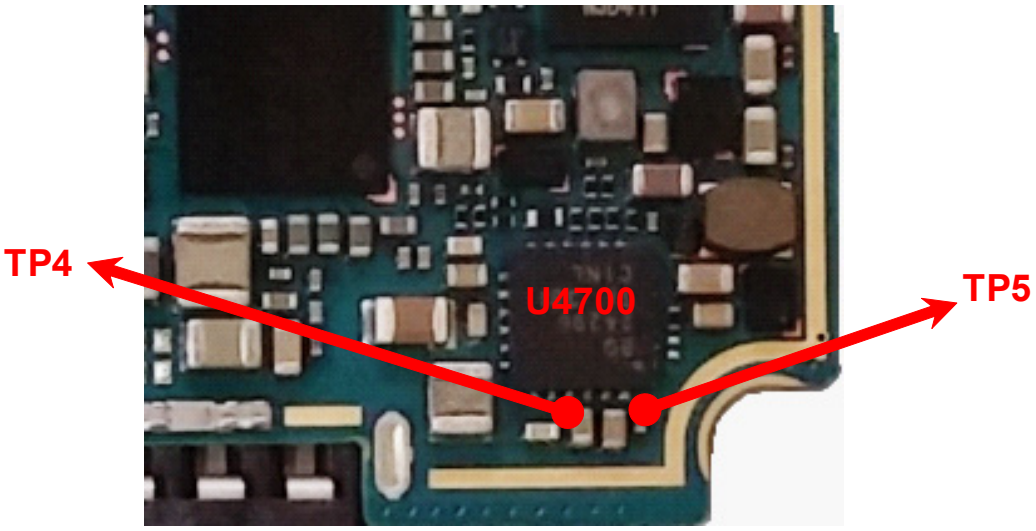


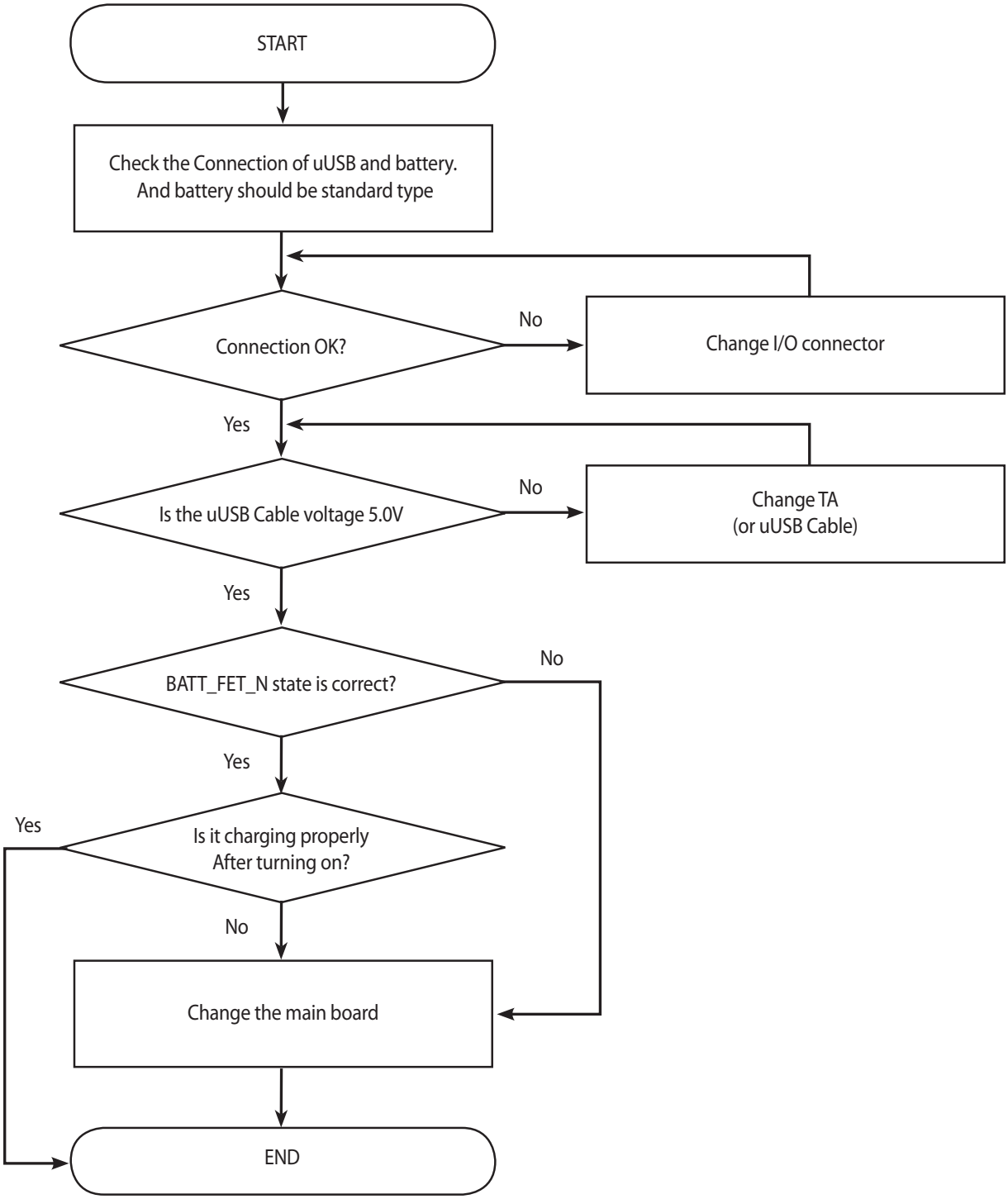




- AS990 uses BQ24296 (External charger IC) for charging control.
- Charging Procedure
  - Supply the VBUS_USB_IN_PM through a TA or u-USB cable
  - BQ24296 controls the charging current
  - Charging current flows into the main battery
- Troubleshooting Check Point
  - Connection of the TA or u-USB cable (OVP U4750)
  - Charging current path (Charger IC U4700)
  - Main battery
- During charging operation TP signal goes low and when stop charging goes high.



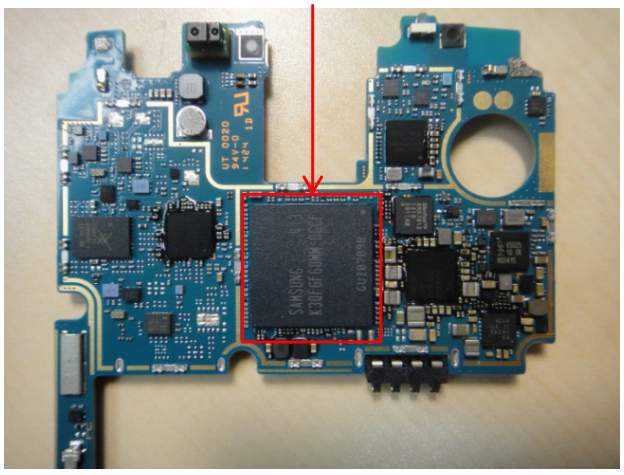




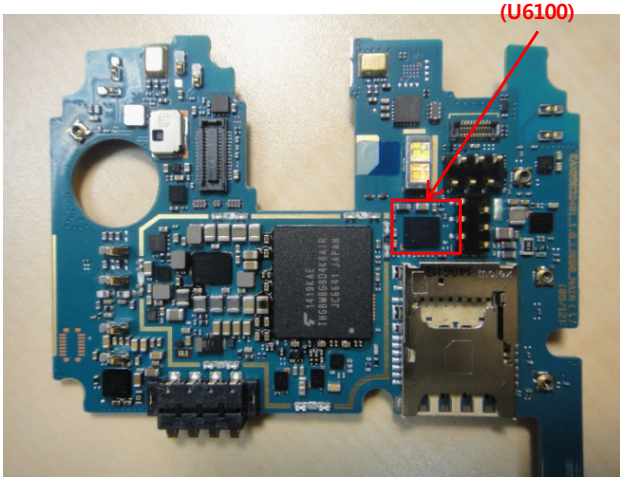
3.11 Audio

3.11.1 Overview (PCB & Circuit design)

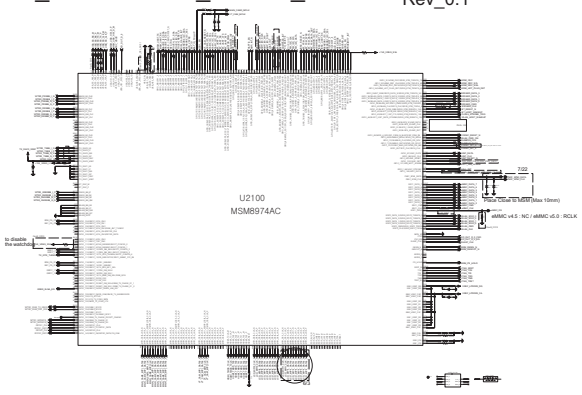
MSM8974 AC
(U2100)
It placed under memory



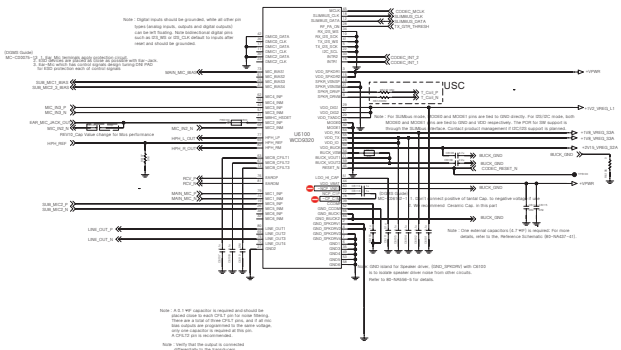
WCD9320
(U6100)



<2-1-2-2-1_MSM8974AB_Control_GPIO> Rev_0.1

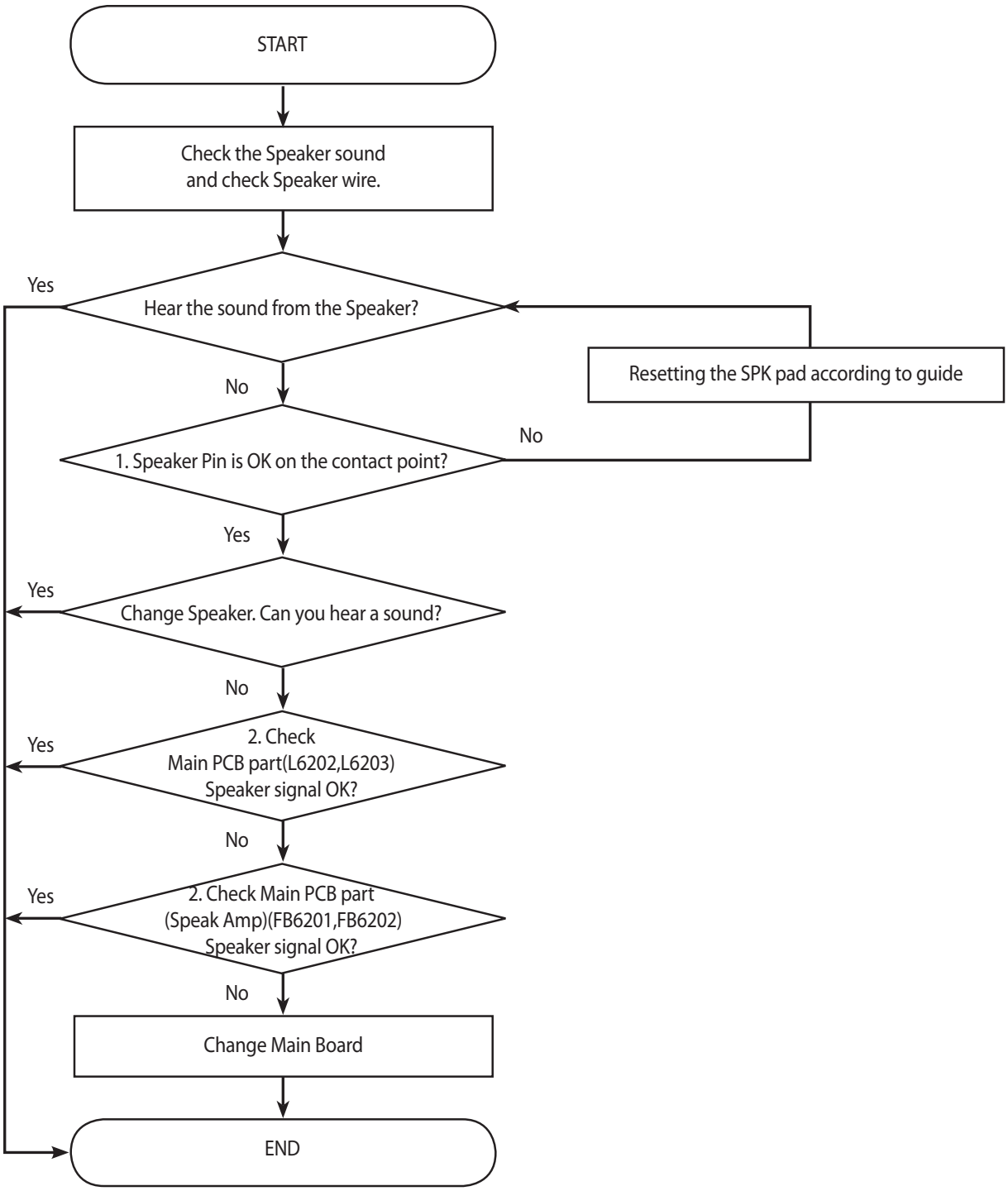


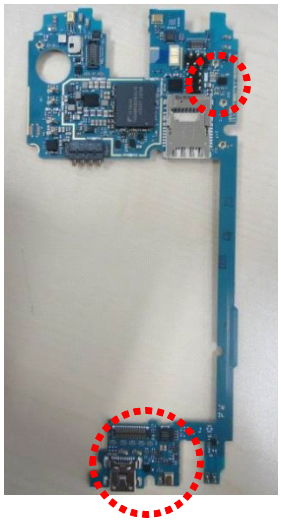
<6-1-1-5_WCD9320>

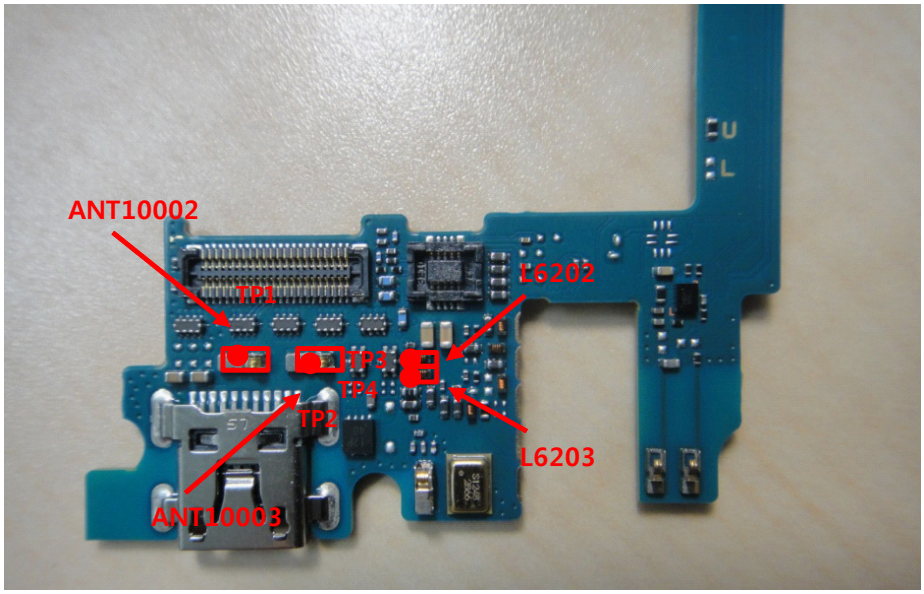


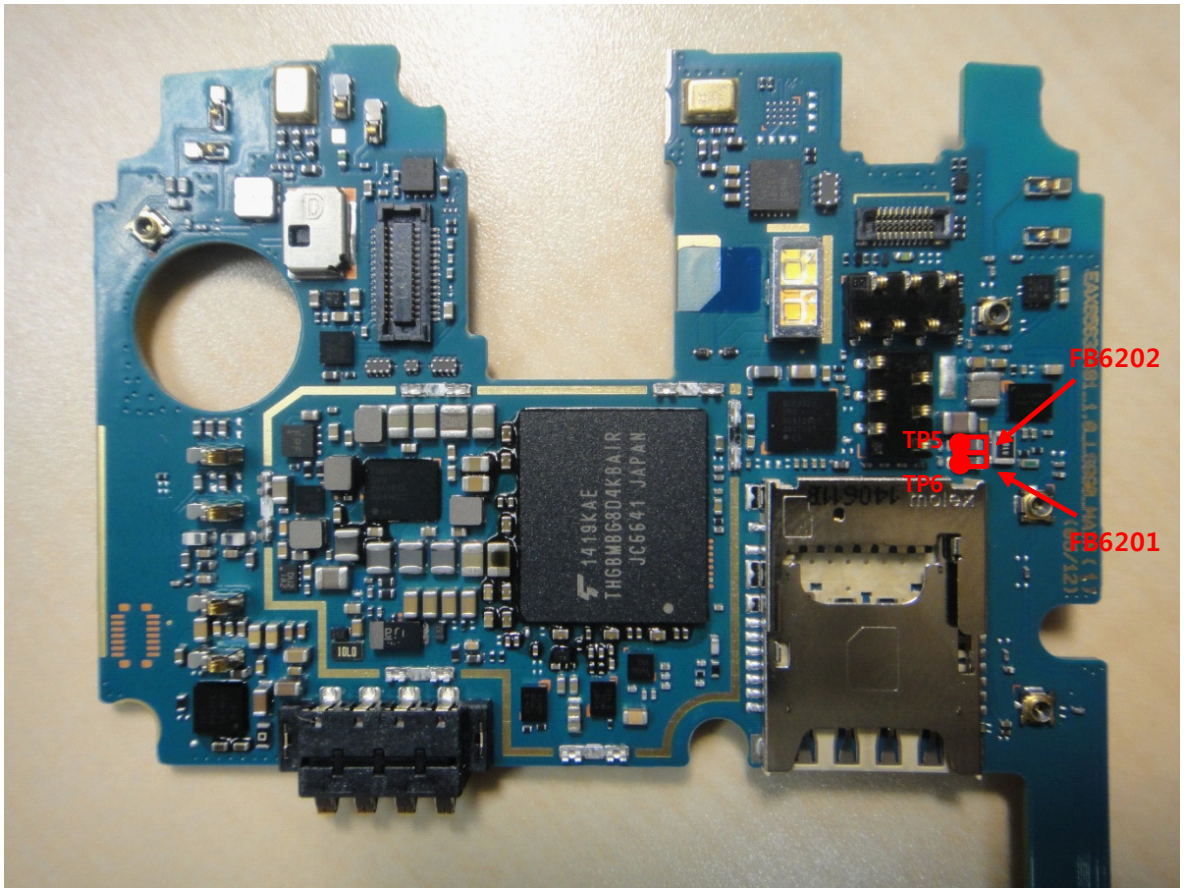
3.11.2 Speaker Trouble Shooting

It's trouble shooting guide for no sound case.
Speaker control signals are generate by MSM8974(U2100), WCD9320(U6100)
Speak Boost_Amp (U6200)

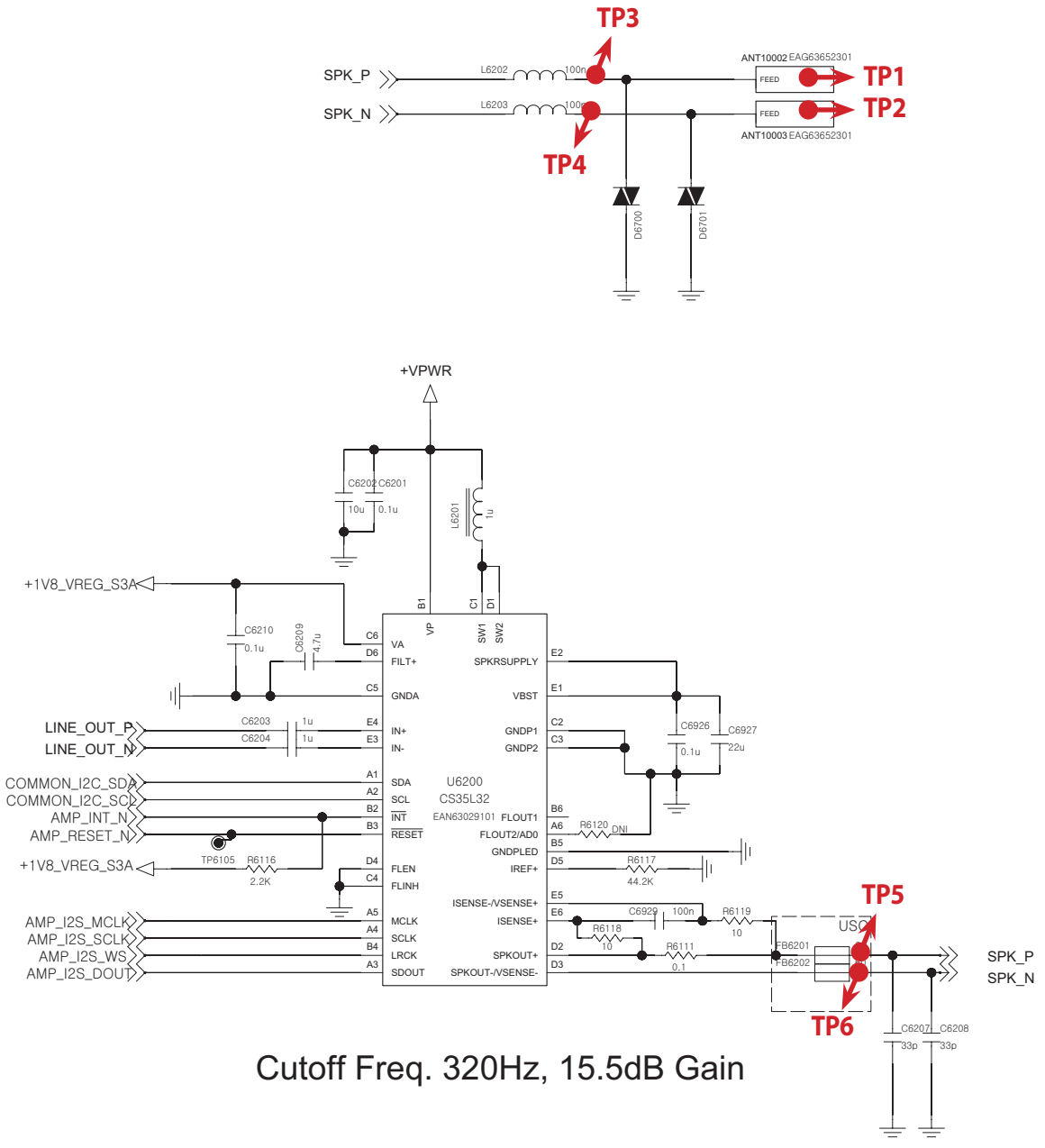








Speaker

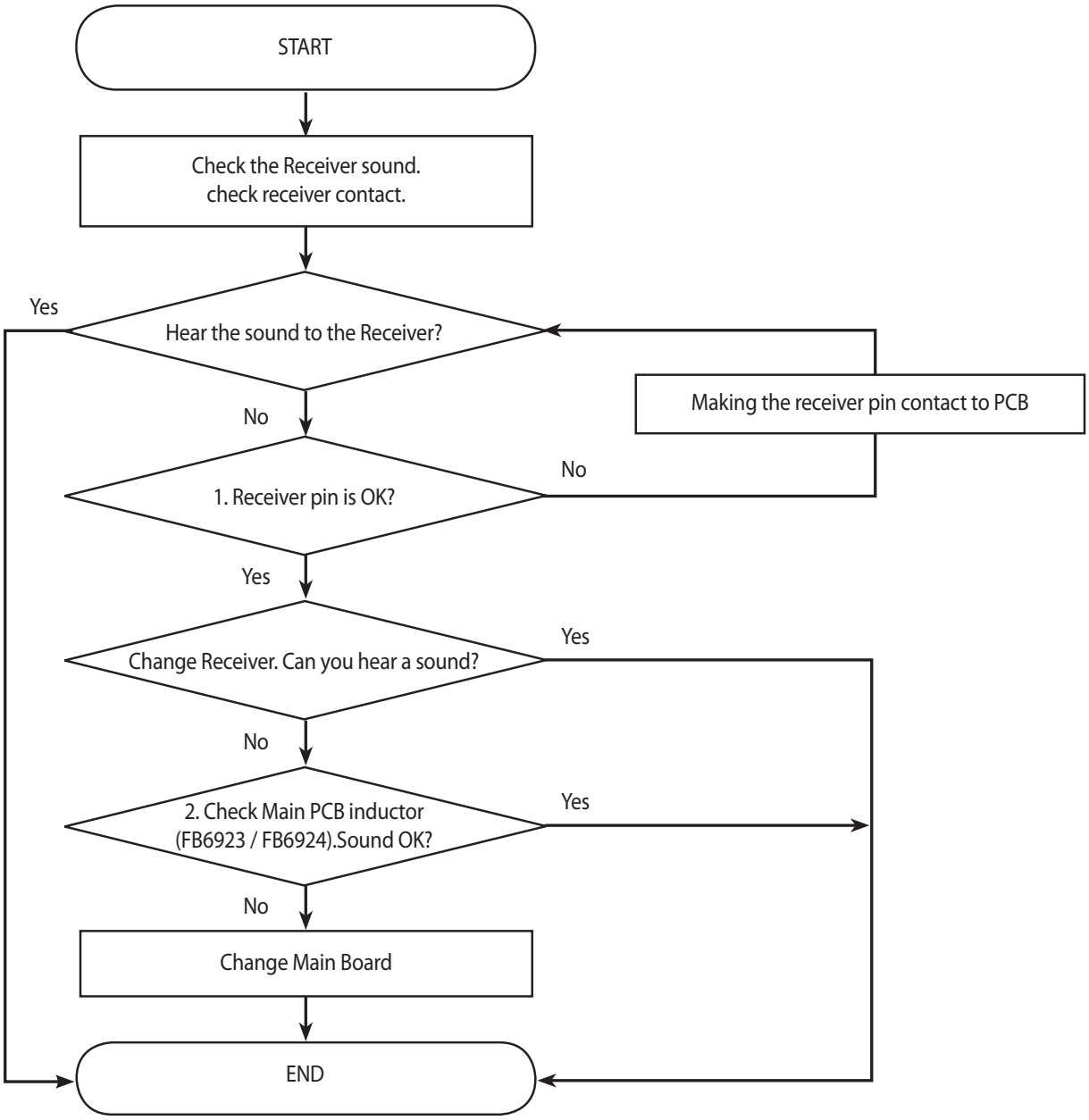


Cutoff Freq. 320Hz, 15.5dB Gain

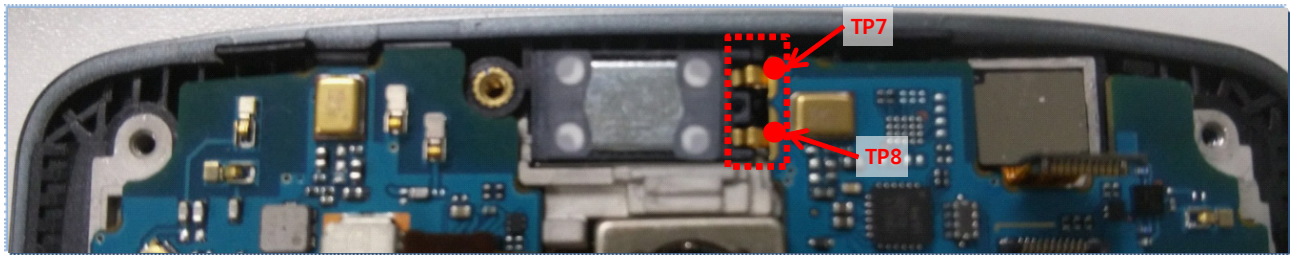
1. Speaker contact is OK on the contact point?
   check the ANT10002_TP1, ANT10003_TP2
2. Check PCB part (L6202_TP3, L6203_TP4). Speaker sound OK?
3. Check PCB part (FB6201_TP5, FB6202_TP6). Speaker sound OK?

3.11.3 Receiver Trouble Shooting

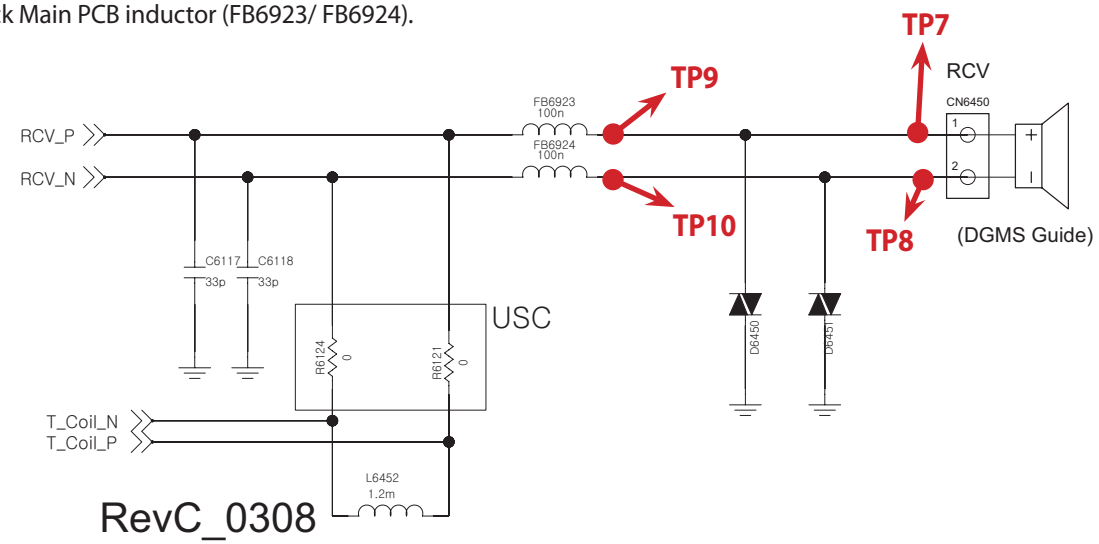
Receiver control signals are generate by MSM8974(U2100), WCD9320(U6100)
Voice Receiving path as below :
MSM8974 -> WCD9320 -> EAROP/EARON -> Receiver

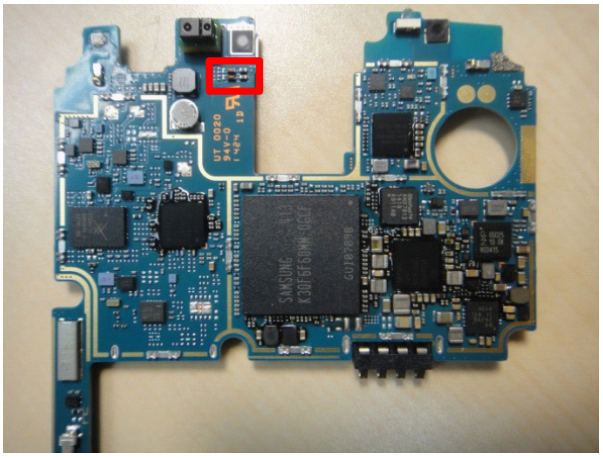


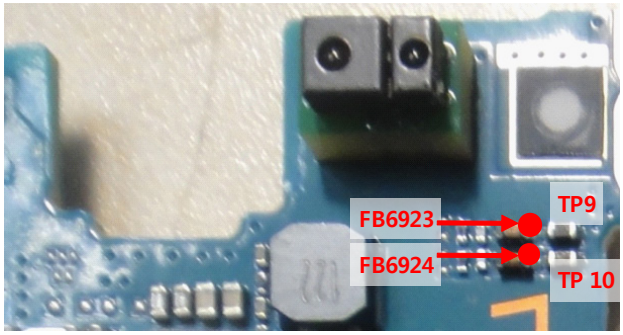
1. Receiver pin is OK? Checking the receiver pin and PCB are contacted well.



2. Check Main PCB inductor (FB6923/ FB6924).



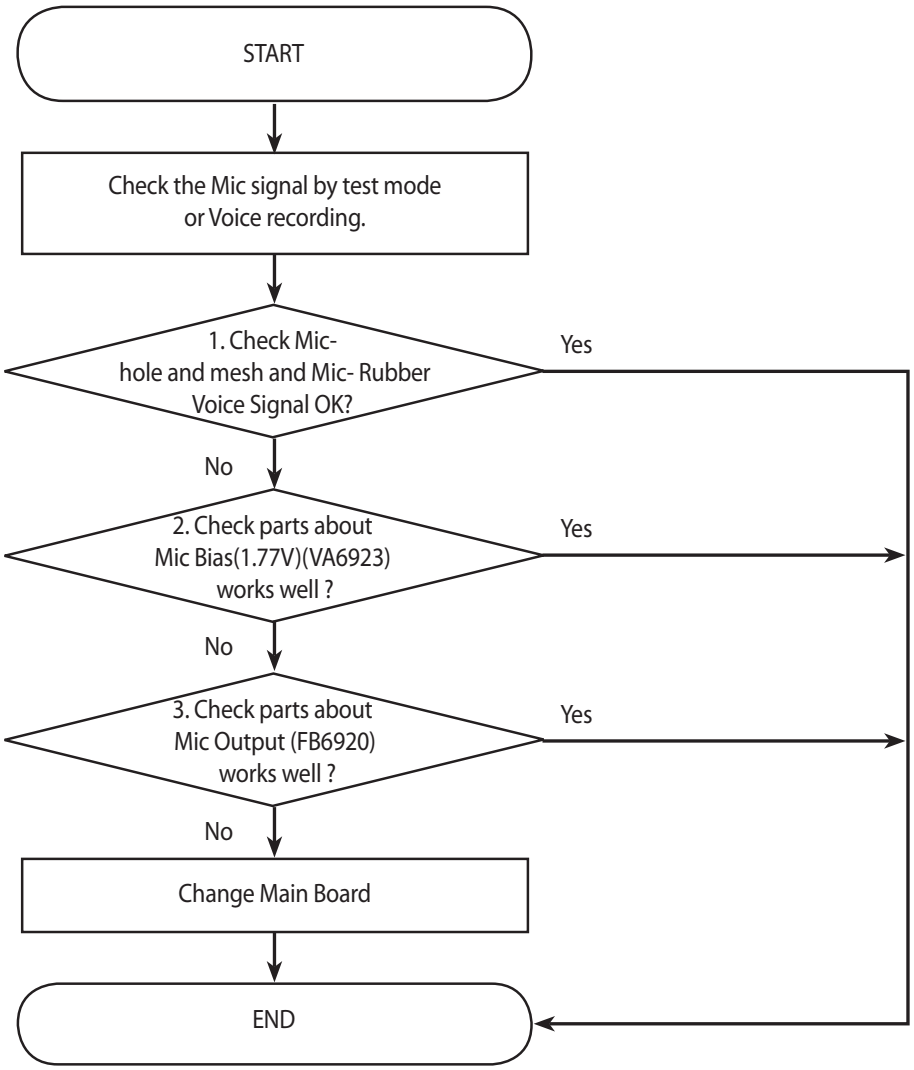




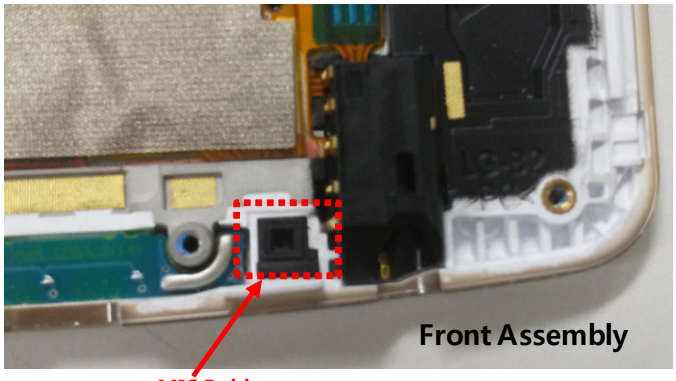
In case of No Receiver sound, not only Receiver fault but MIC fault.
You must check the voice recording test first. After voice recording, if you could hear the recorded sound, It is nor MIC fault And receiver path or parts is something wrong.

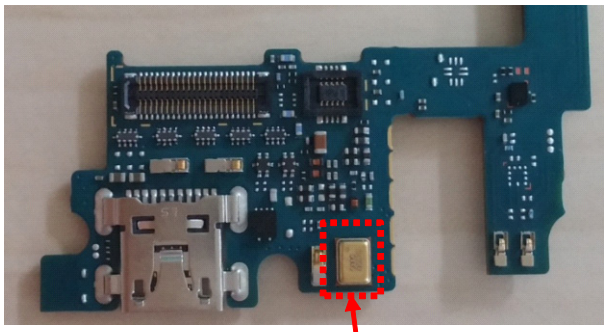
3.11.4 Main MIC Trouble Shooting

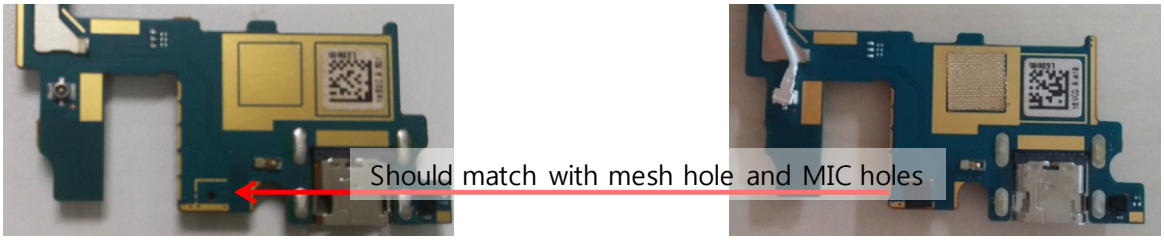
A Main MIC is located at the bottom of PCB
It operates in case of voice call (handset), voice recording, camcorder recording



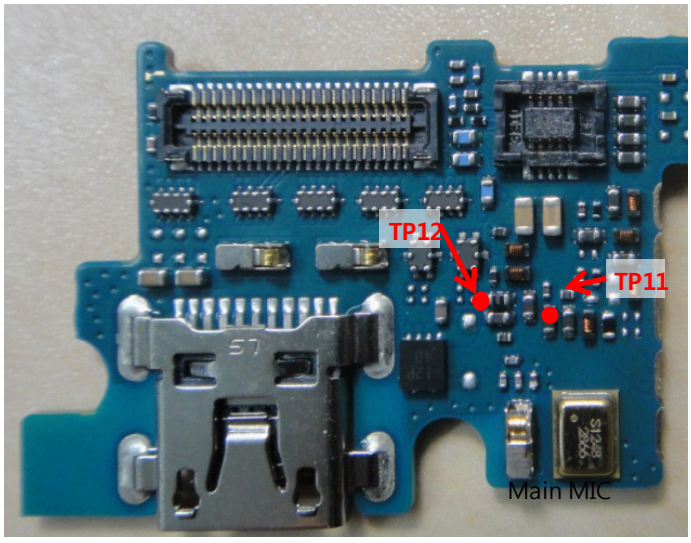
1. Check Mic Rubber, MIC Mesh. Voice Signal OK?

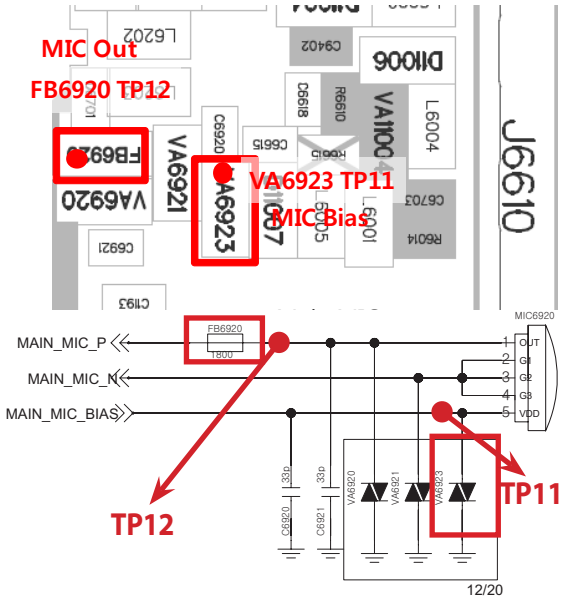




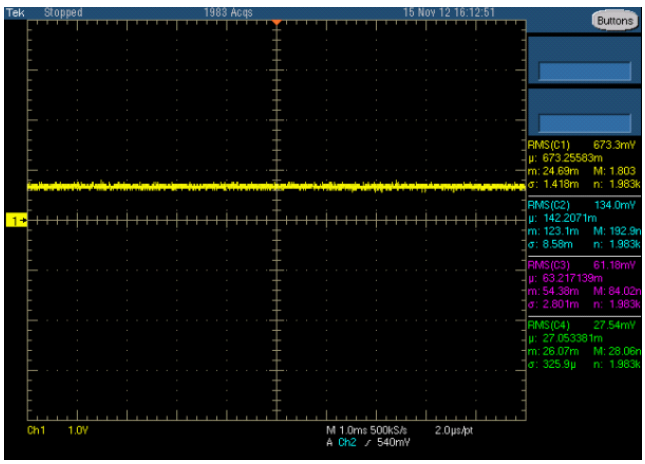
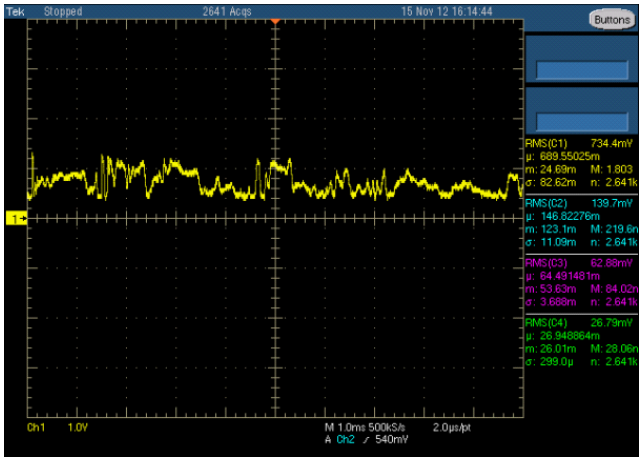
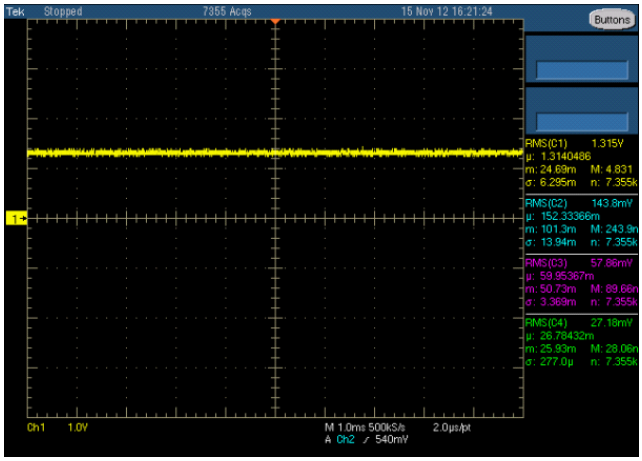


2. Check parts about Mic Bias(VA6923_TP11) works well (about 1.77V) ?
3. Check parts about Mic Output (FB6920_TP12) works well ?
– waveform moves with oscilloscope



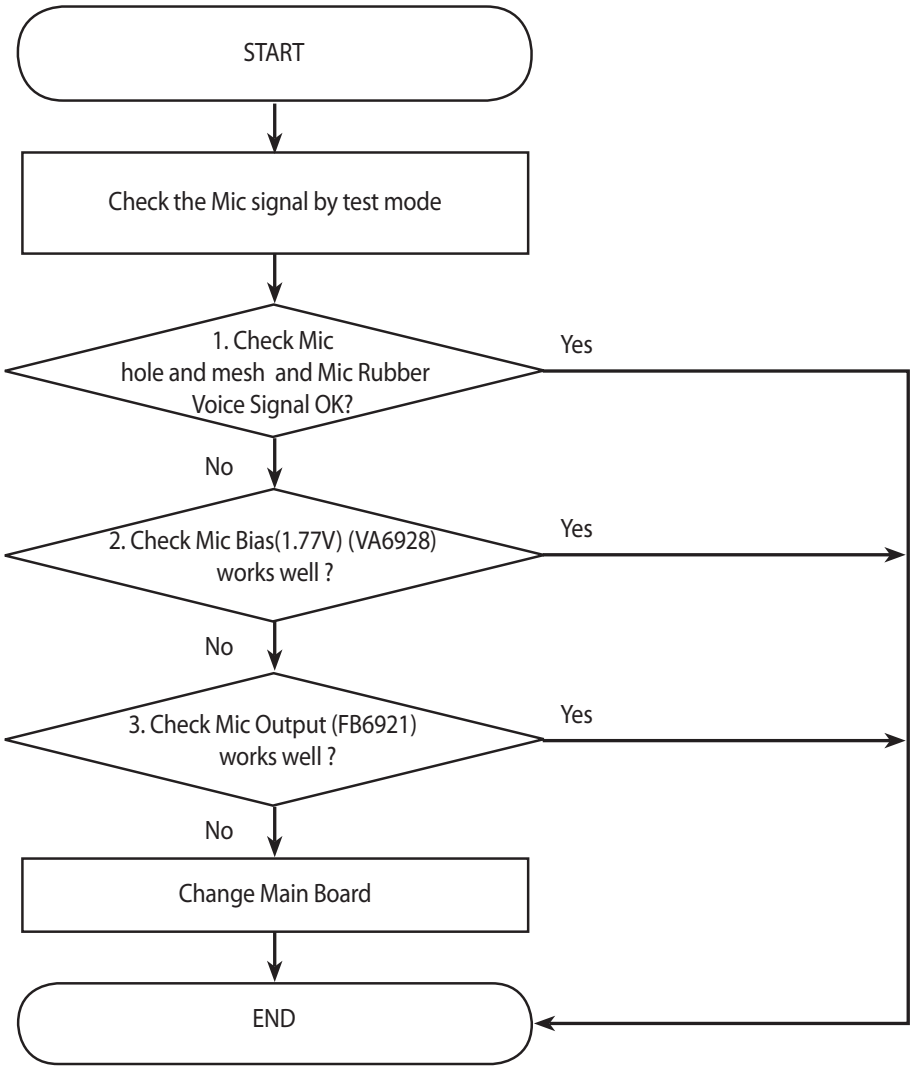


waveform with oscilloscope

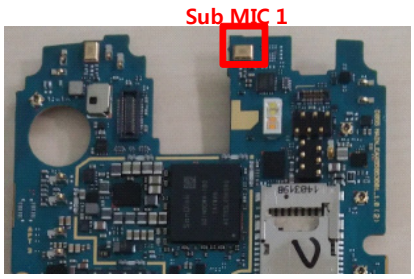
Normal MIC Out Signal (Idle)		About 0.7V (Flat)
Normal MIC Out Signal (Voice Input)		Moves(Dynamic)
Malfunction MIC Out Signal (Idle and Voice Input)		1.31V (fixed)

3.11.5 Sub MIC 1 Trouble Shooting

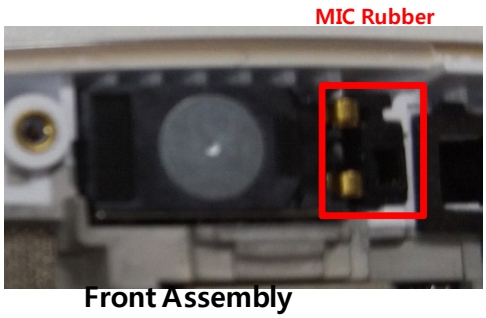
A sub MIC1 (called MIC 2 during Loopback Test) is located beside reciver.
It operates in case of camcorder recording



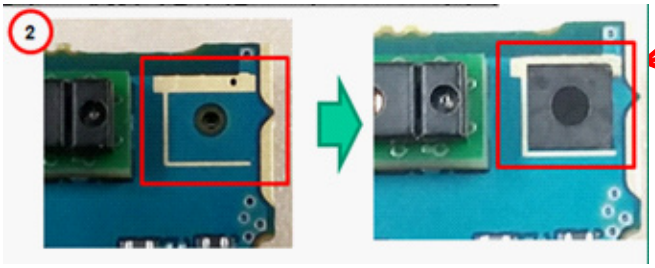
1. Check Mic hole and mesh Mash on PCB and Mic Rubber in Front Ass'y.
   Voice Signal OK?



Main PCB

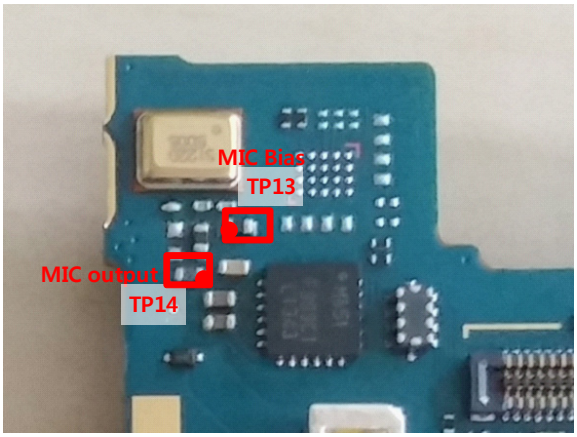


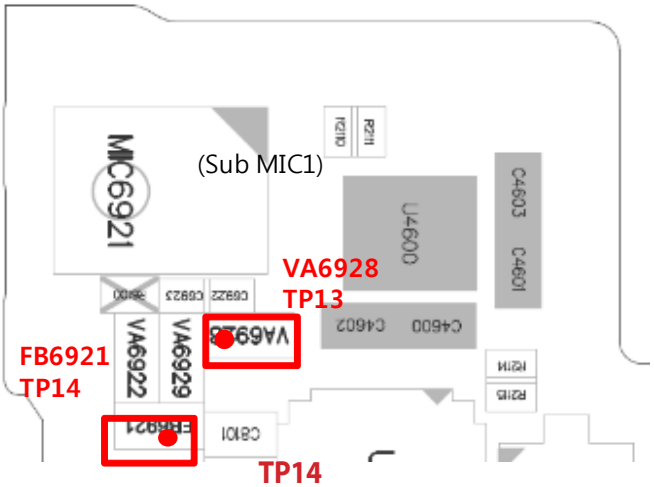
Front Assembly

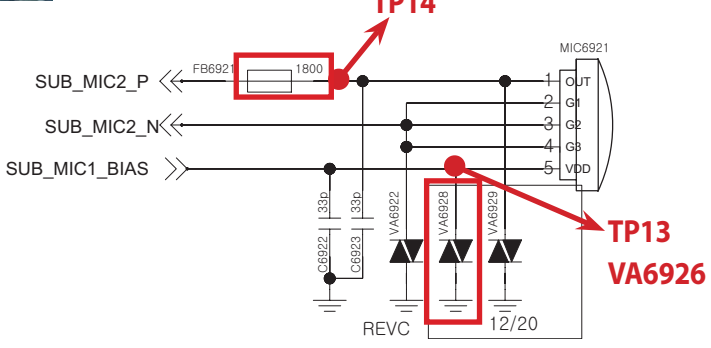


Should match with mesh hole and MIC holes

2. Check parts about Mic Bias(VA6928_TP13) works well (about 1.77V) ?
3. Check parts about Mic Output (FB6921_TP14) works well ?
   – waveform moves

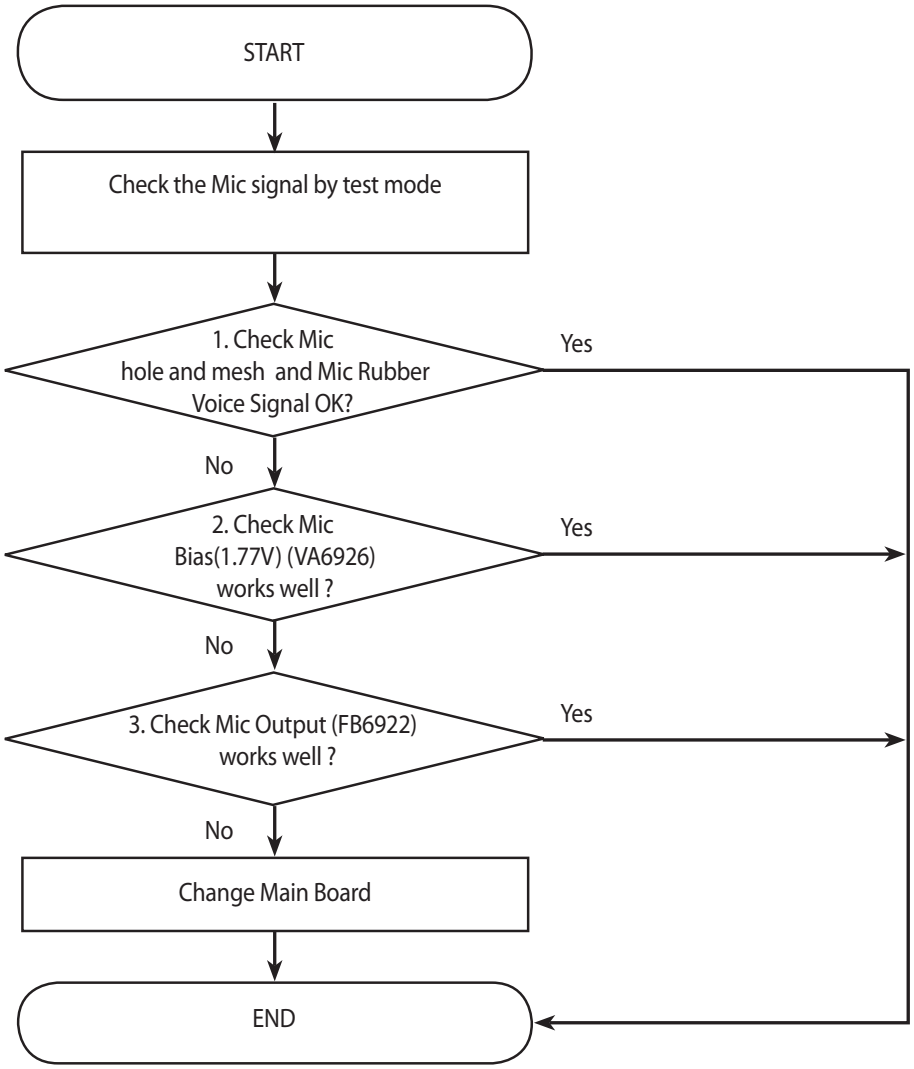




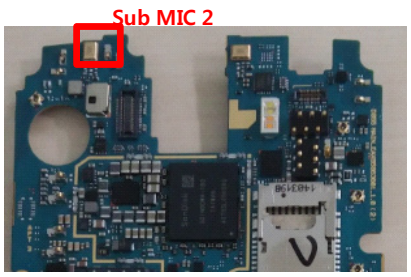


3.11.5 Sub MIC 2 Trouble Shooting

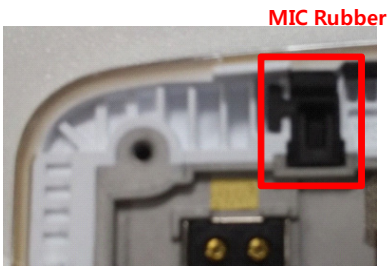
A sub MIC2 (called MIC 3 during Loopback Test) is located at the top of PCB
It operates in case of voice call (Speaker phone).



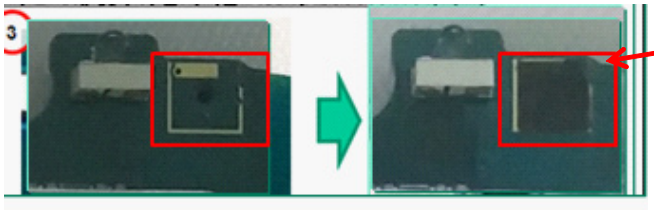
1. Check Mic hole and mesh Mash on PCB and Mic Rubber in Front Ass'y.
   Voice Signal OK?



Main PCB

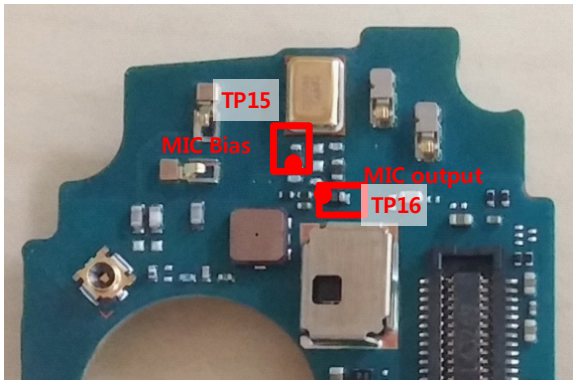


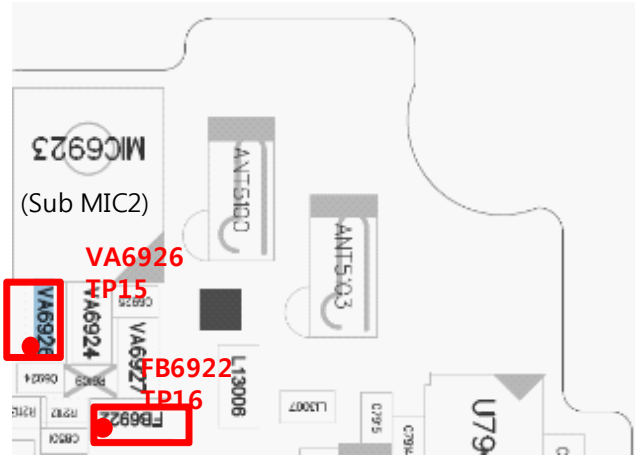
Front Assembly

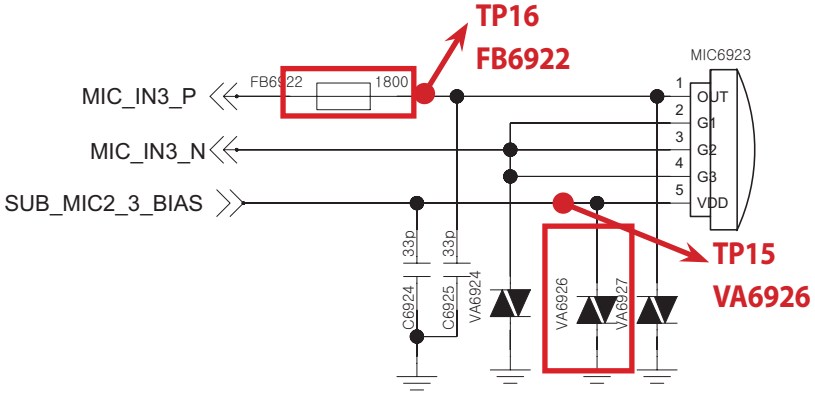


Should match with mesh hole and MIC holes

2. Check parts about Mic Bias(VA6926_TP15) works well (about 1.77V) ?
3. Check parts about Mic Output (FB6922_TP16) works well ?
   – waveform moves



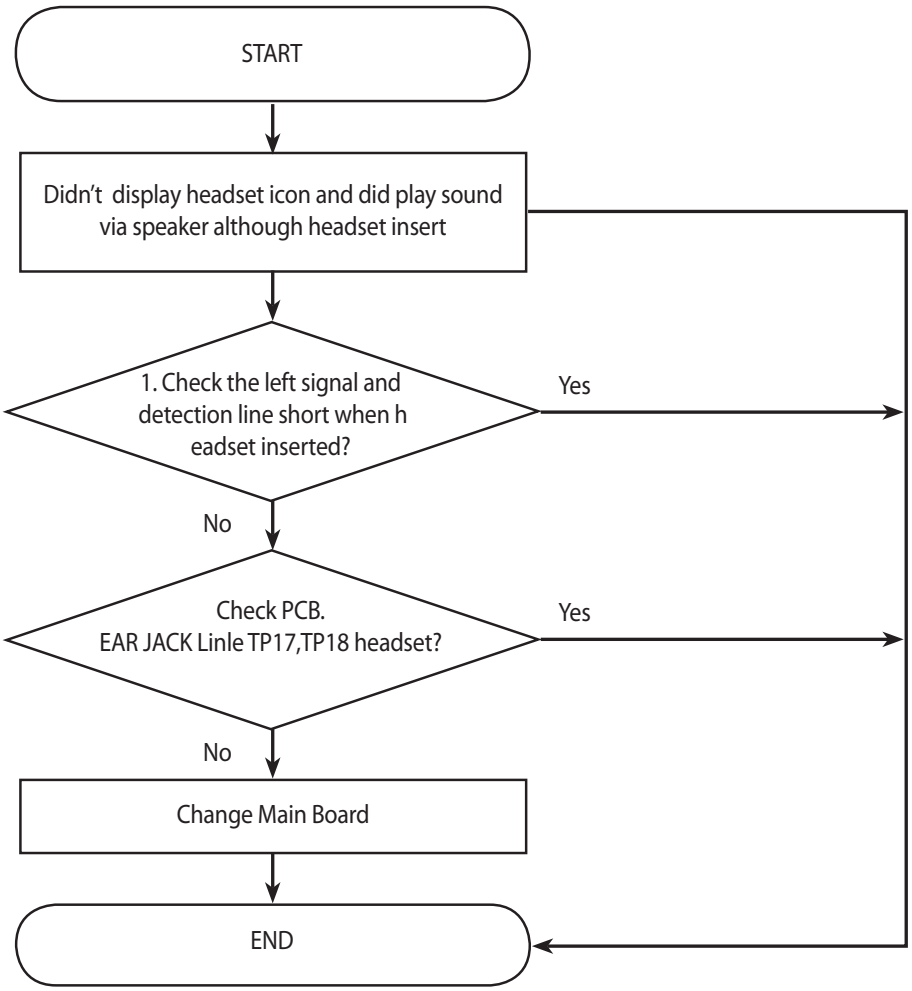




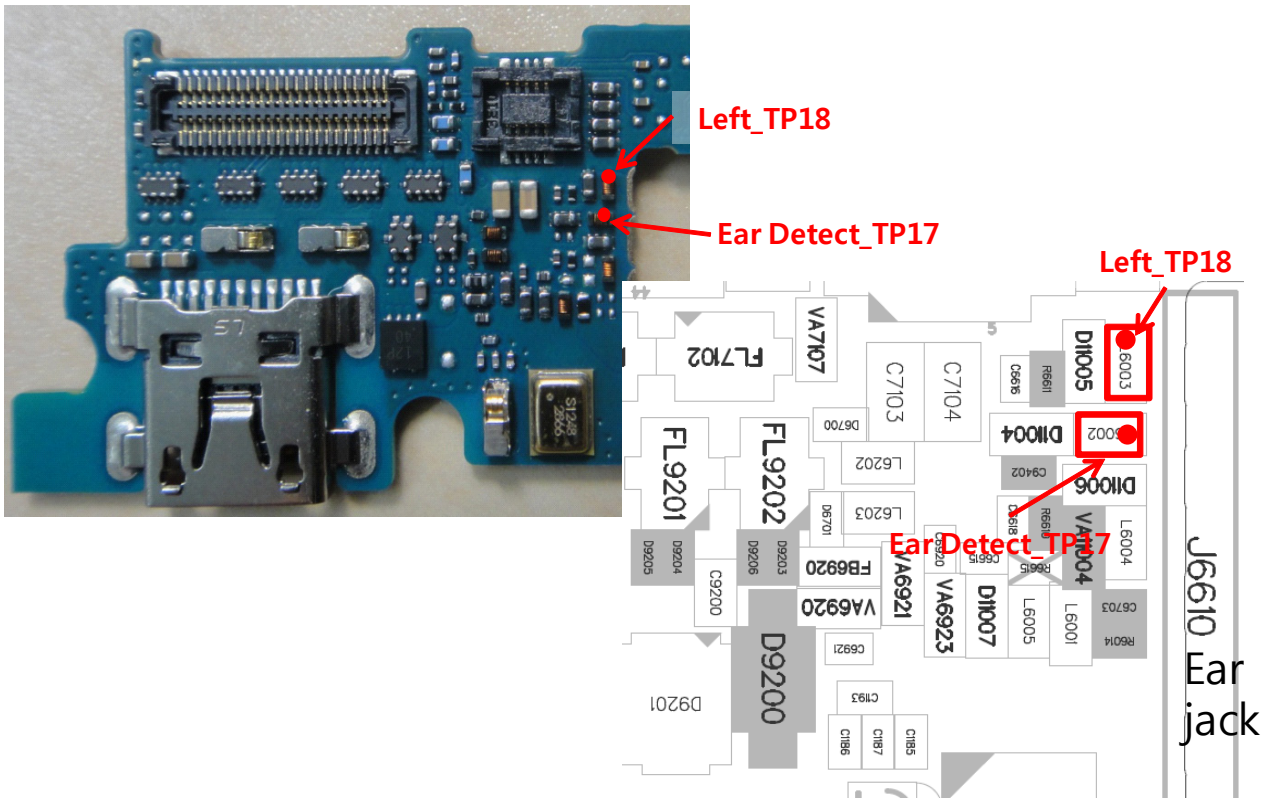
3.11.6 Ear-MIC Trouble Shooting

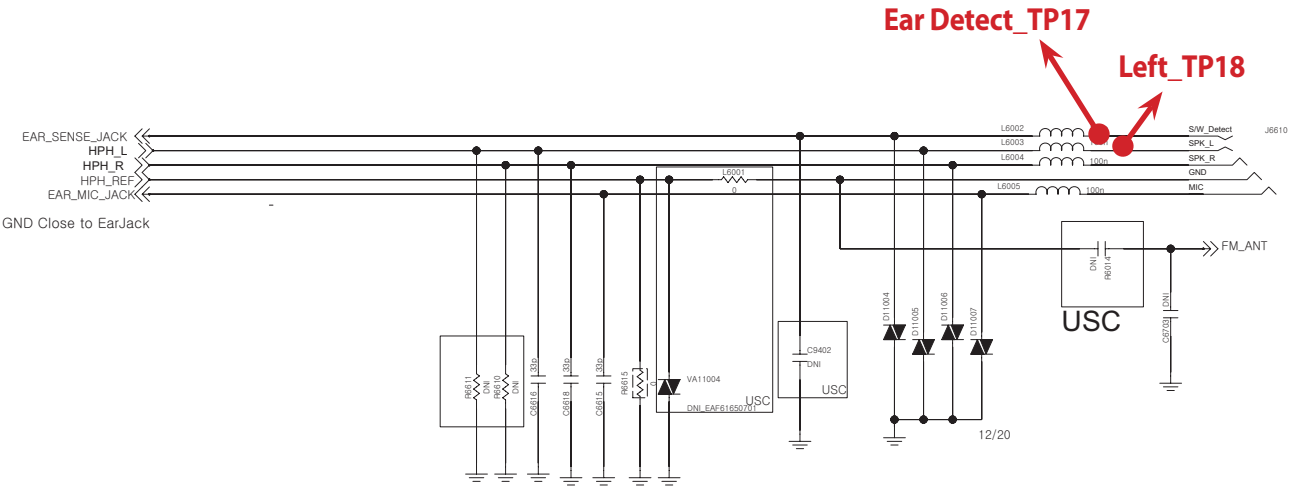
Ear MIC control signals are generate by MSM8974AC(U2100), WCD9320(U6100)

Case A. Unable detection of headset insert.

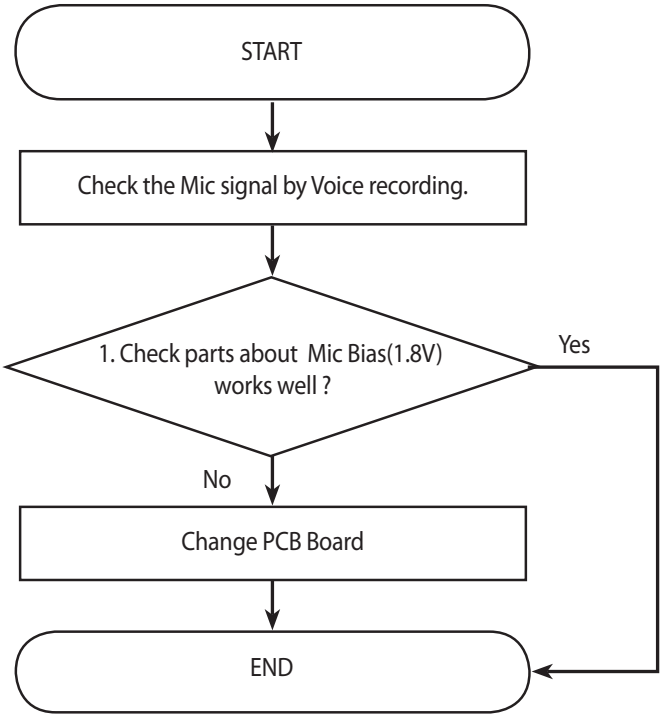


1. Check the left signal(HPH_L)(L6003 TP18) and detection line(EAR_SENSE_JACK)(L6002 TP17) are shorted when headset inserted. See PCB Contact terminal also.

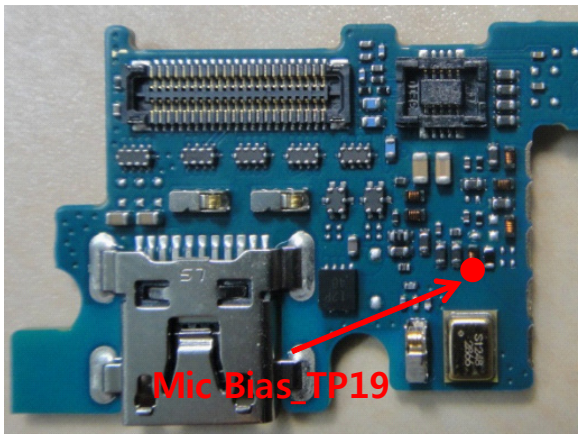


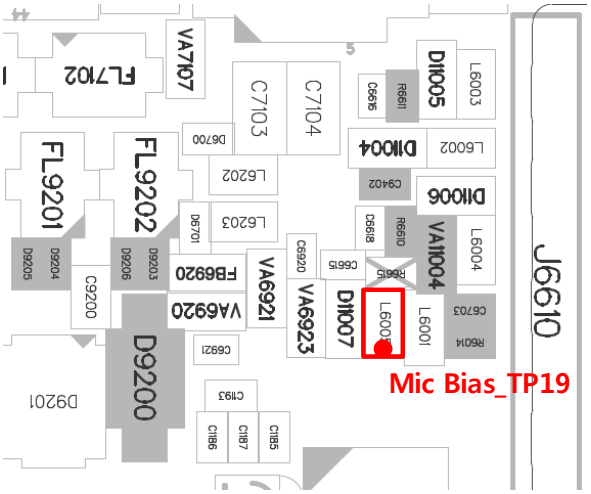


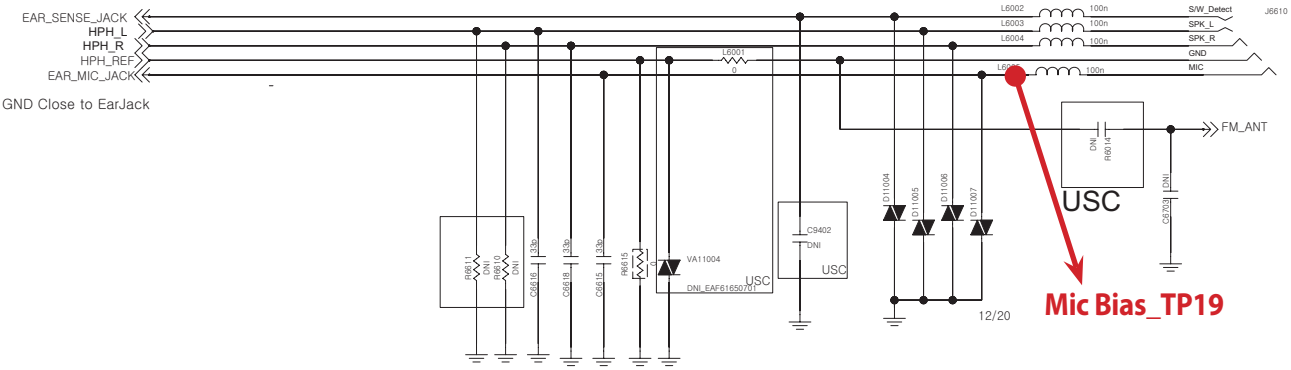
Case B. No Sound from Ear-mic



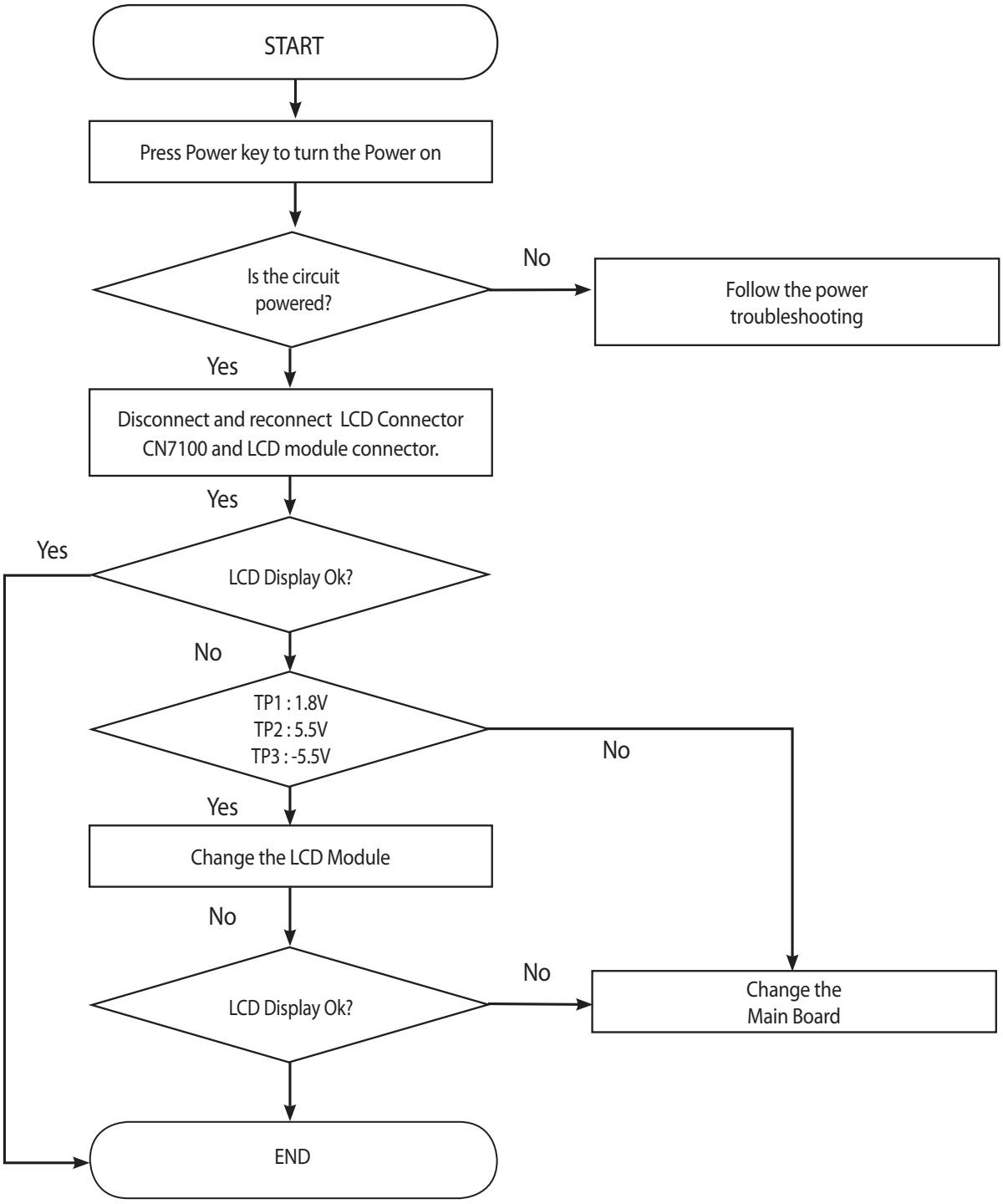
1. Check parts about Mic Bias(1.8V) (L6005) works well ?

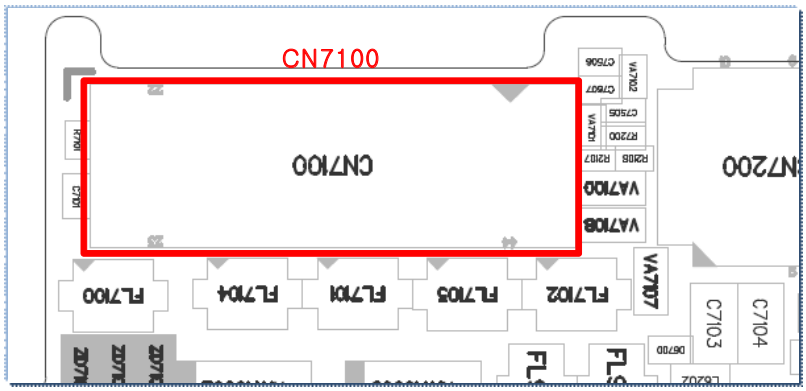


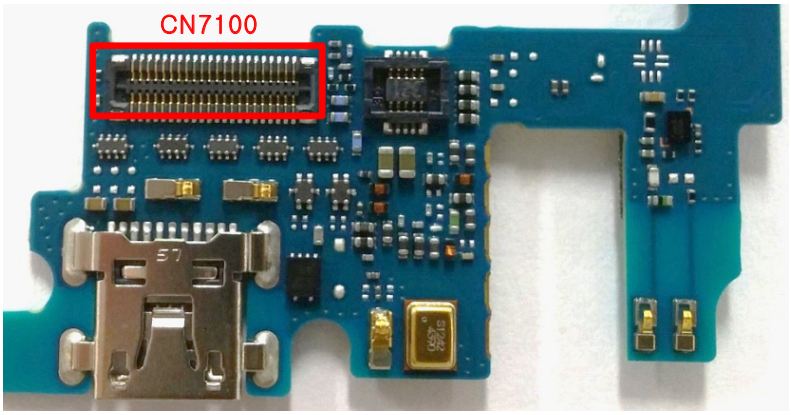


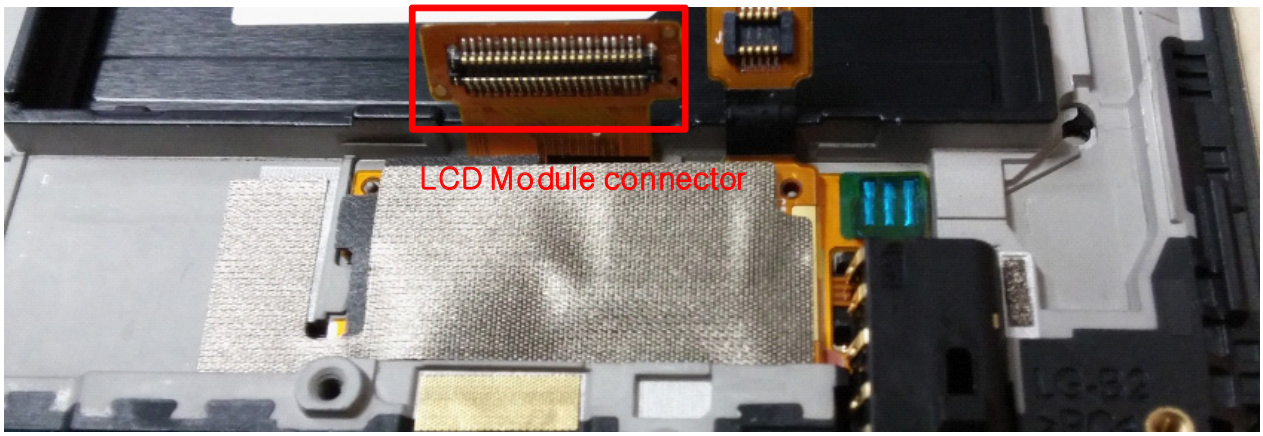


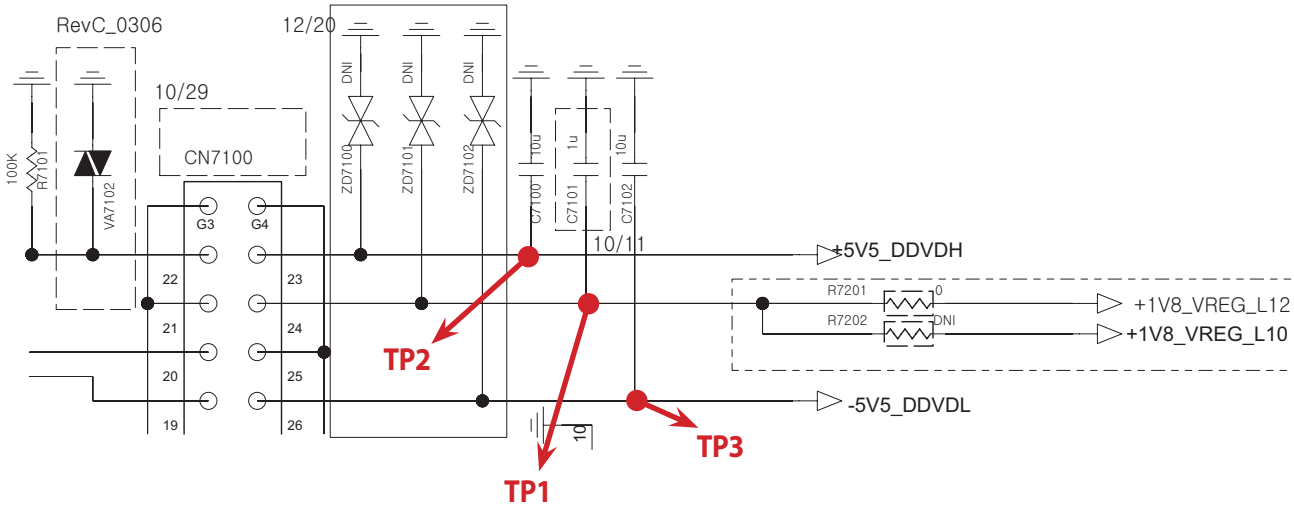
3.12 LCD

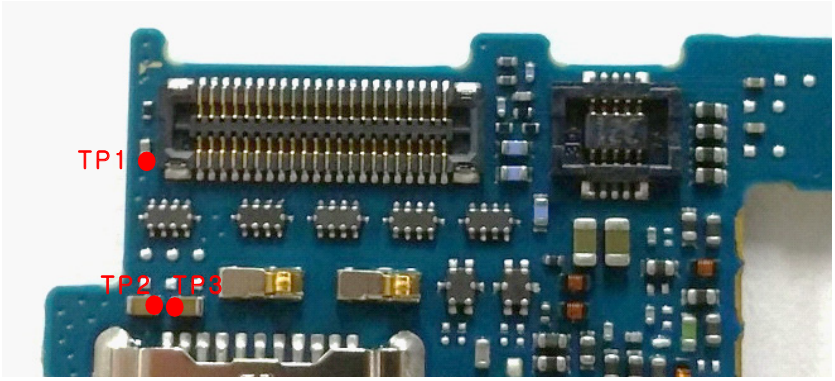






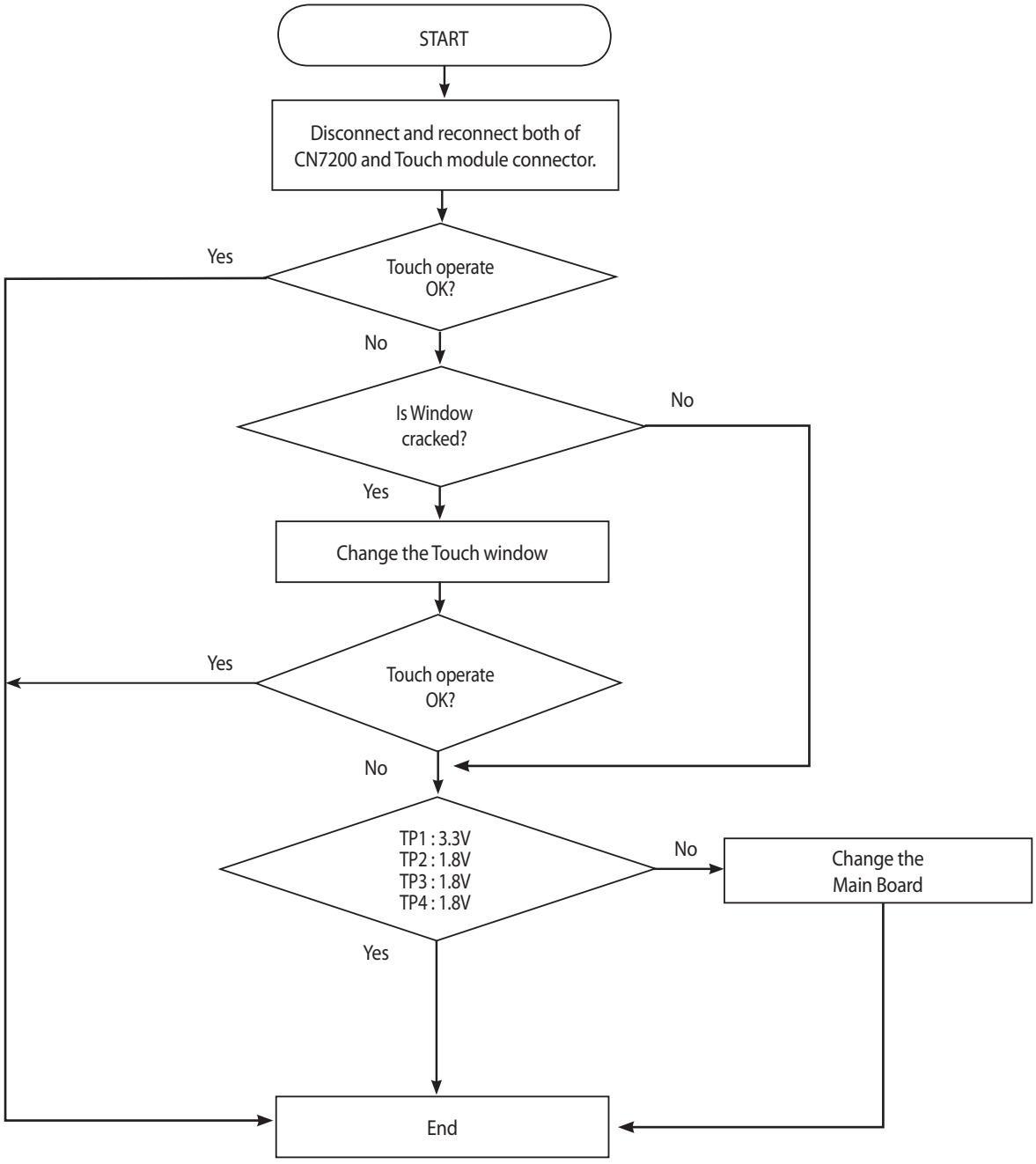


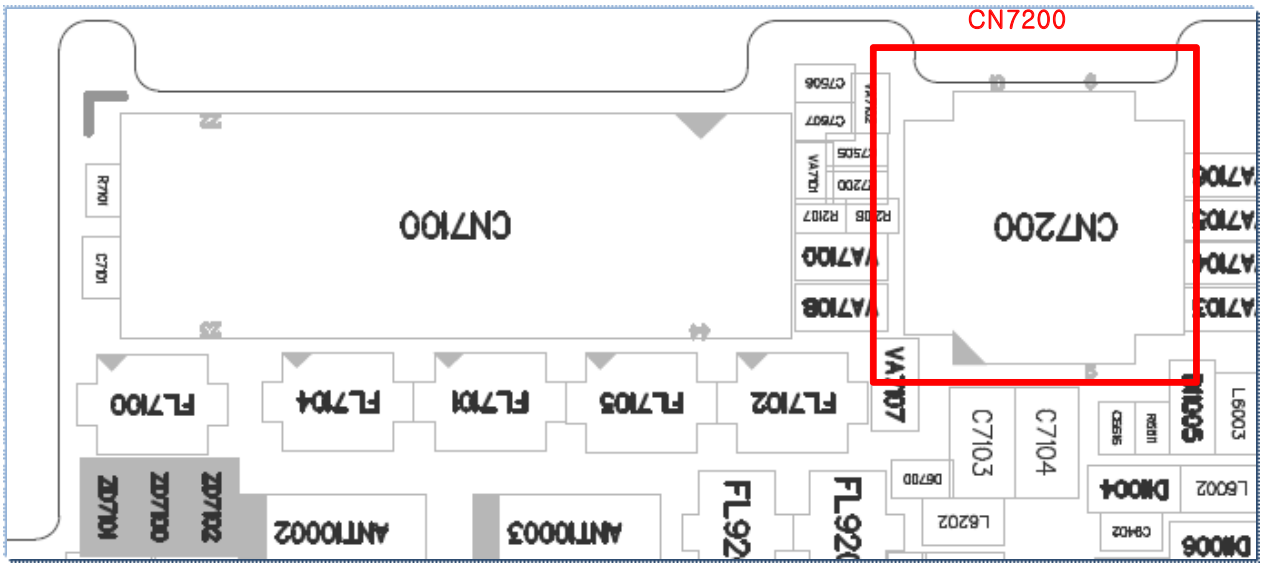


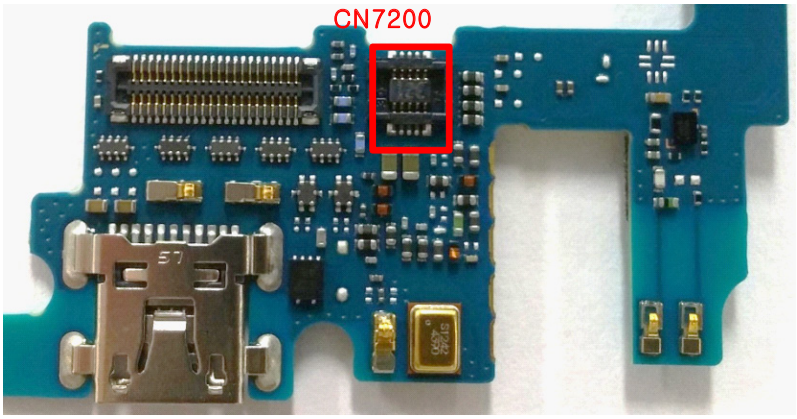


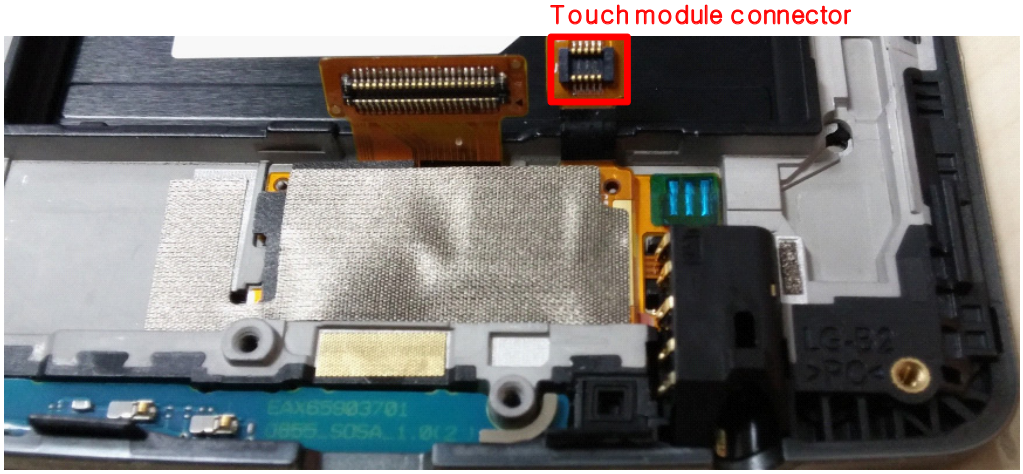
3.13 Touch

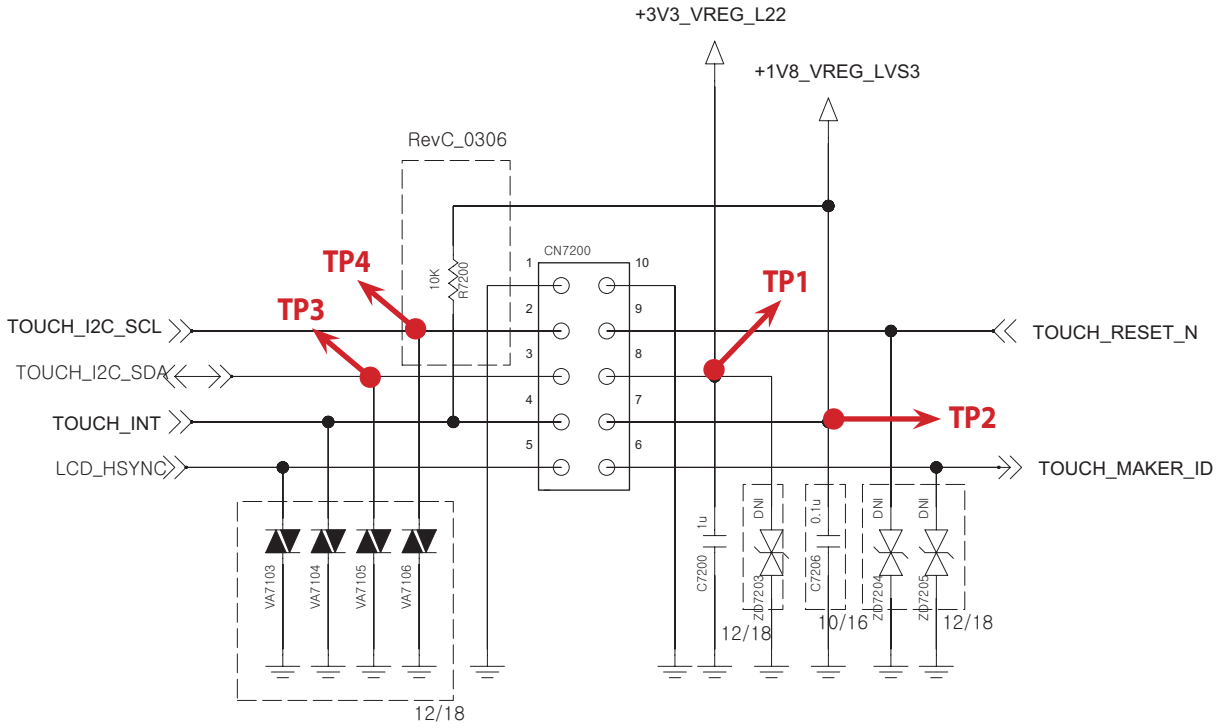
Touch control signals are generated by touch sensor.
Those signal's path are touch sensor -> MSM8974

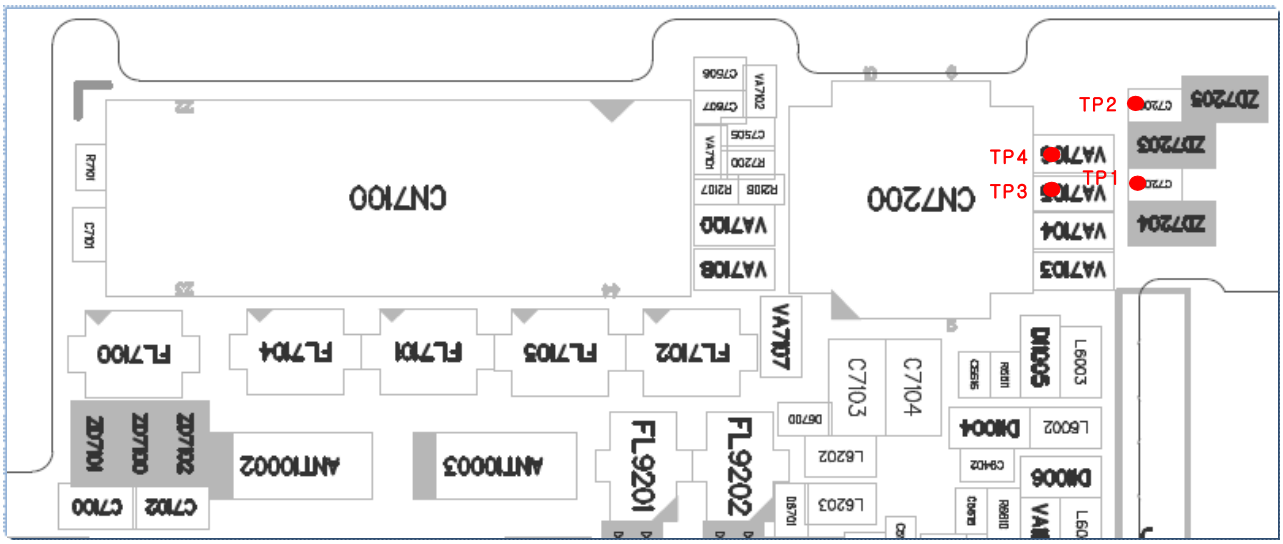


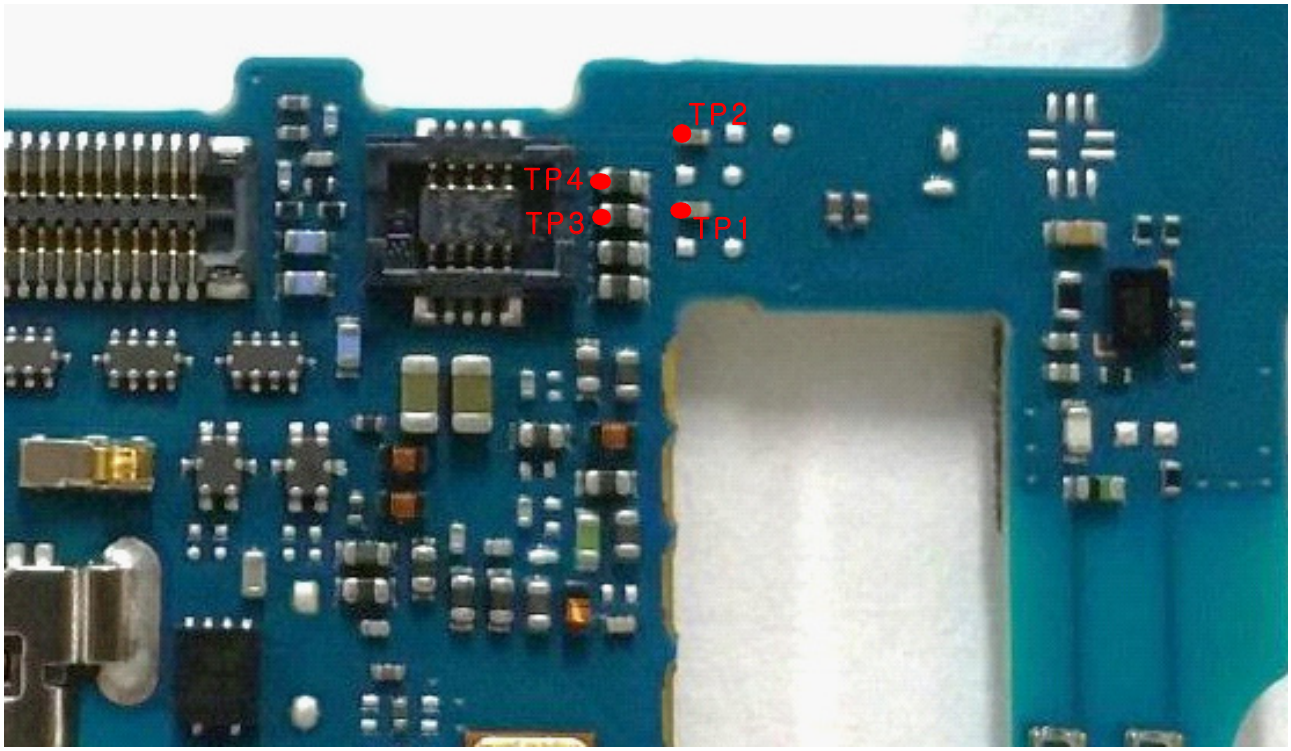






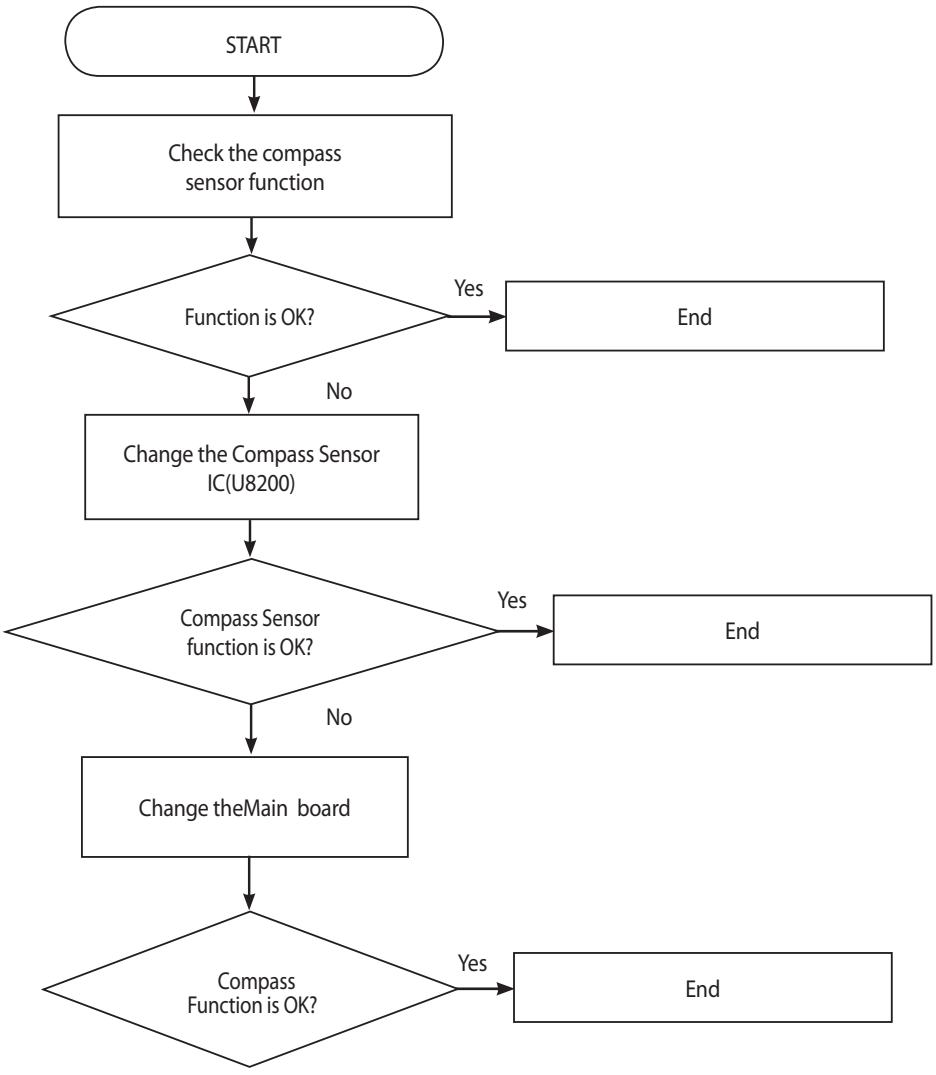


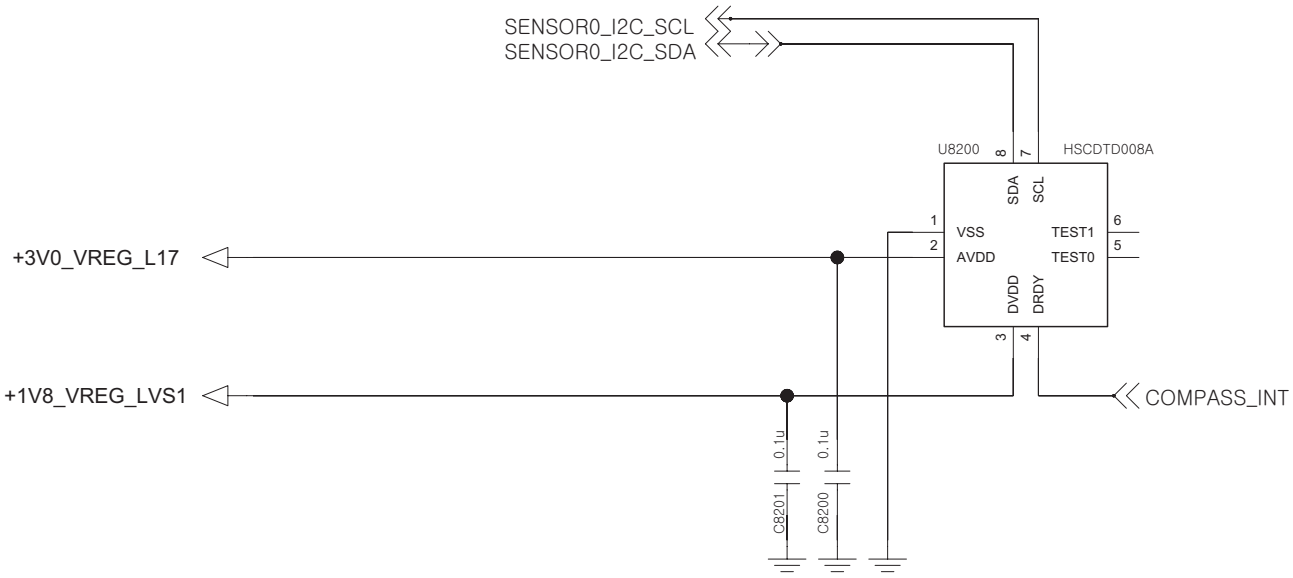


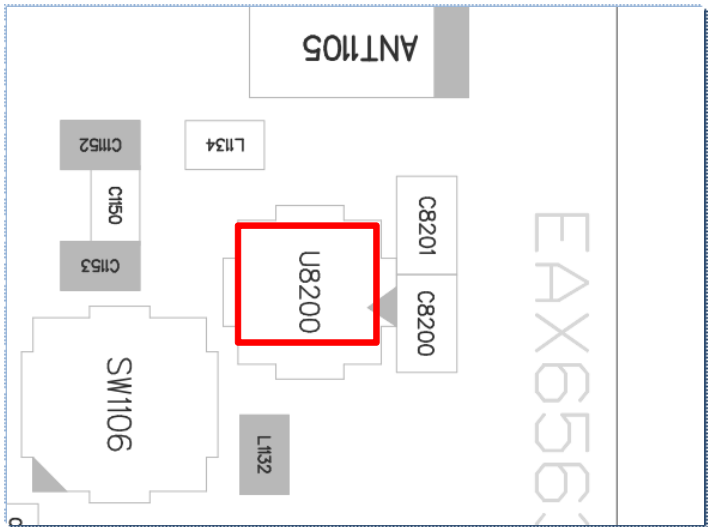


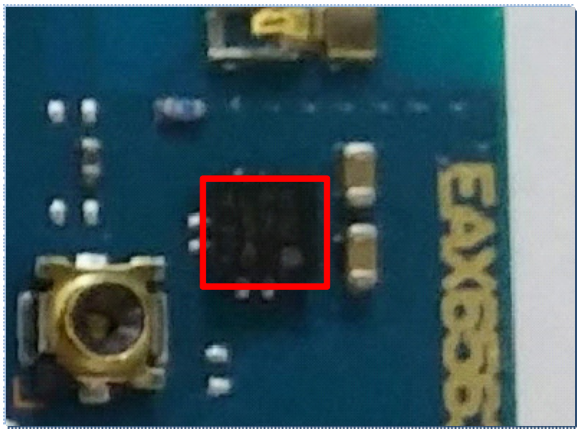
3.14 Sensor

3.14.1 Compass + Motion Sensor

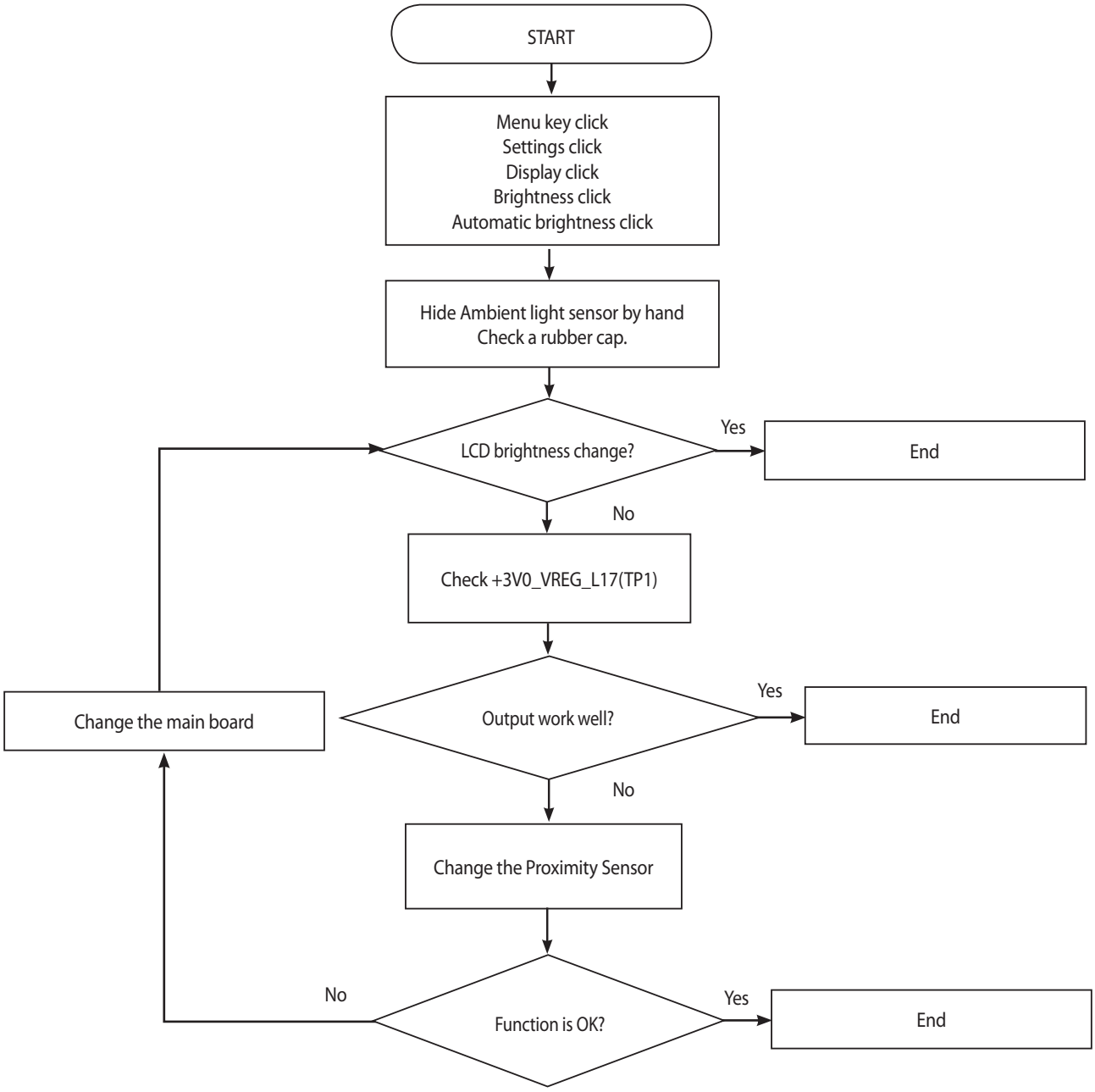


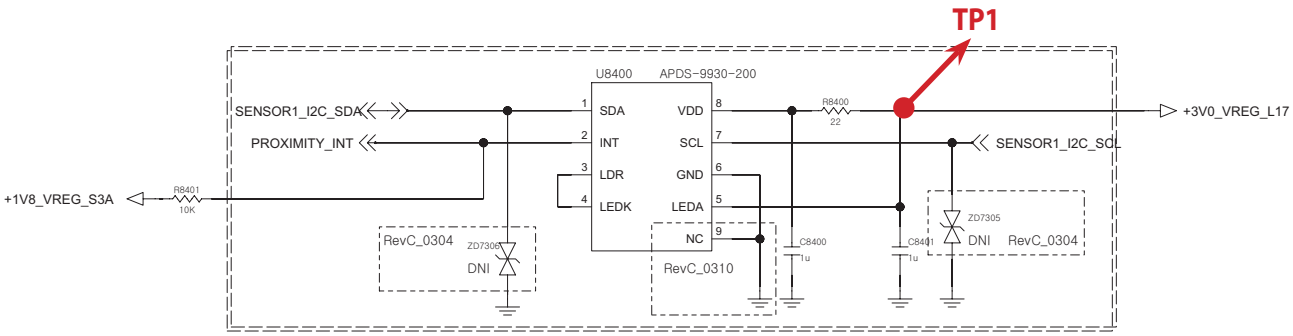


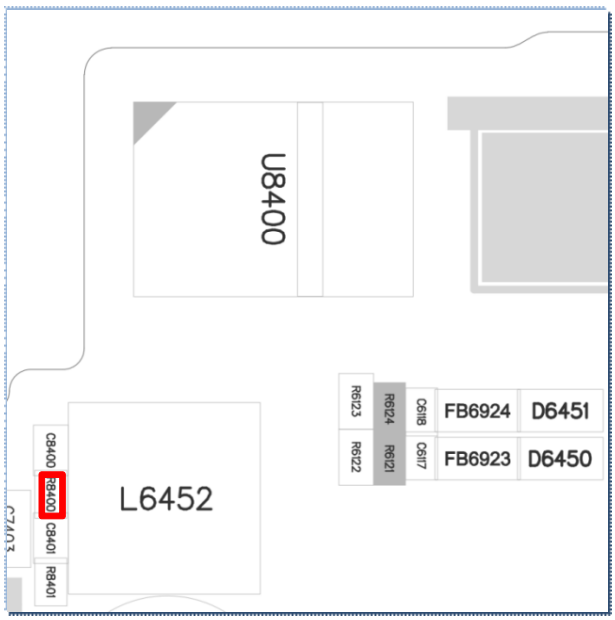


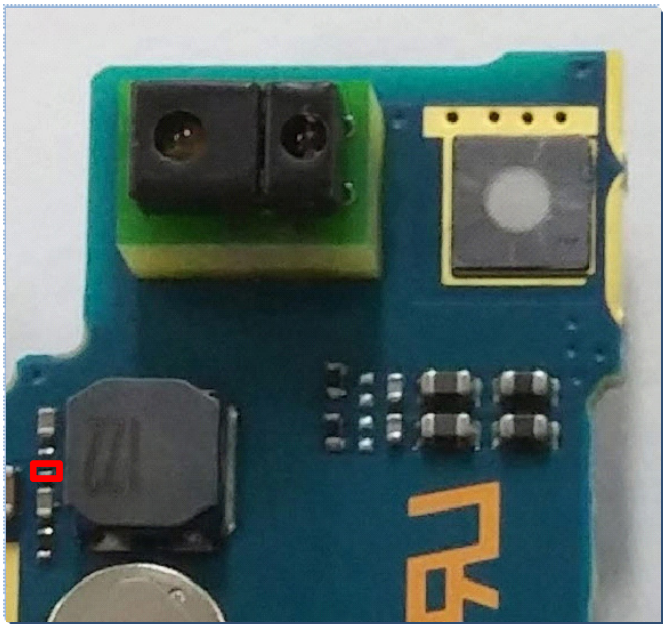


3.14.2 Ambient light sensor





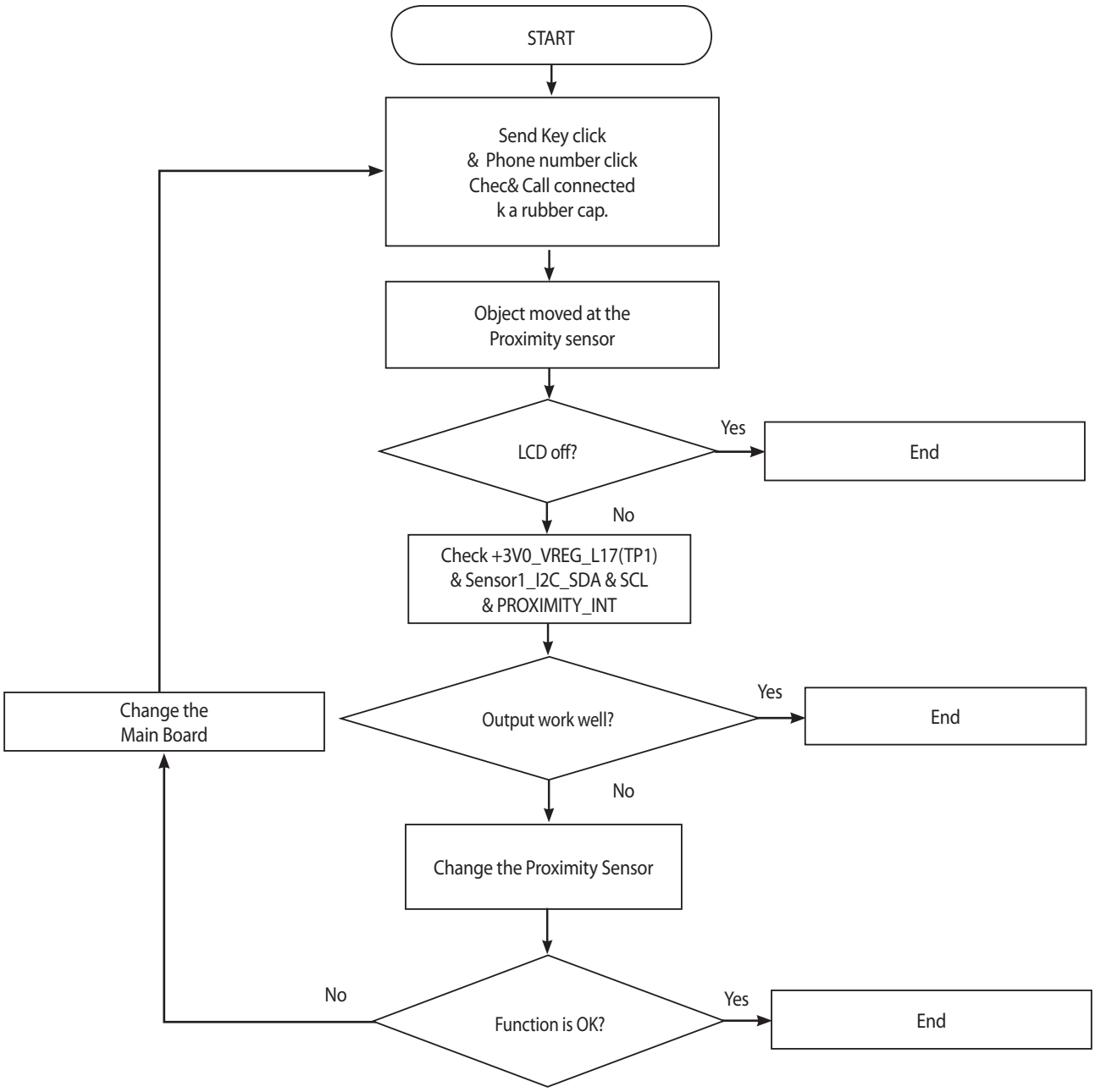


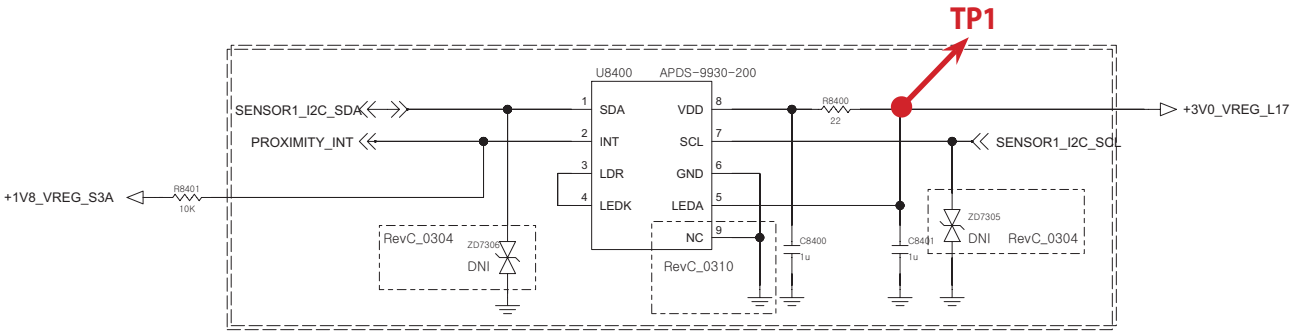


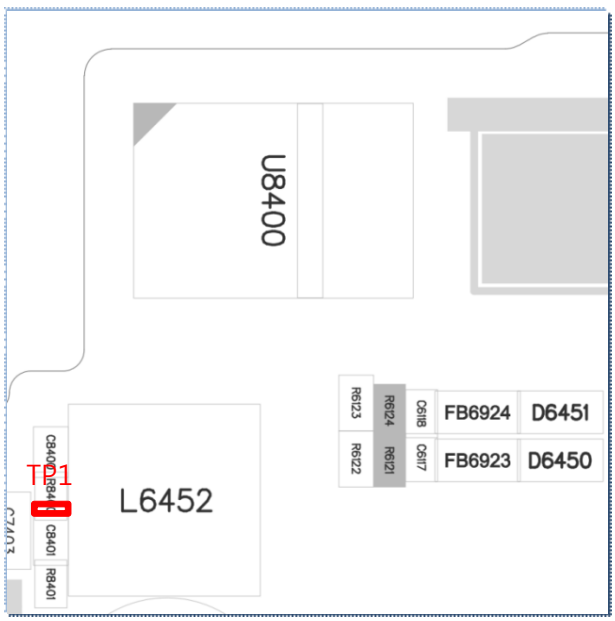
3.14.3 Proximity sensor

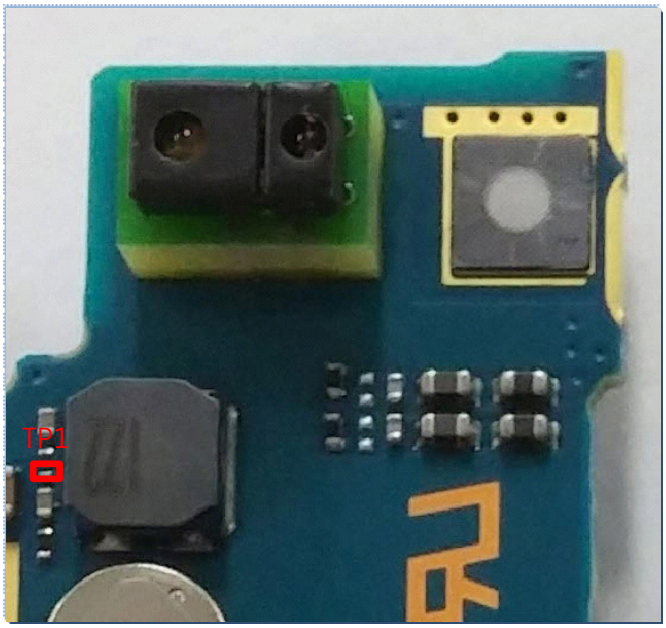
APDS-9930-200 is Proximity sensor.

Proximity Sensor is worked as below:
Send Key click -> Phone number click -> Call connected -> Object moved at the sensor
-> Control the screen's on/off operation automatically

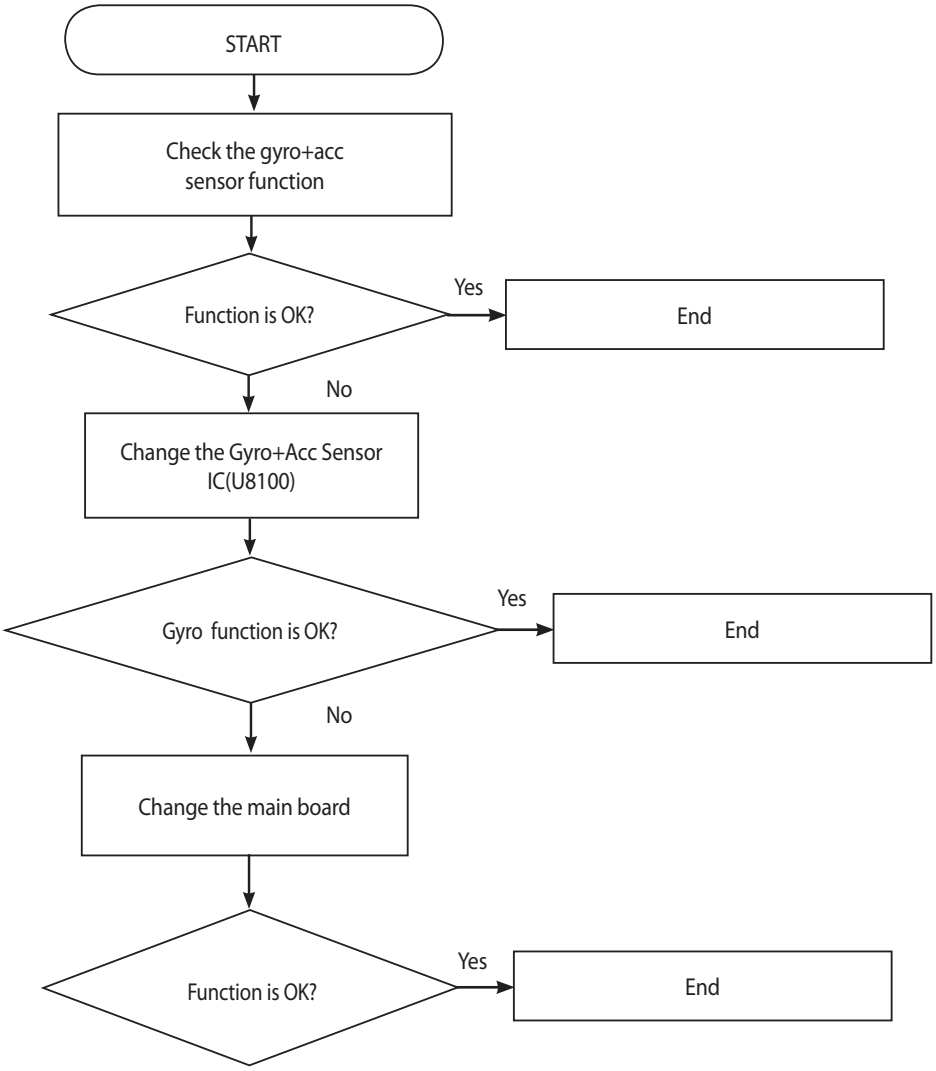


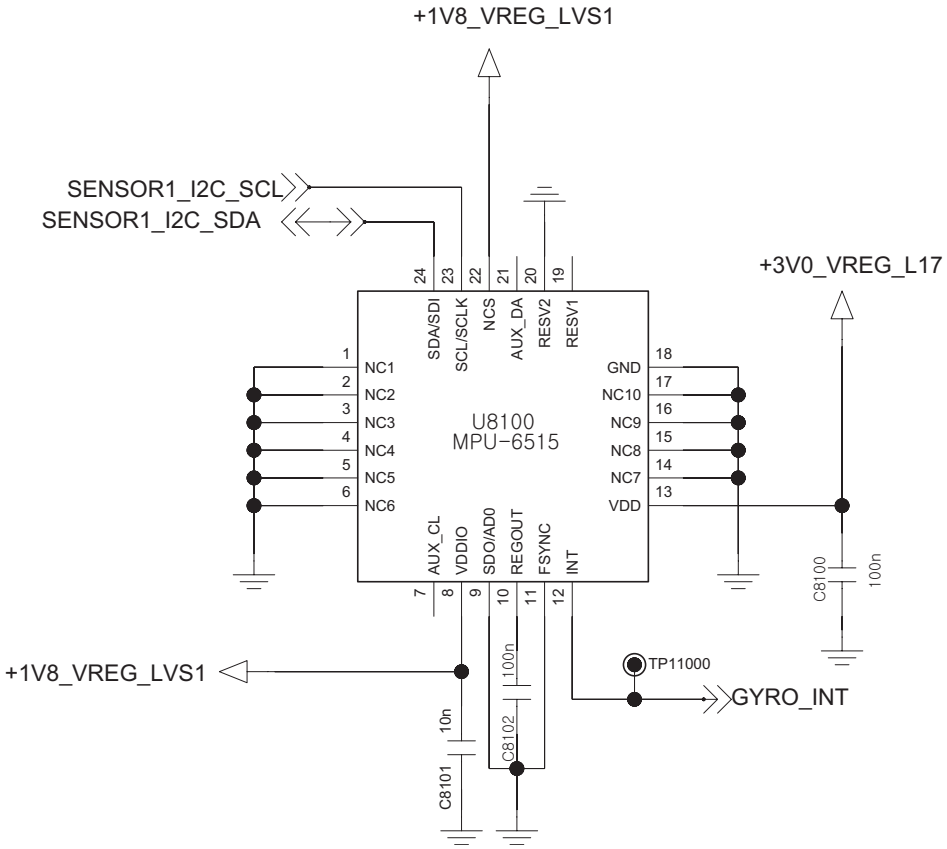


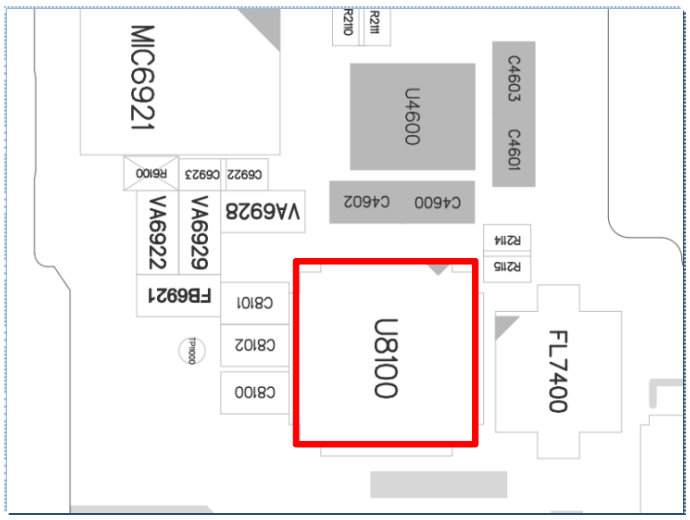


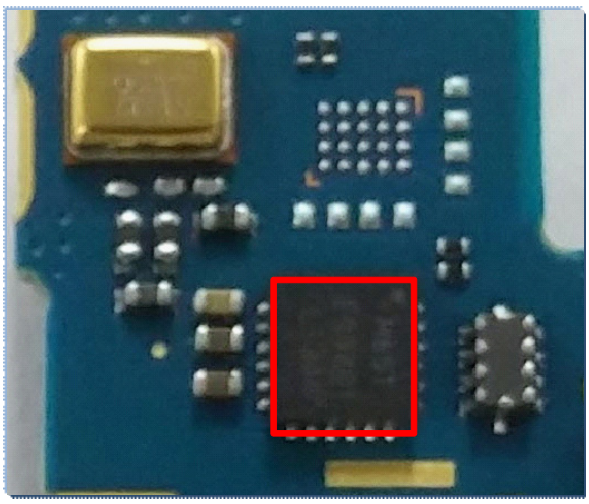


3.14.4 Gyroscope + Accelemeter sensor



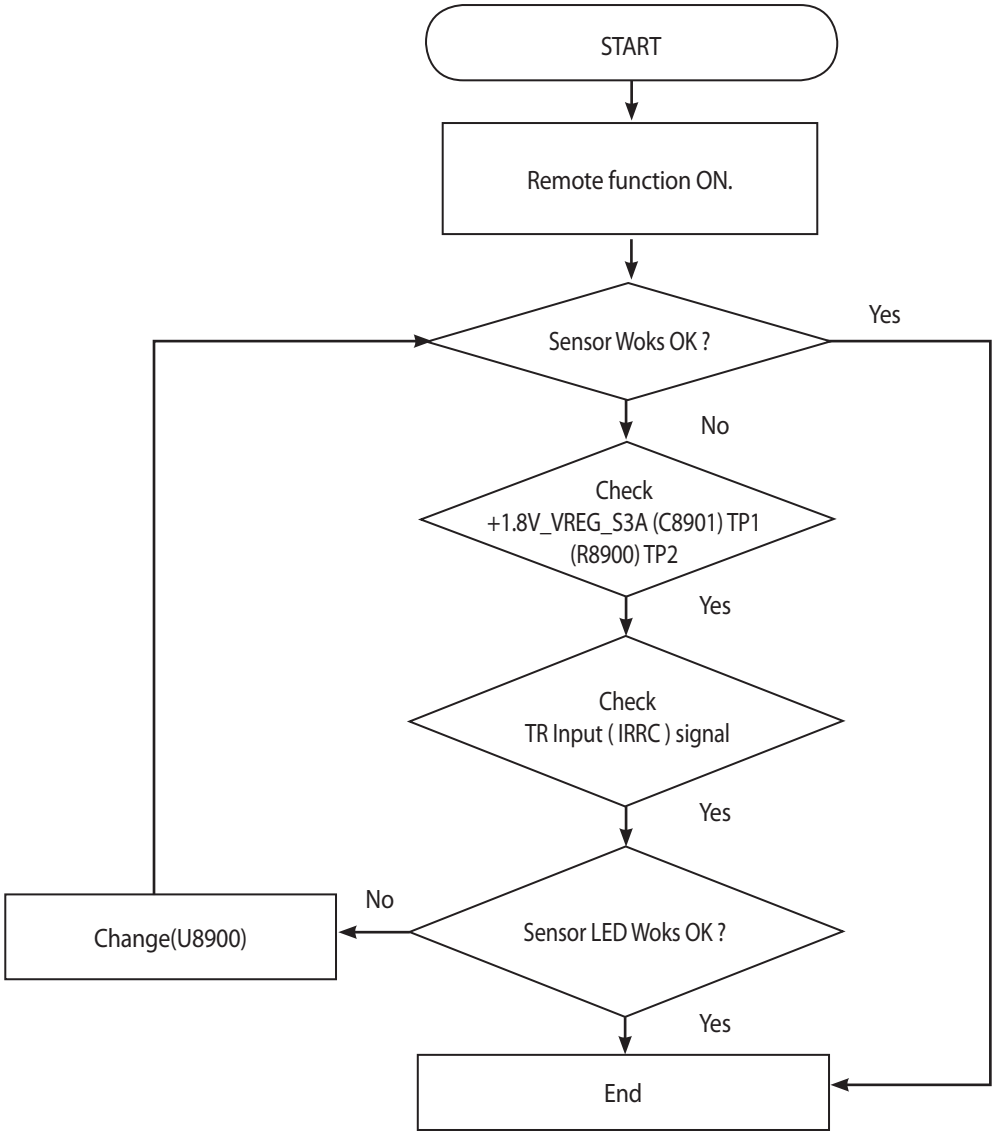




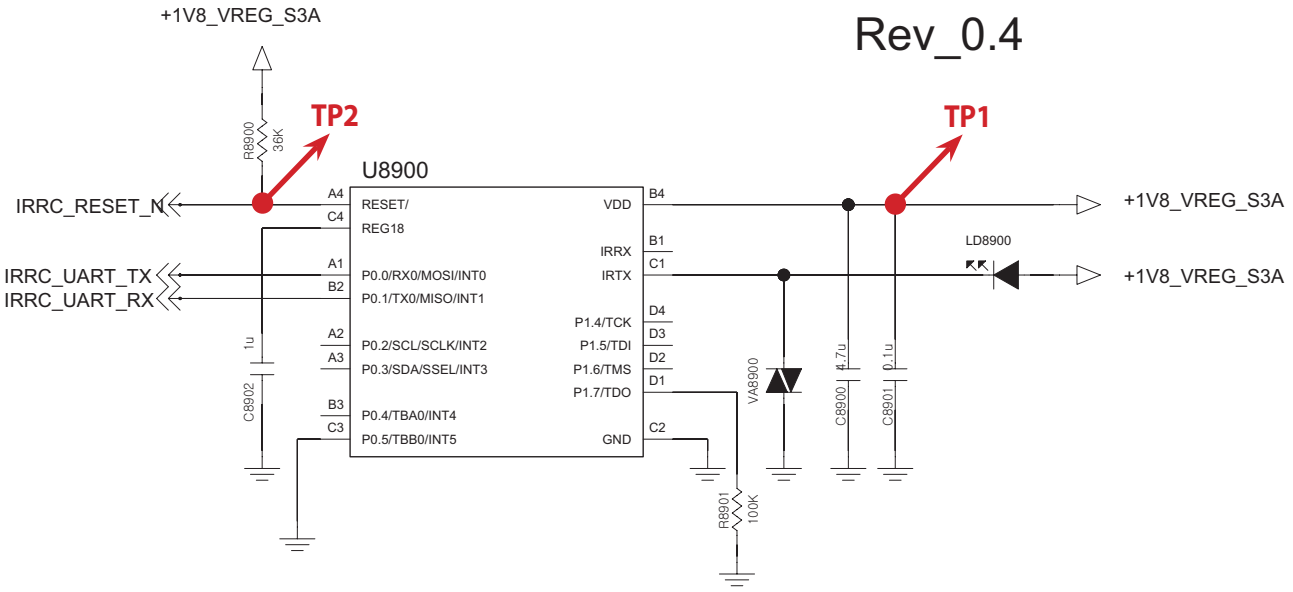


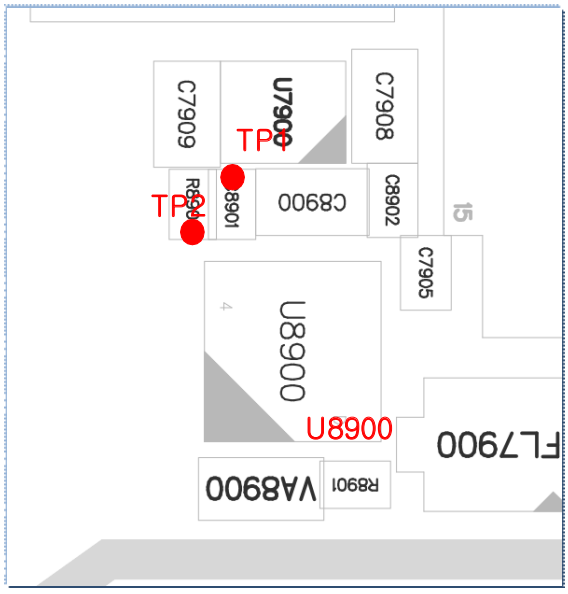
3.15 Remote Sensor (IRRC Sensor)

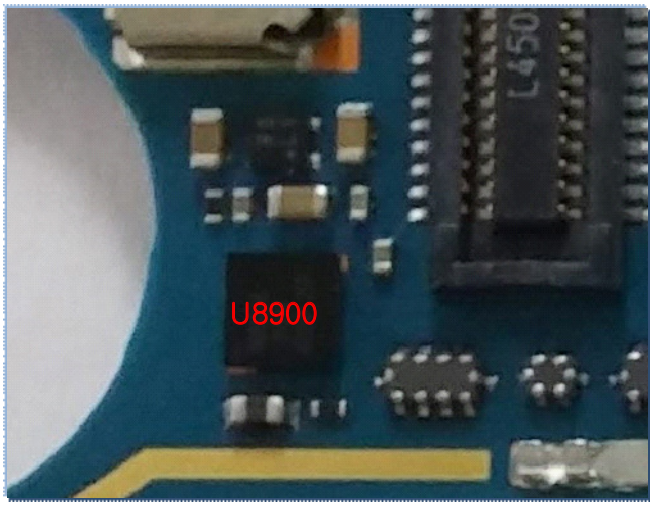
The sequence of QuickRemote Operation Path
Proximity Sensor is worked as below:
QuickRemote function Check -> Menu Remote on -> TV Setting on



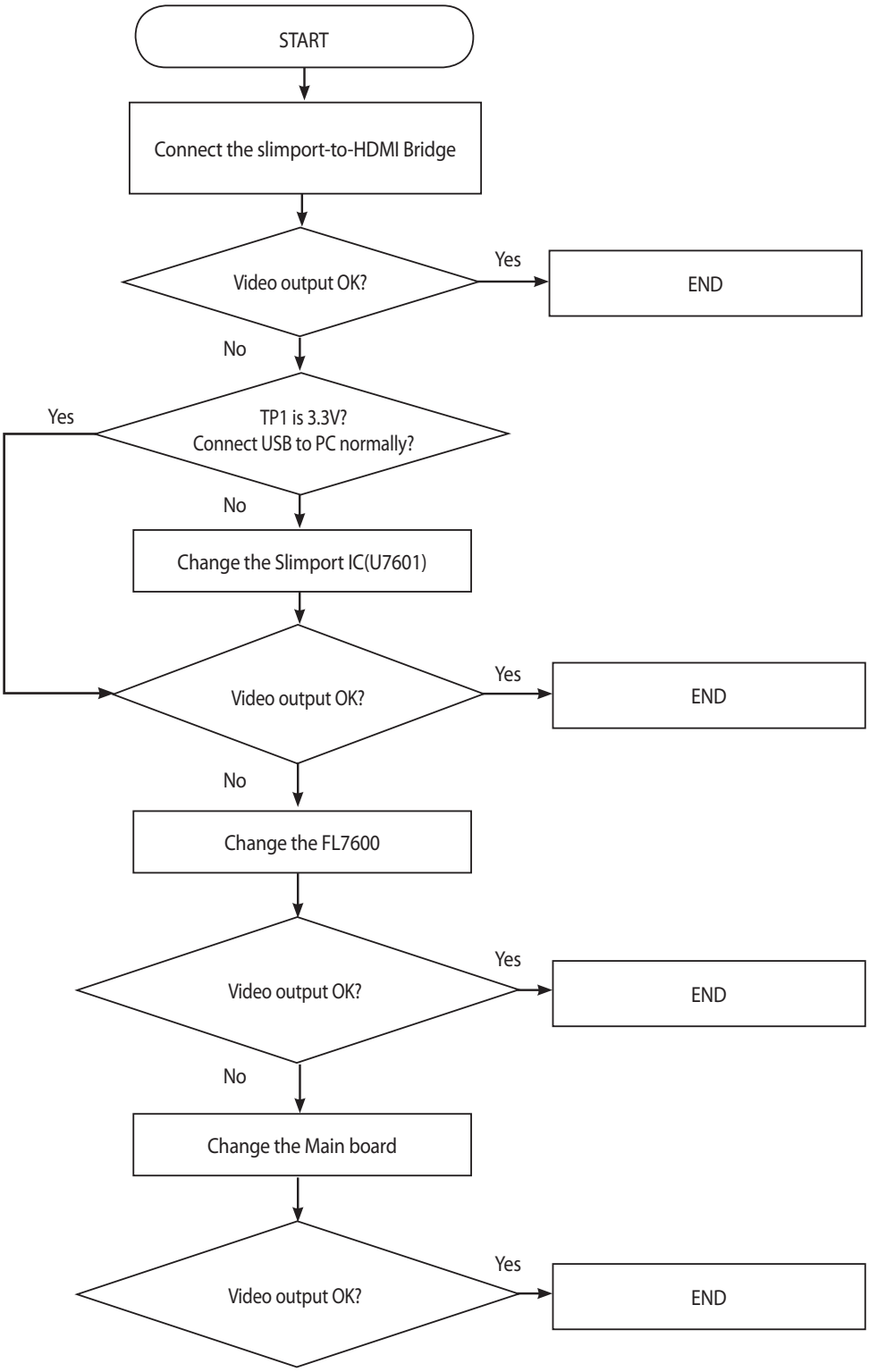
< 8-9-1-1_IRRC_MAXQ616V >

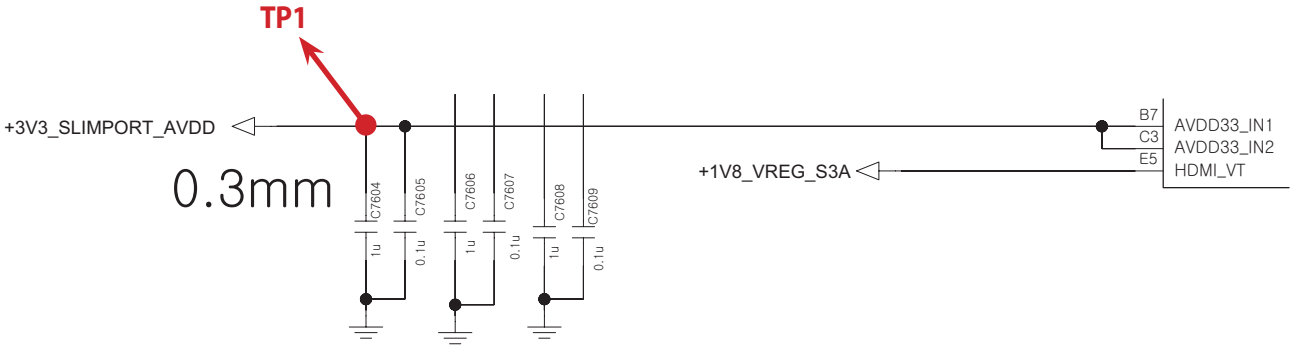


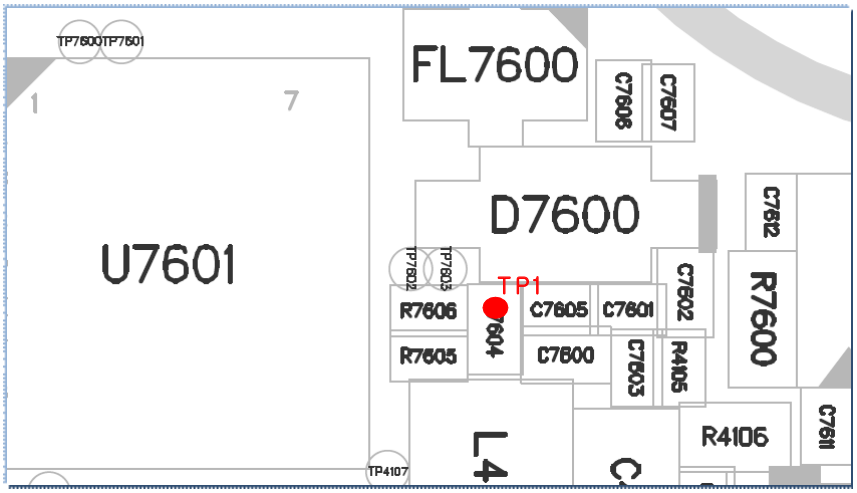


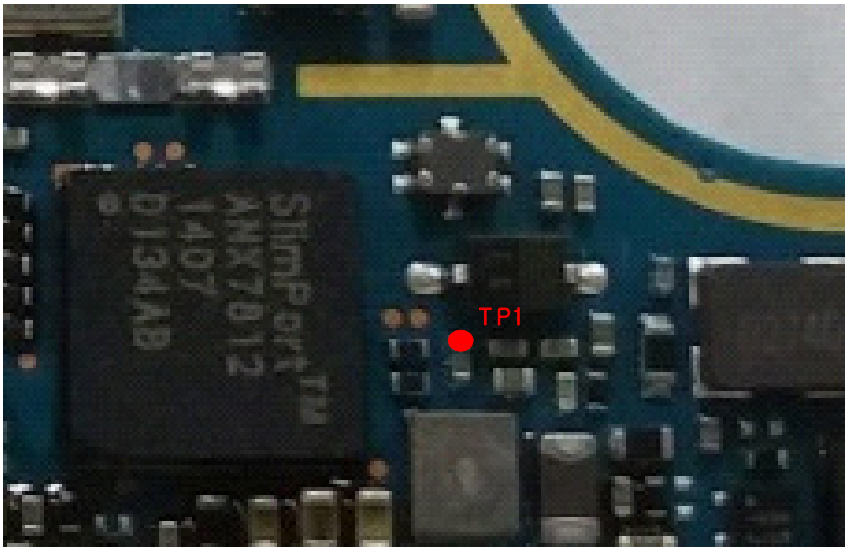


3.16 USB / Slimport



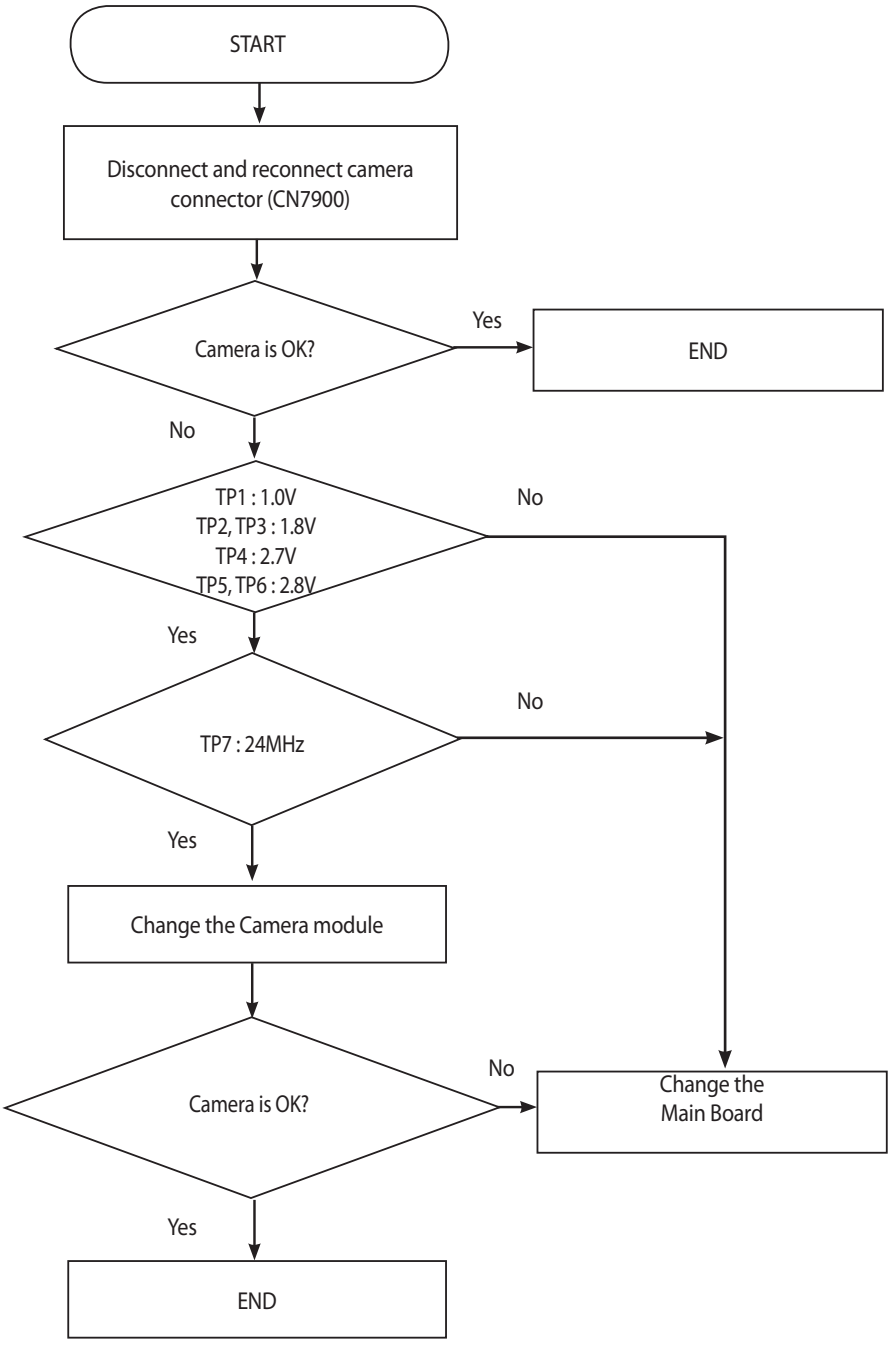


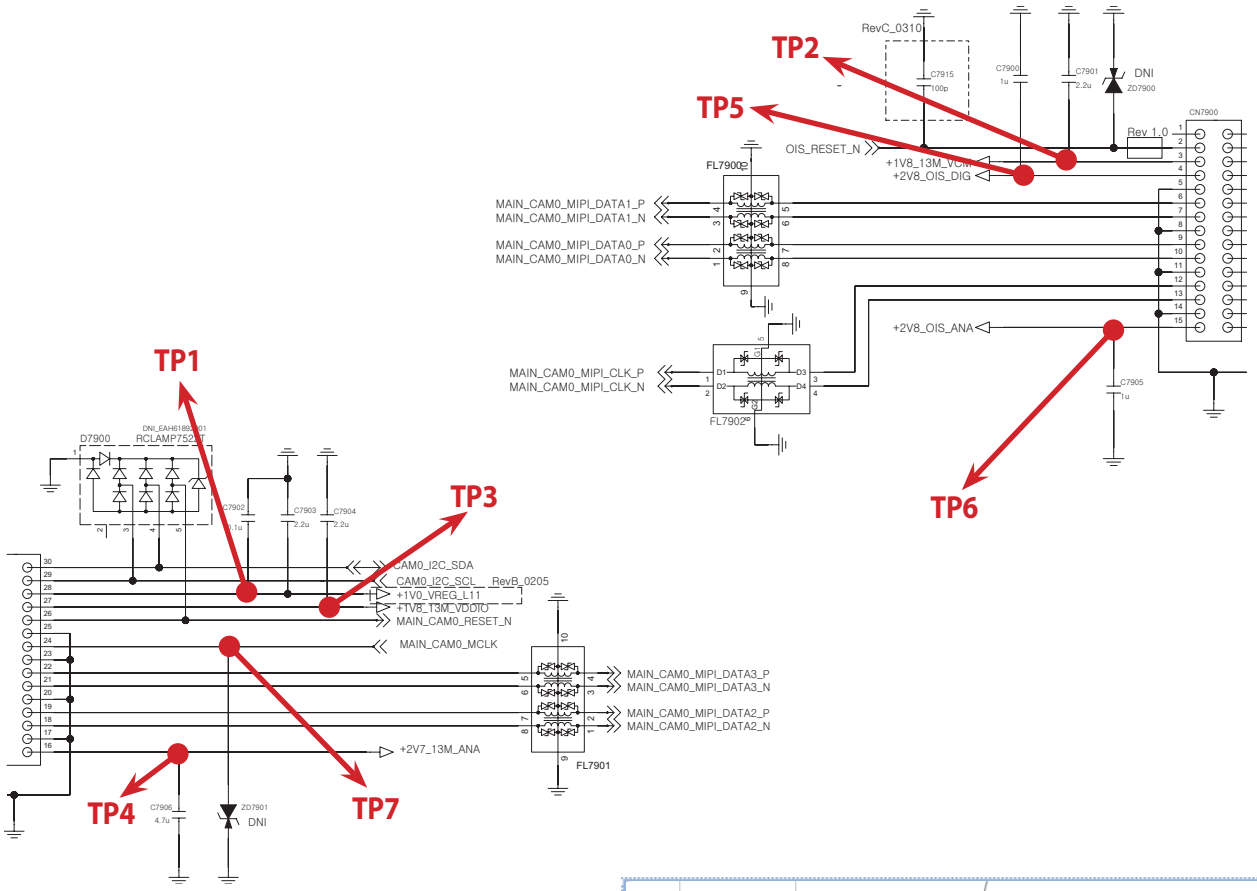


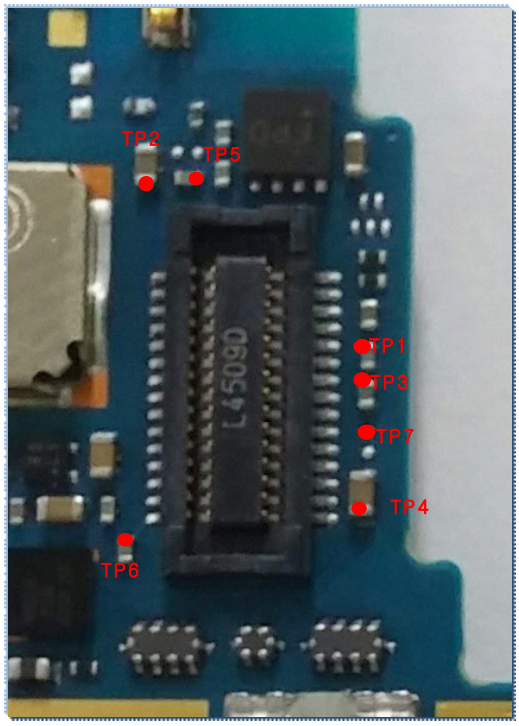


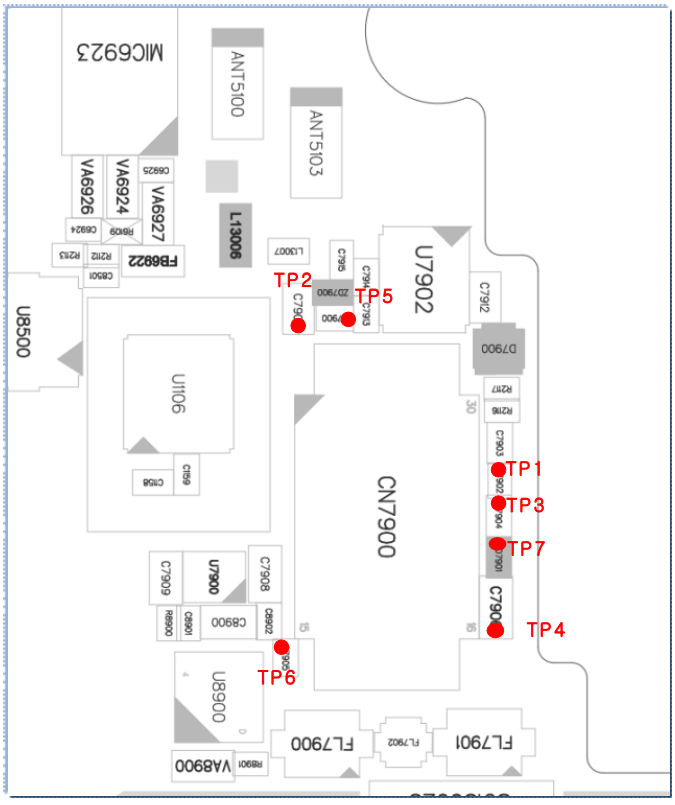
3.17 CAMERA

3.17.1 MAIN CAMERA

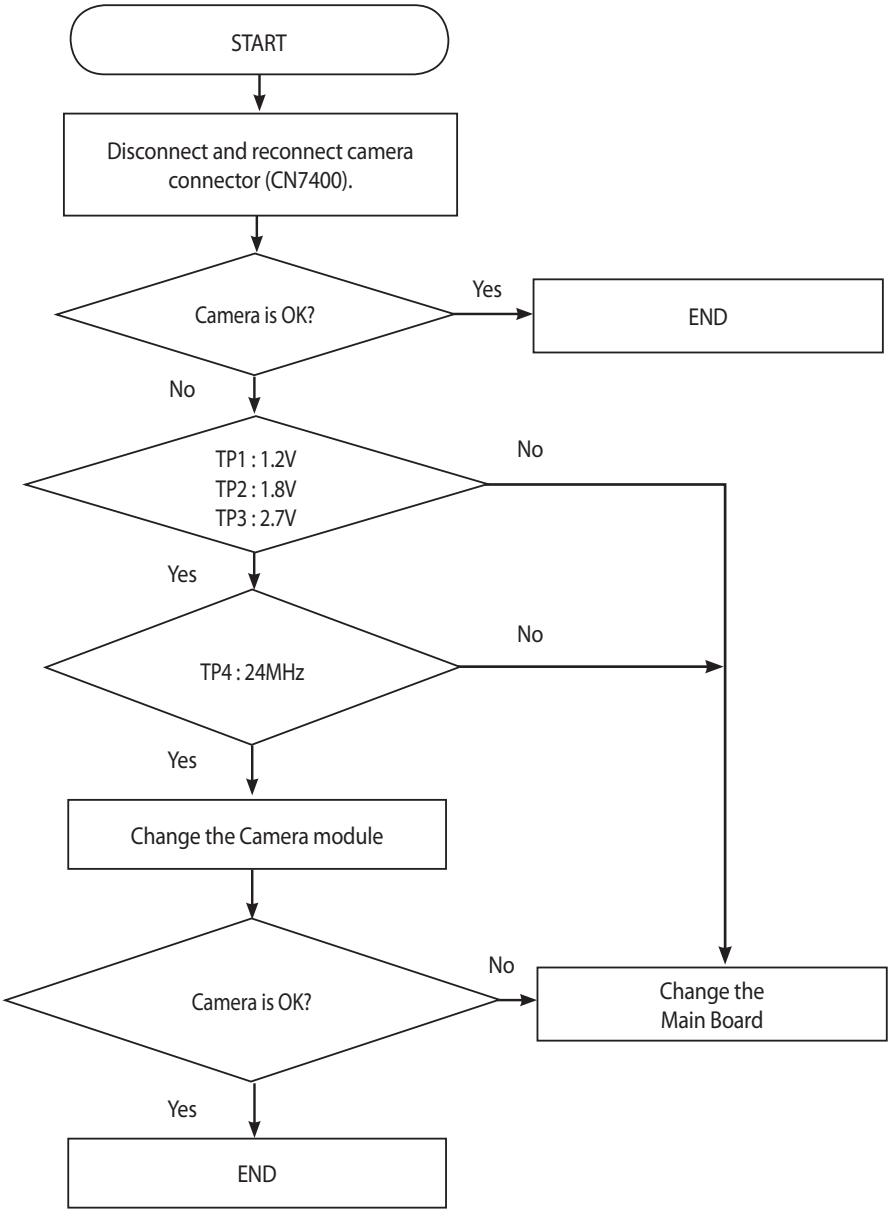


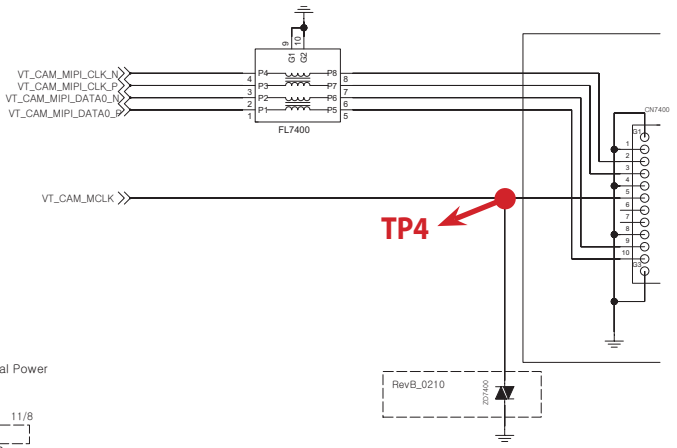


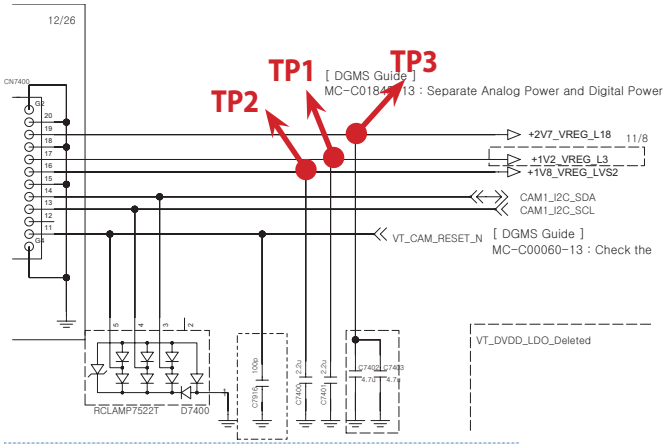


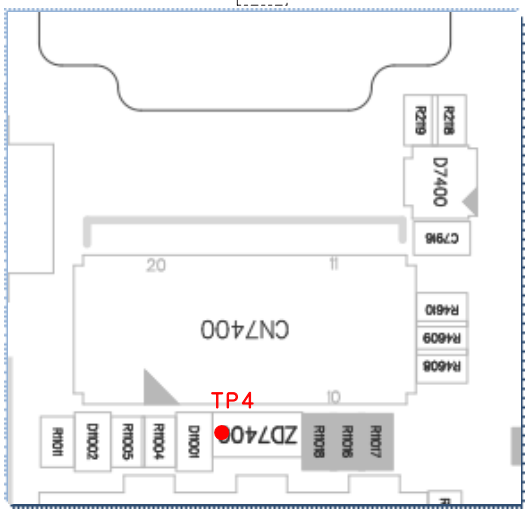


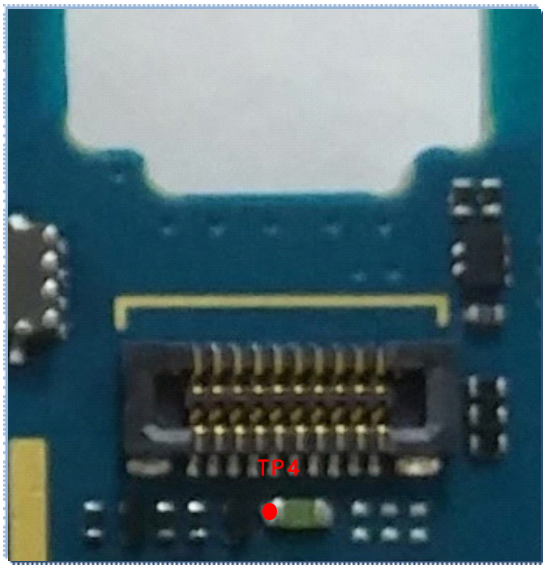
3.17.2 VT CAMERA

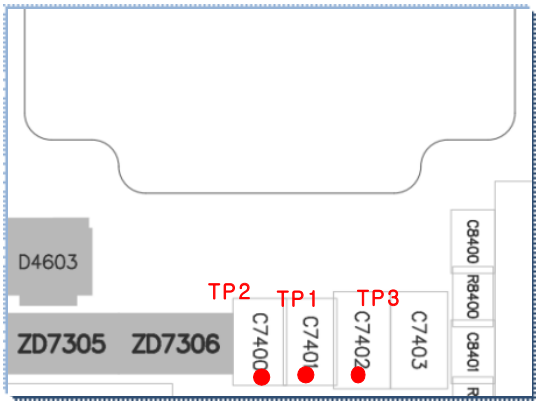


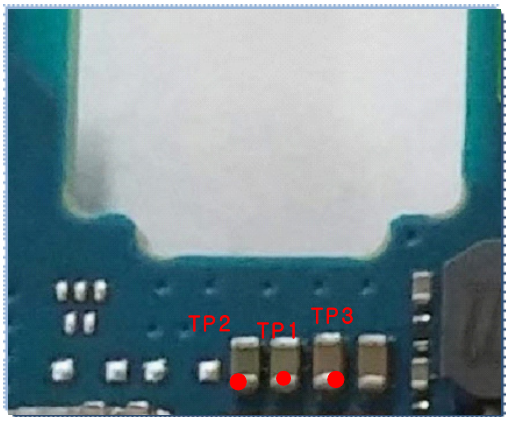






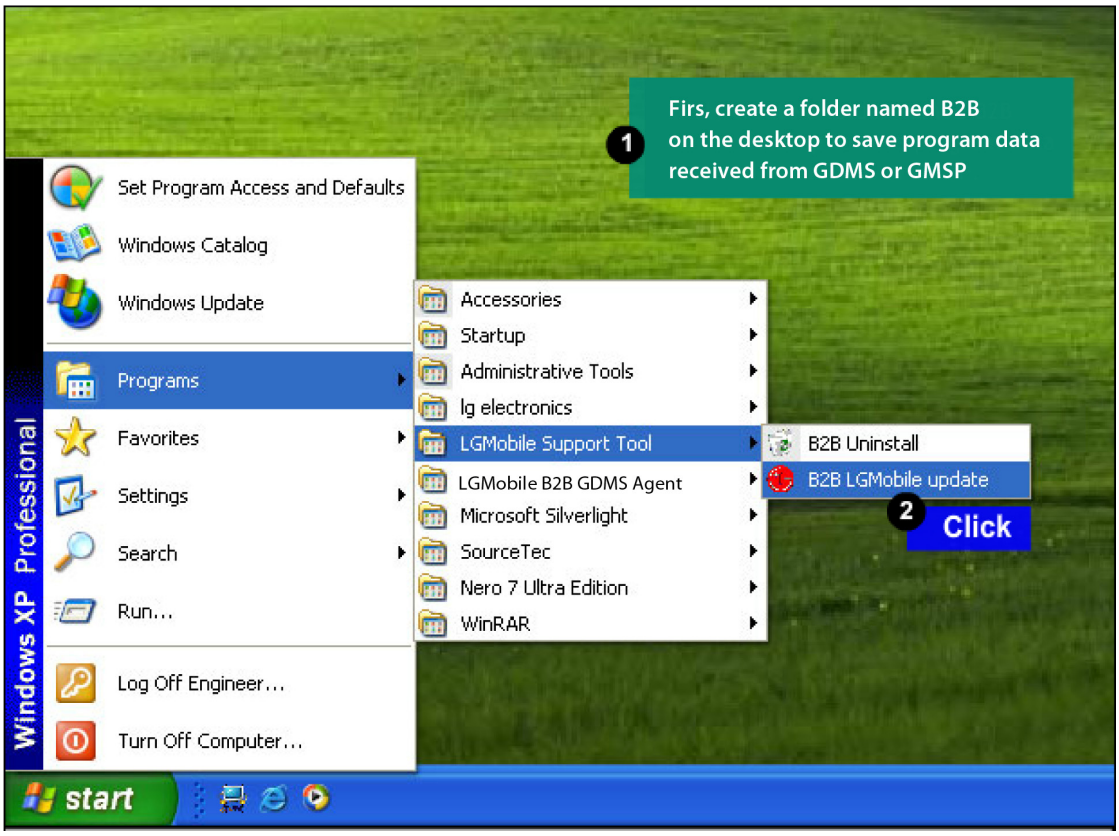


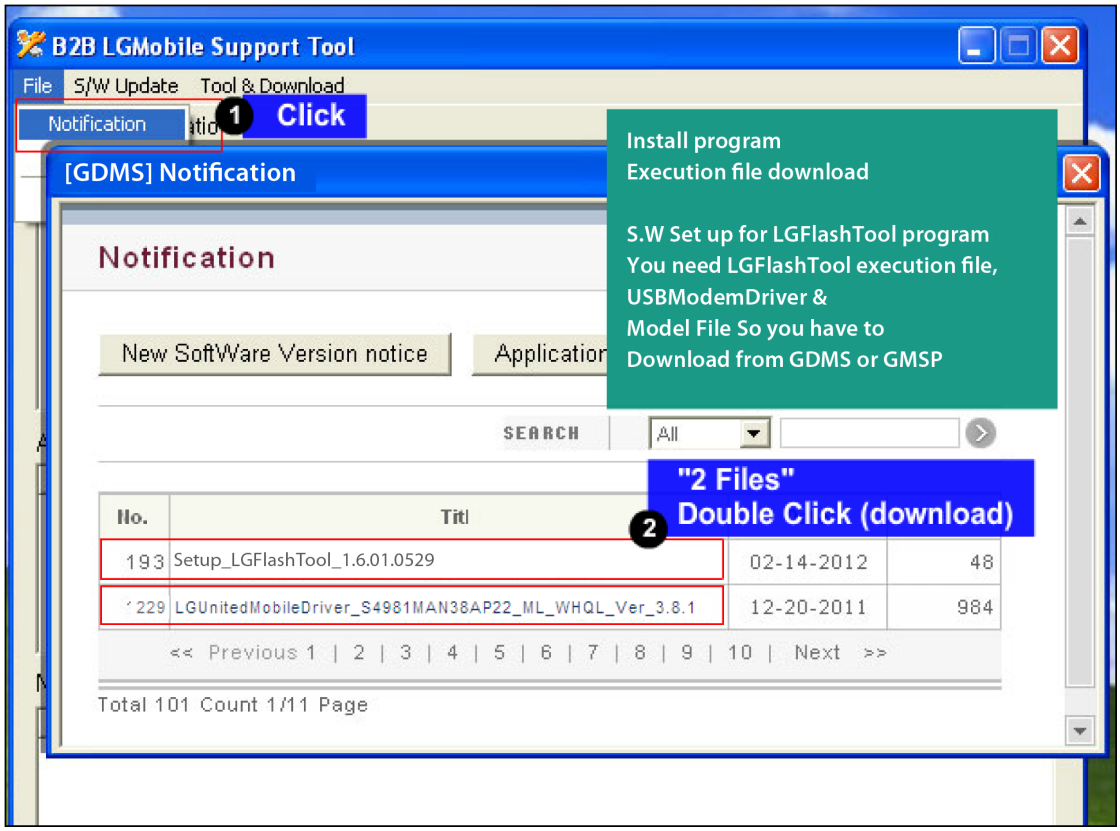


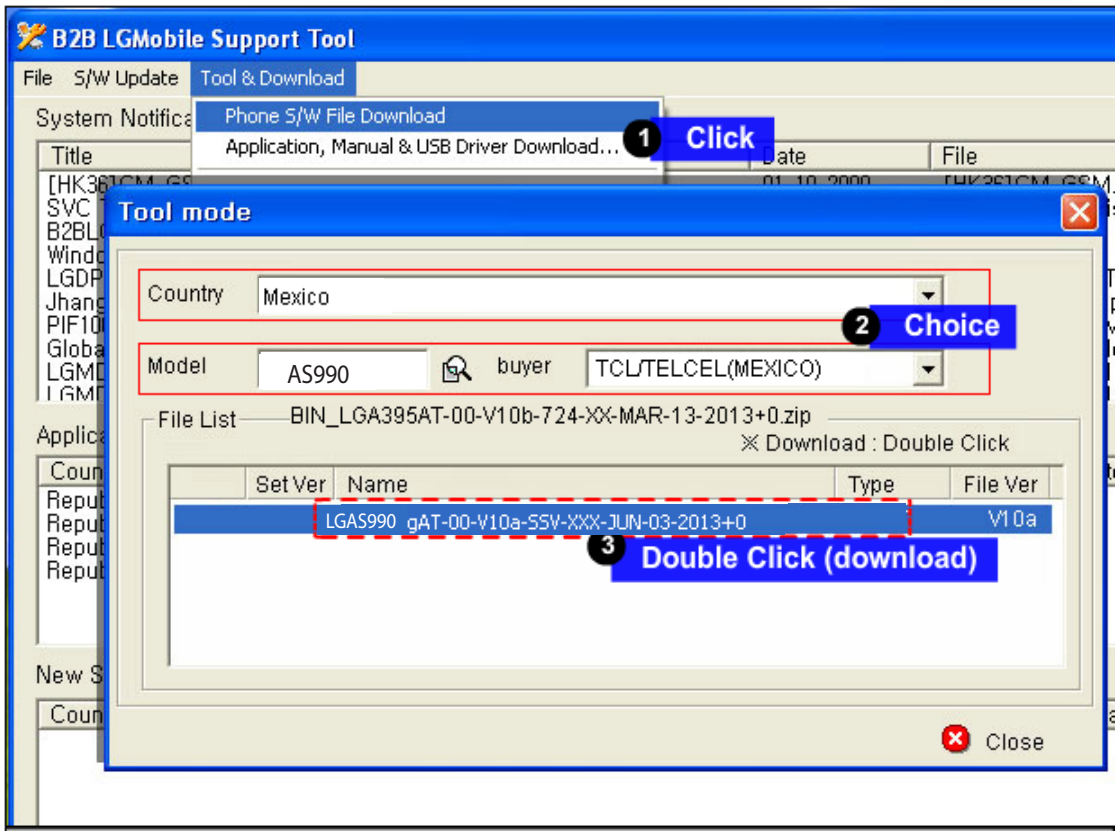


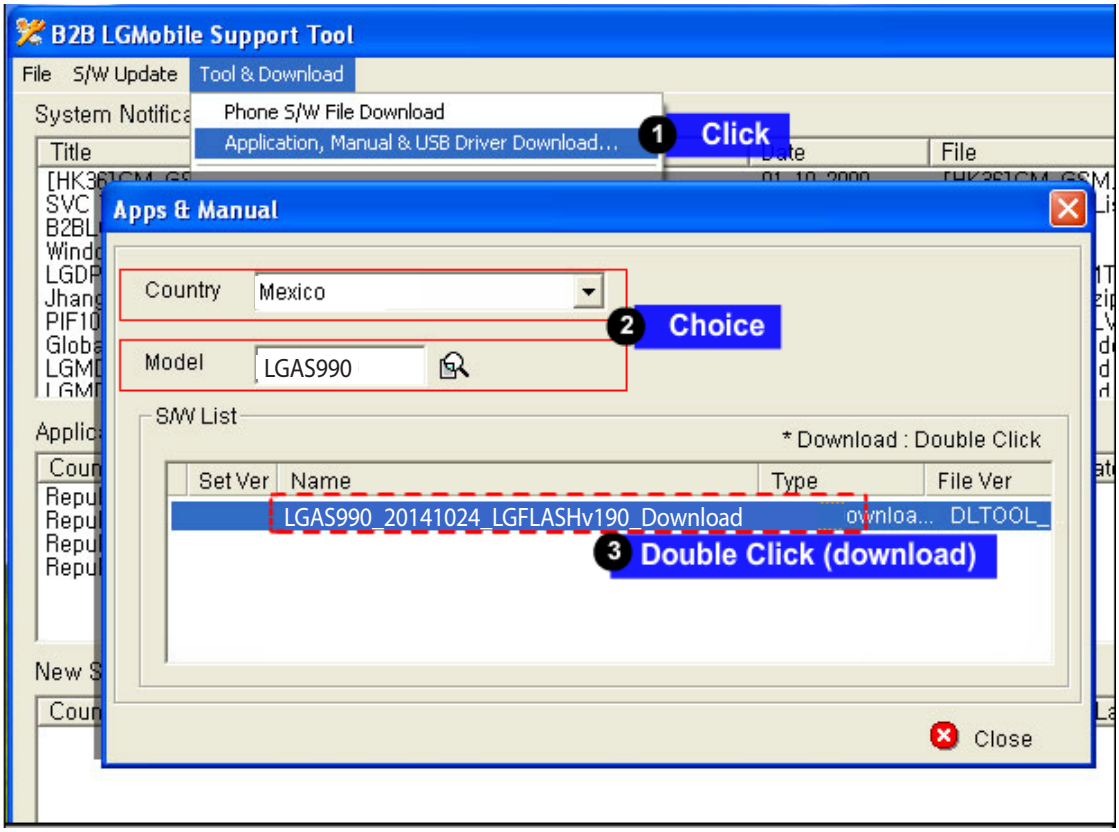
4. DOWNLOAD

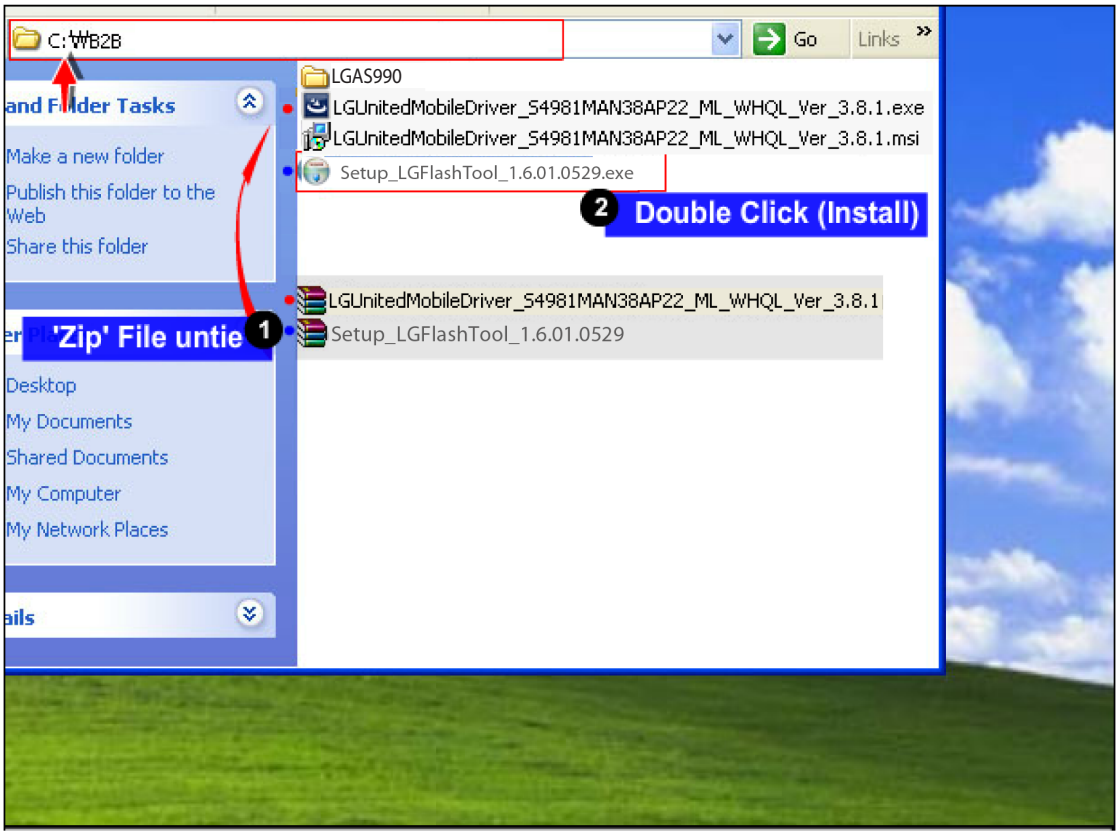
TOOL INFORMATION			
TOOL VERSION	**DLL NAME**	**USB DRIVER**	
LGFLASHv190	LGAS990_20141024_LGFLASHv190_Download	LGUnitedMobileDriver_S50MAN311AP22_ML_WHQL_Ver_3.11.3	
Please Check the Version to "B2B"			
H/W			
	Name	**Part No.**	**SW**
D/L Cable	Micro 5P (56-open-910K) USB DLC	RAD32167835	TOT

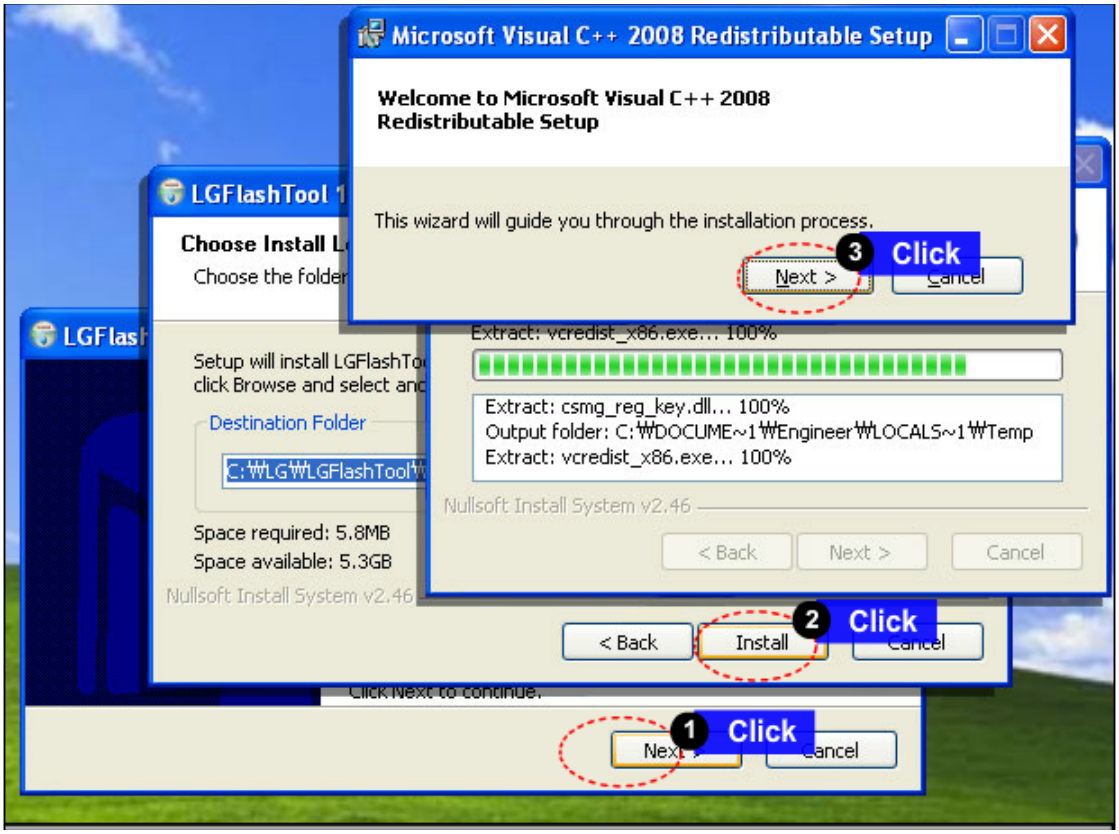


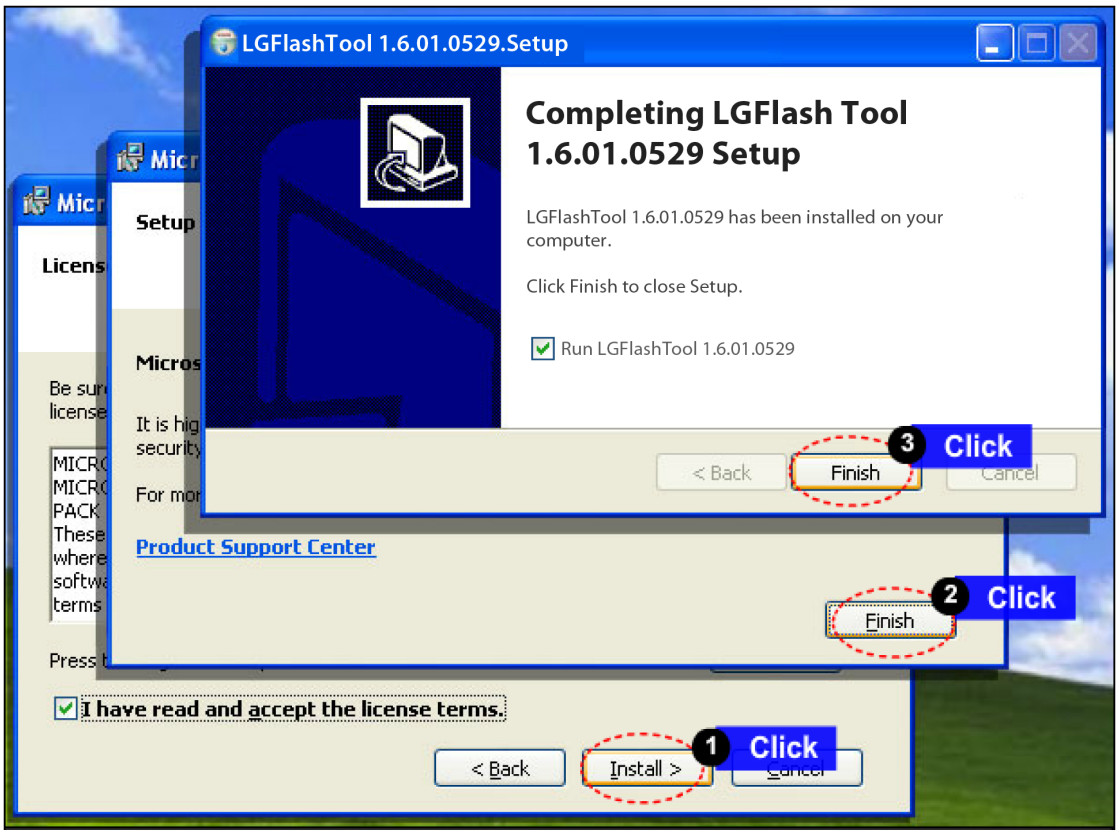


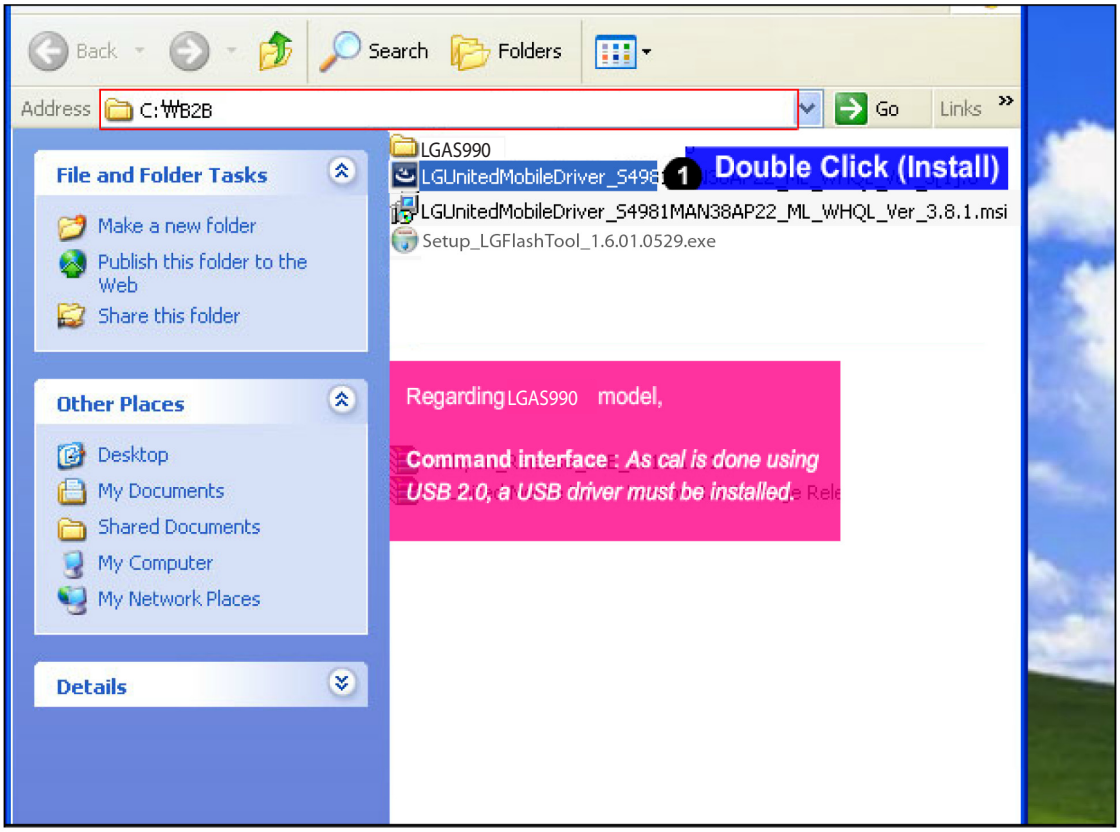


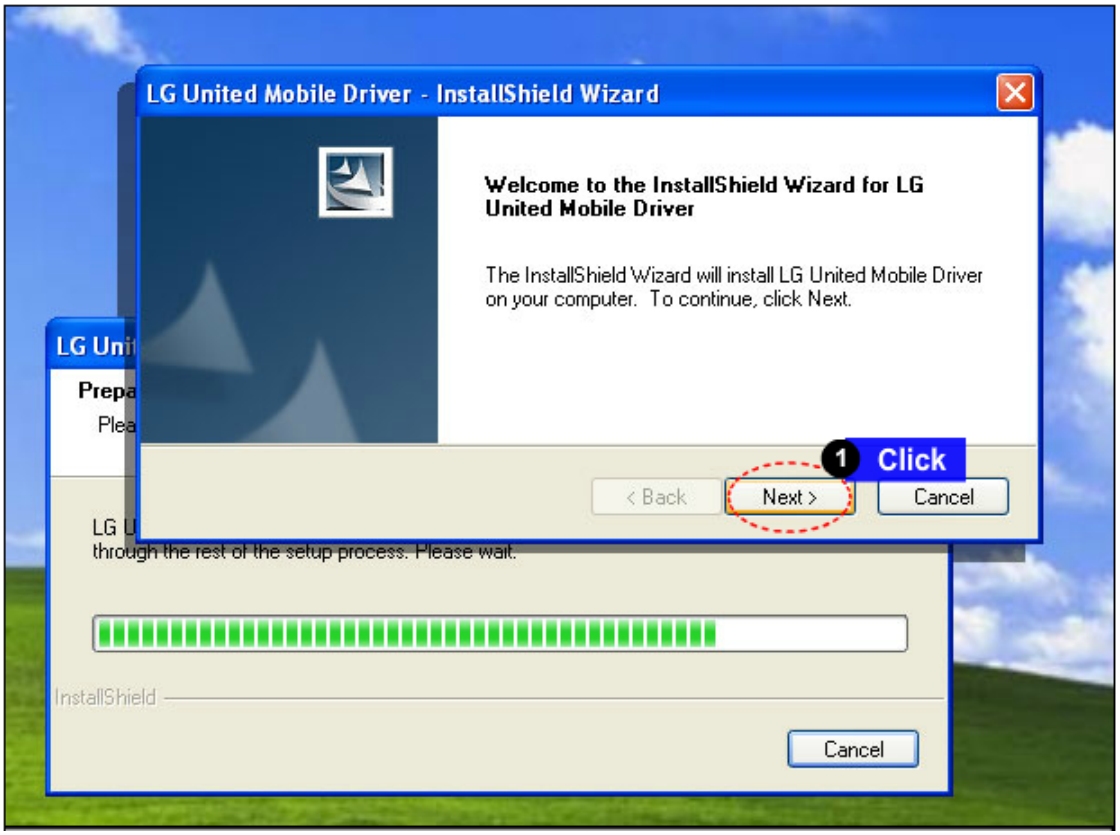


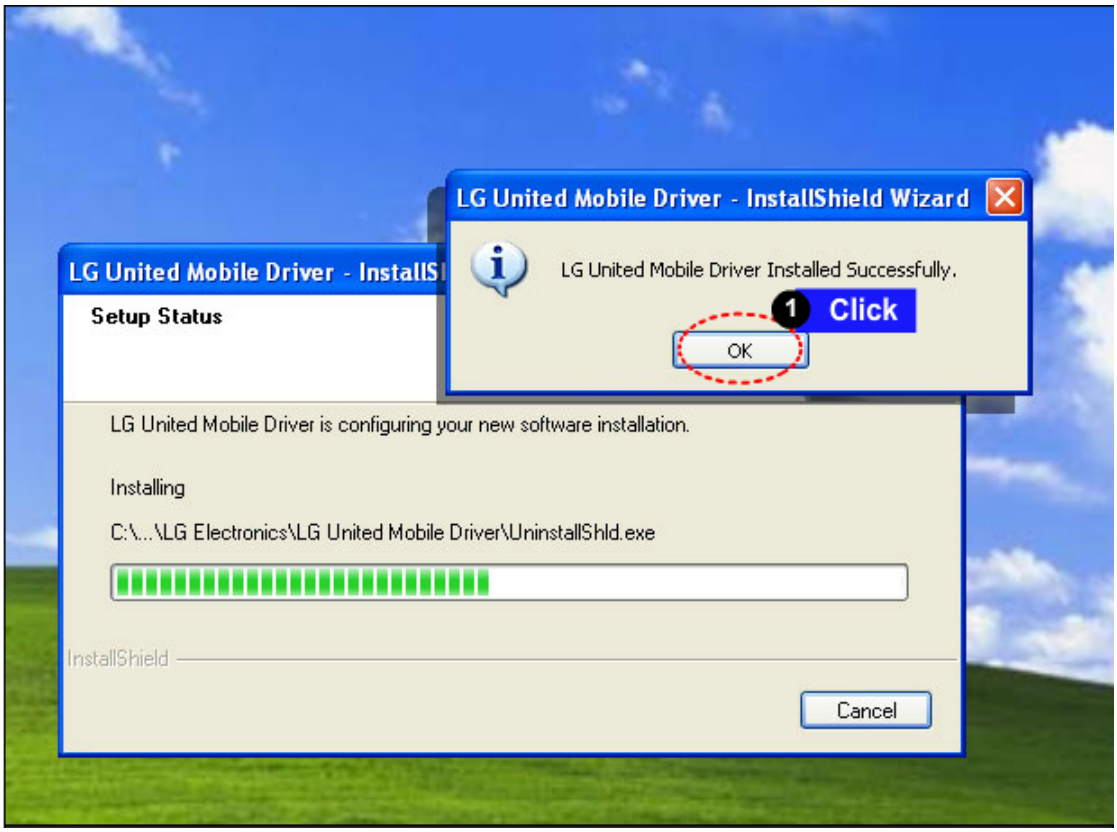


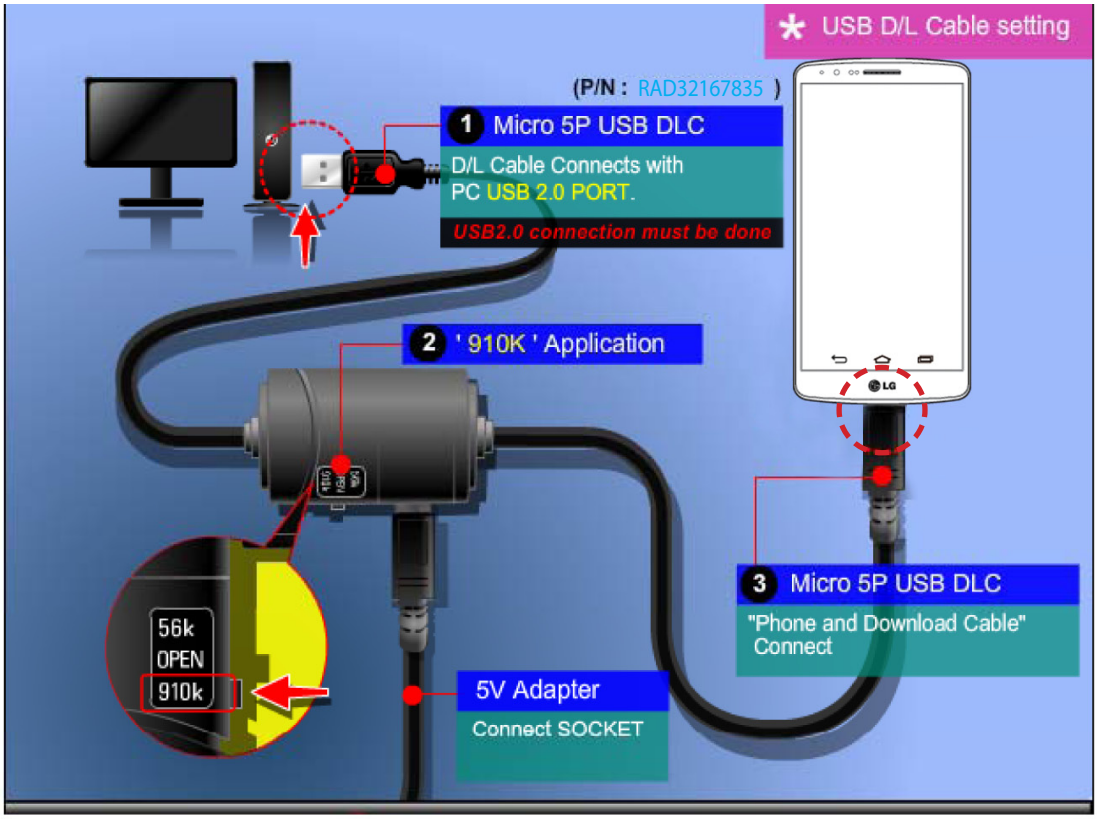


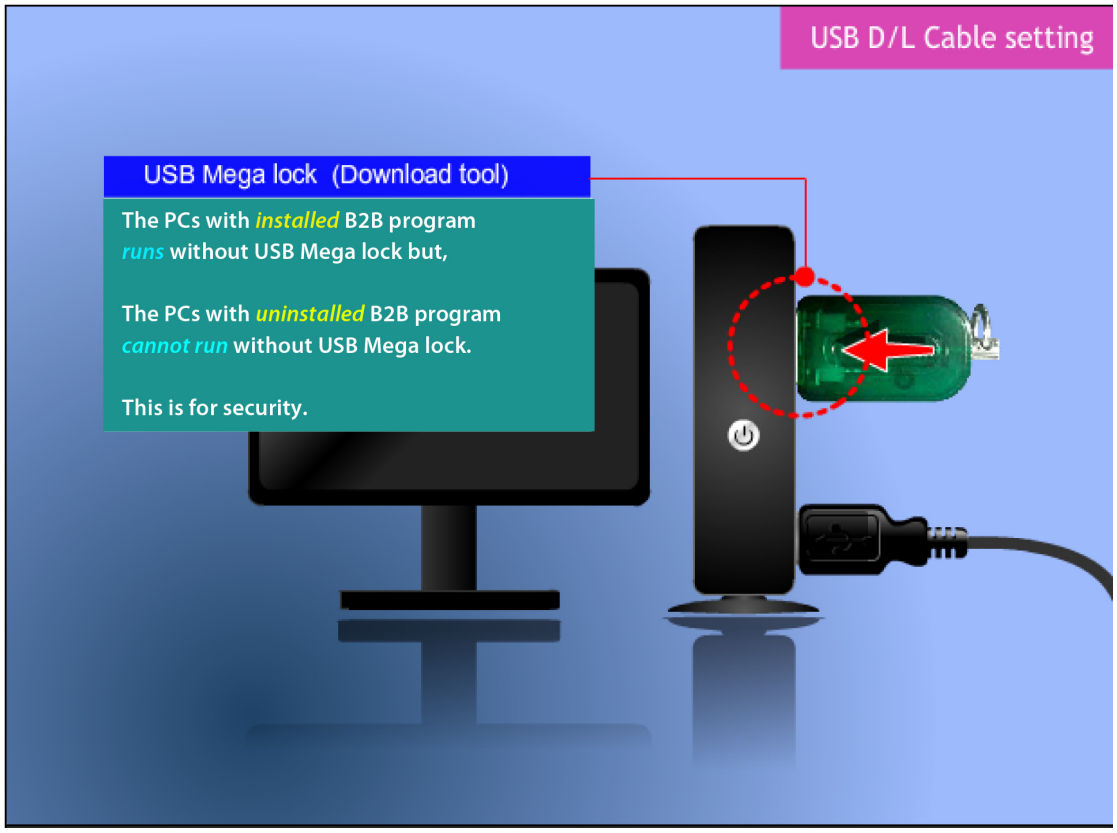


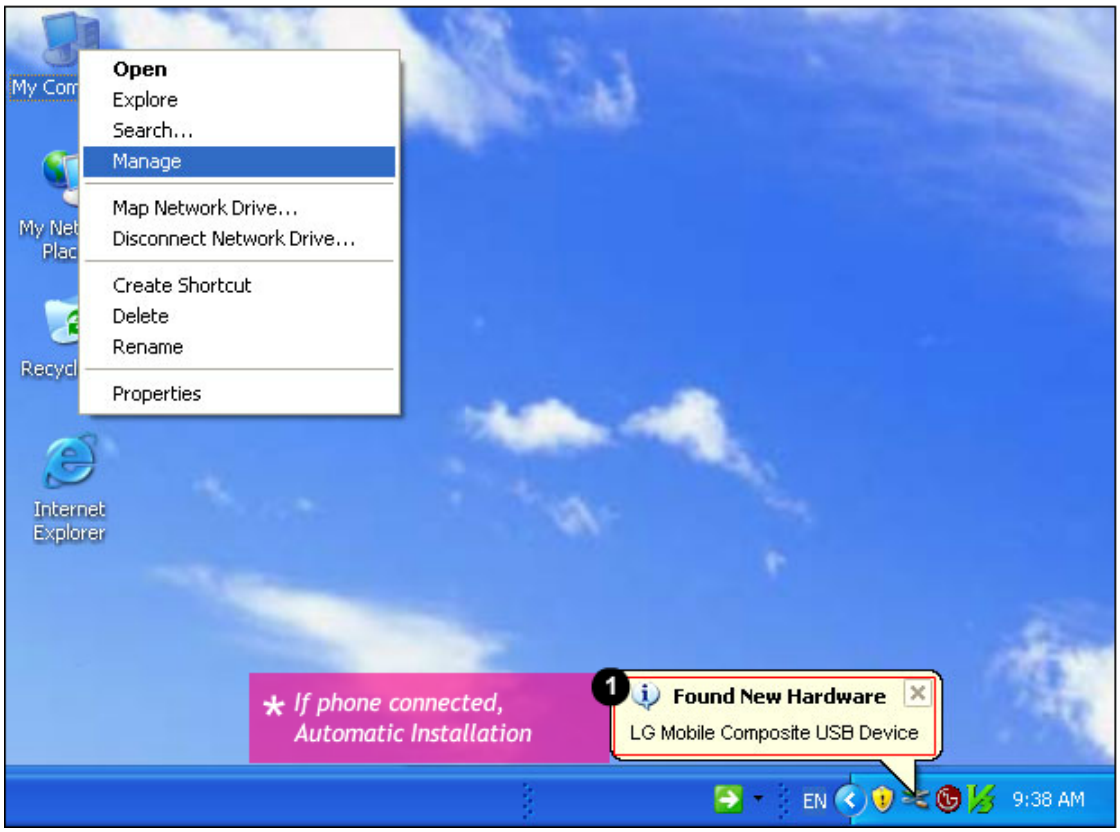


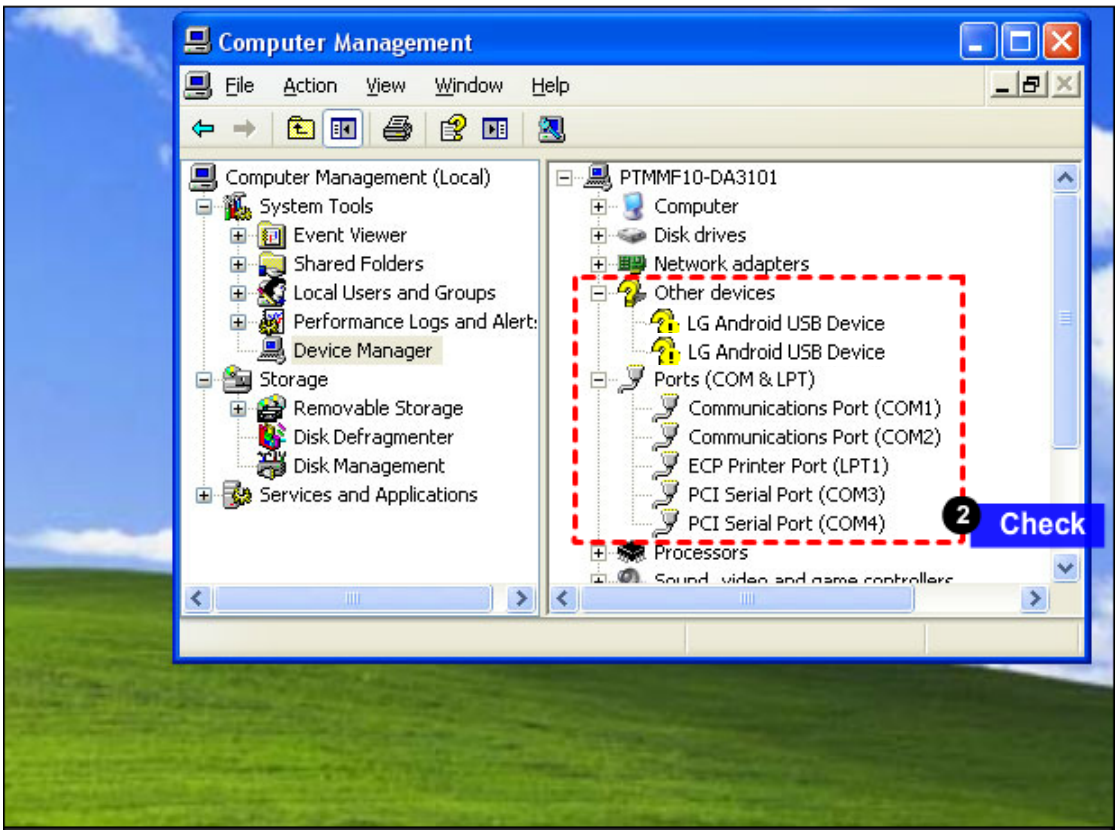


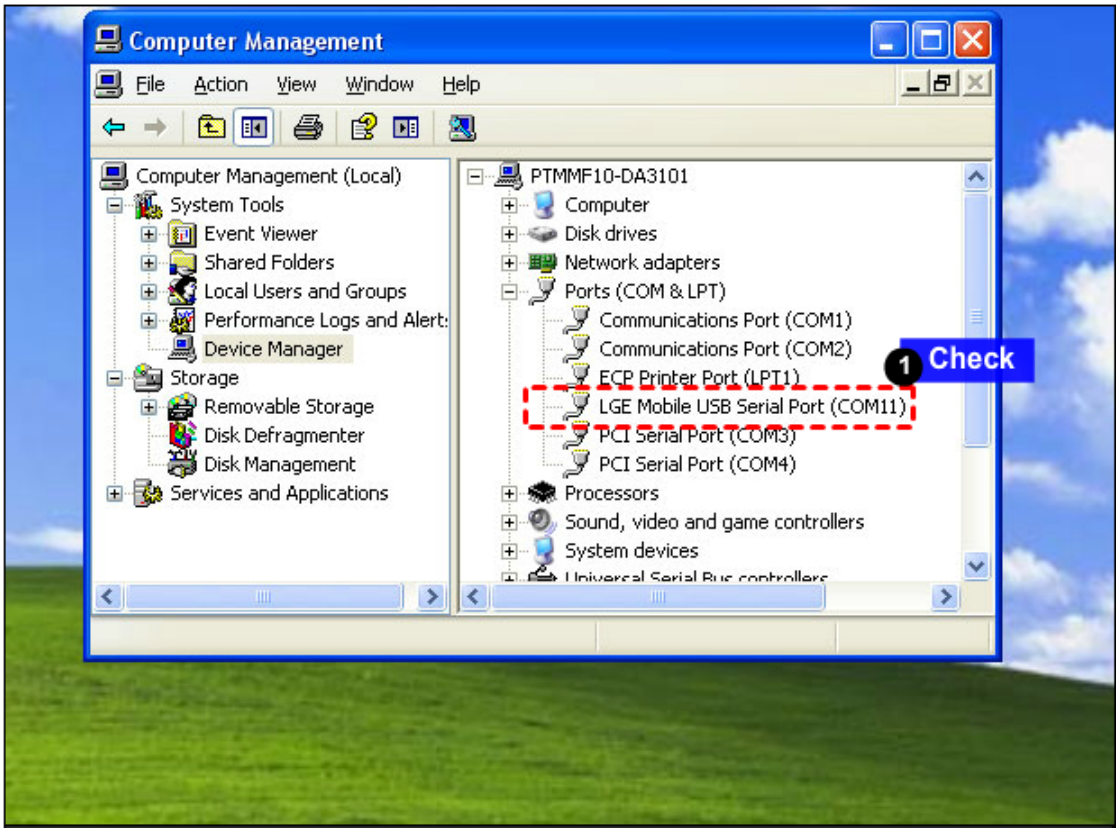


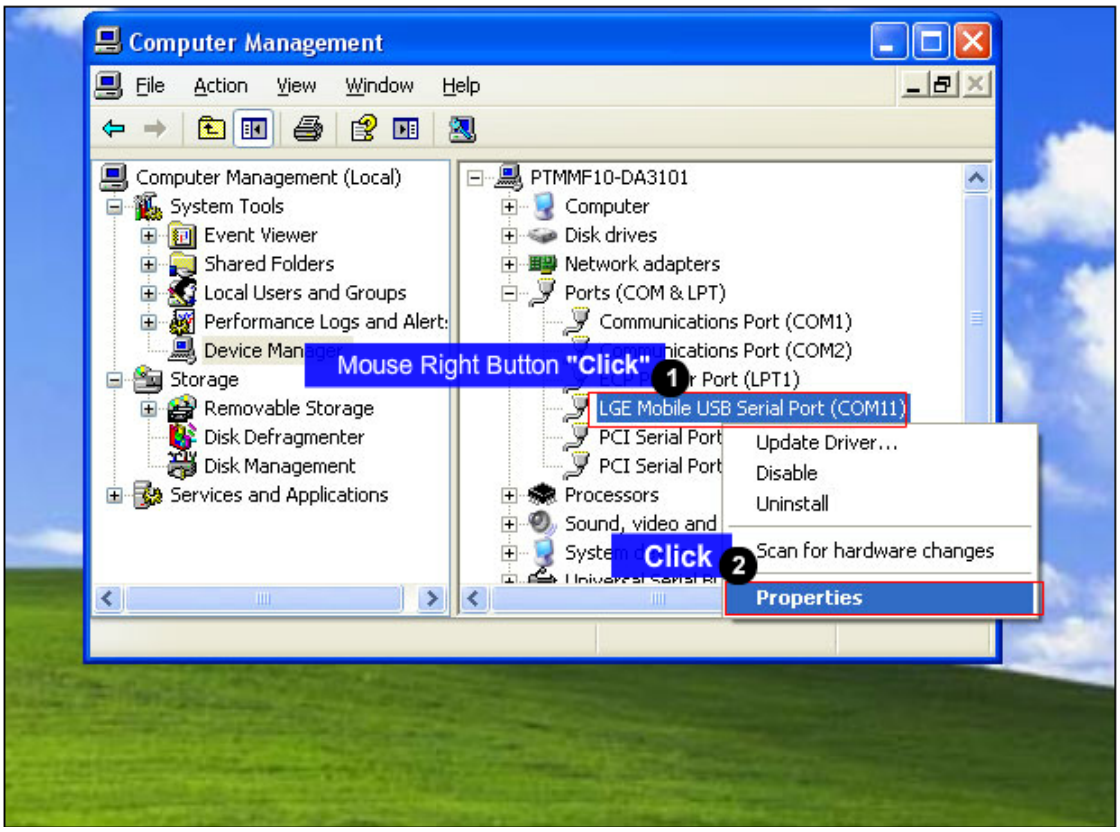


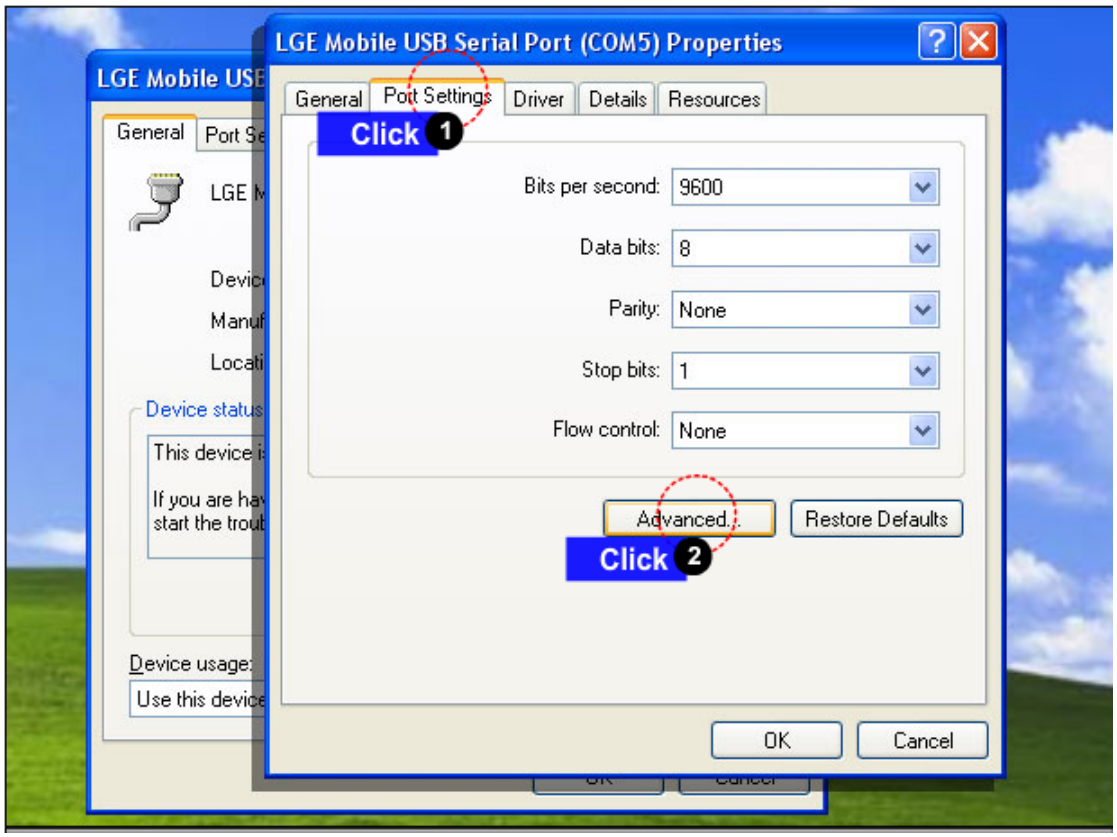


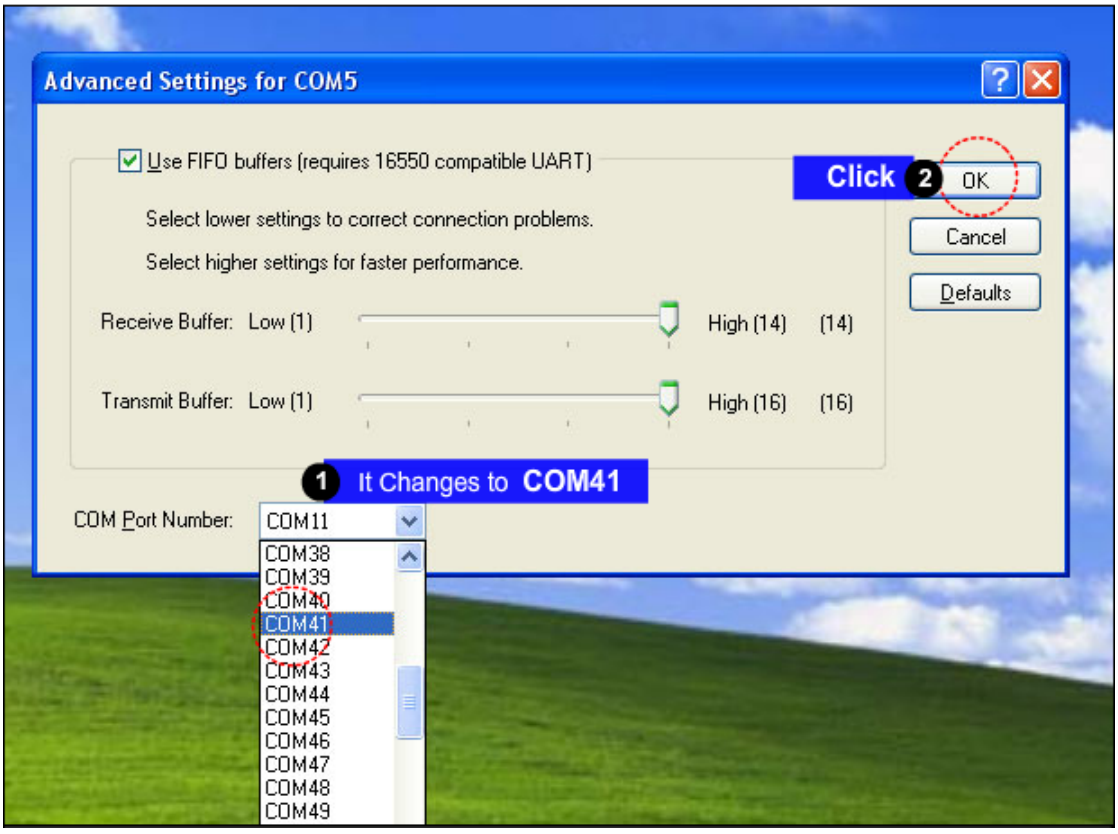


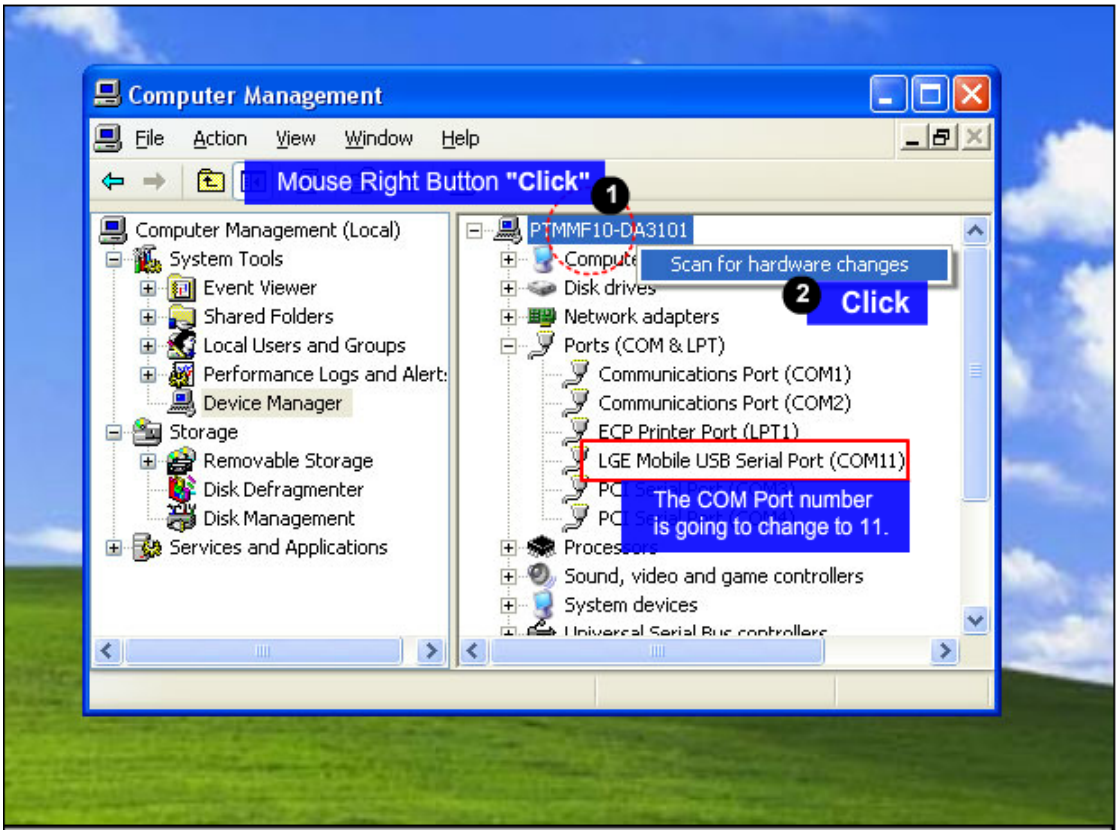


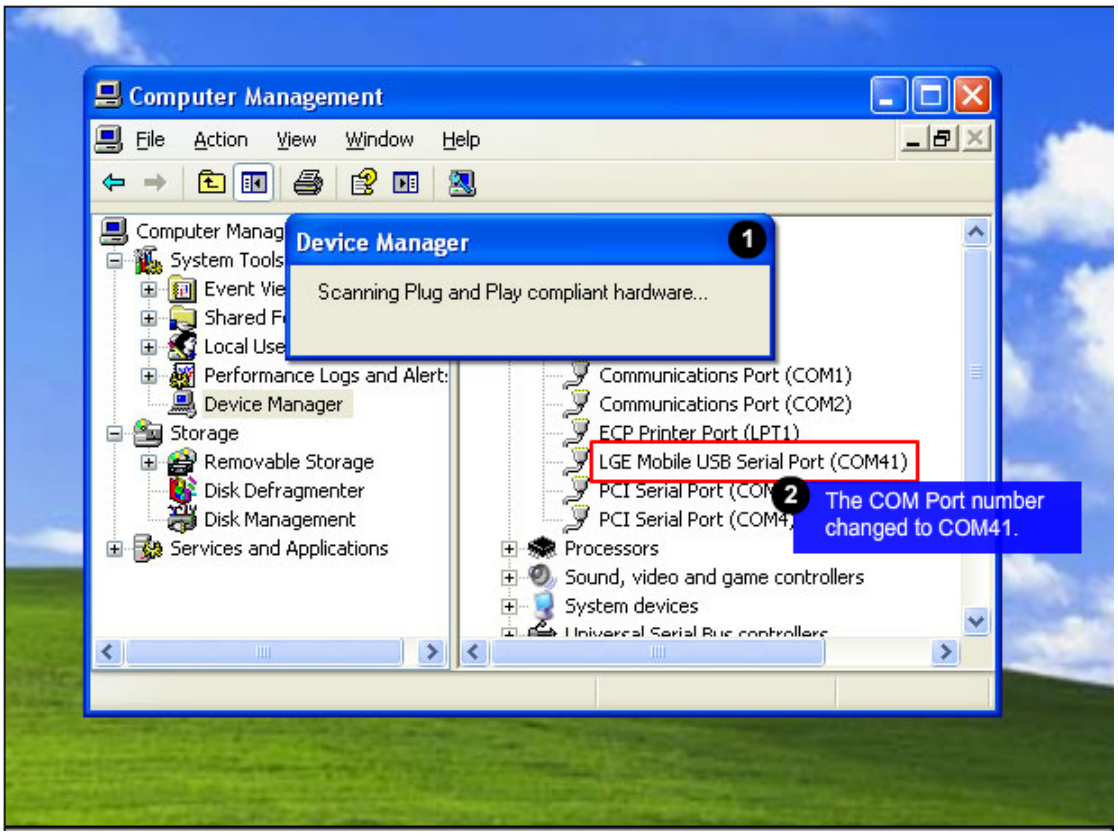


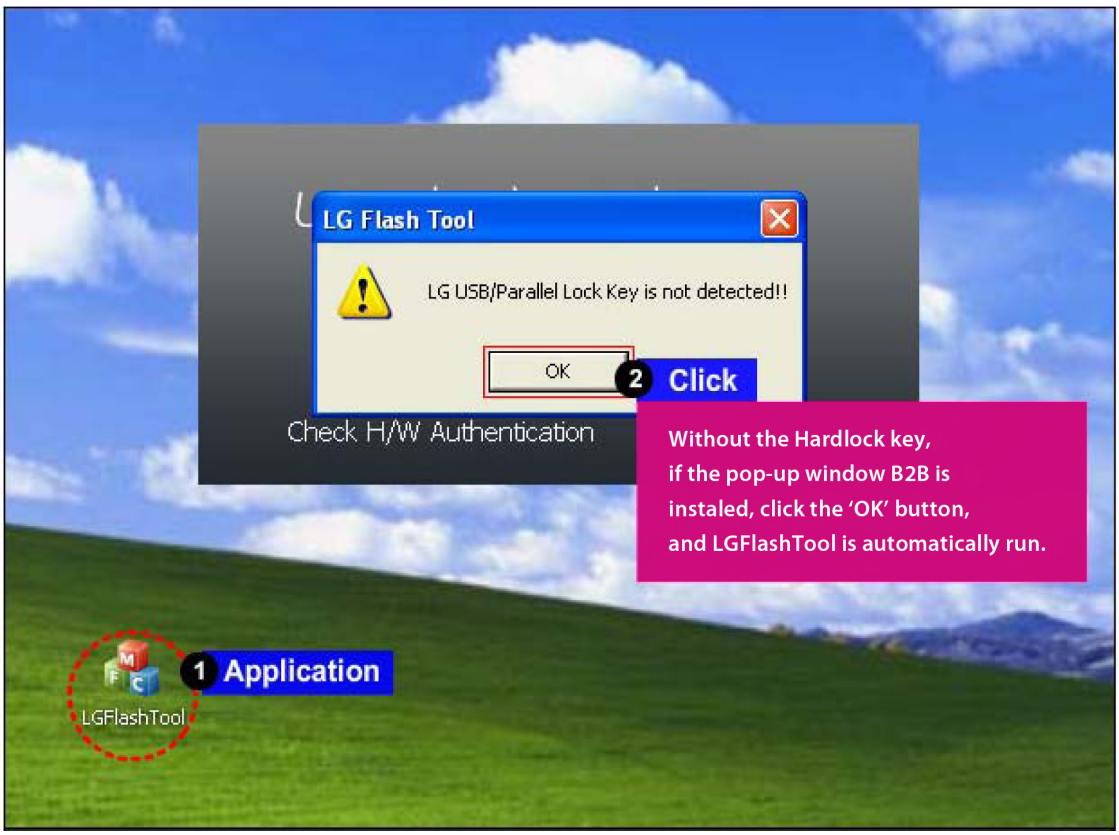


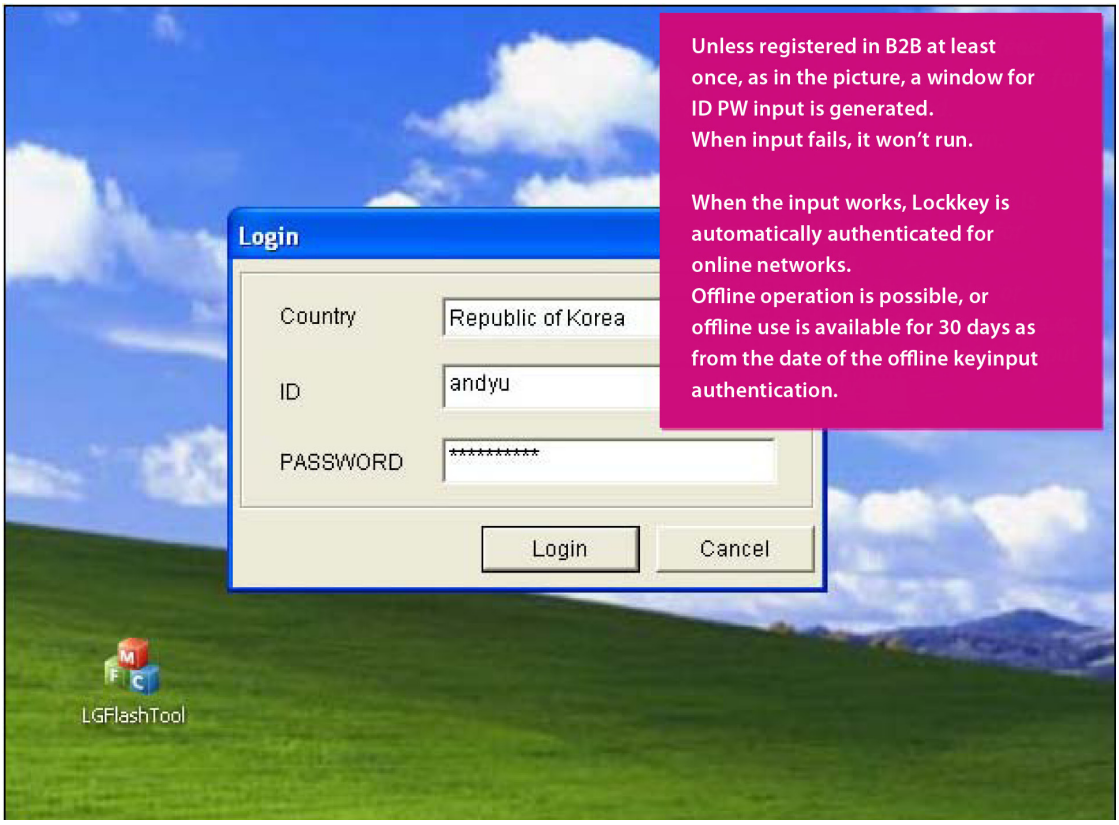


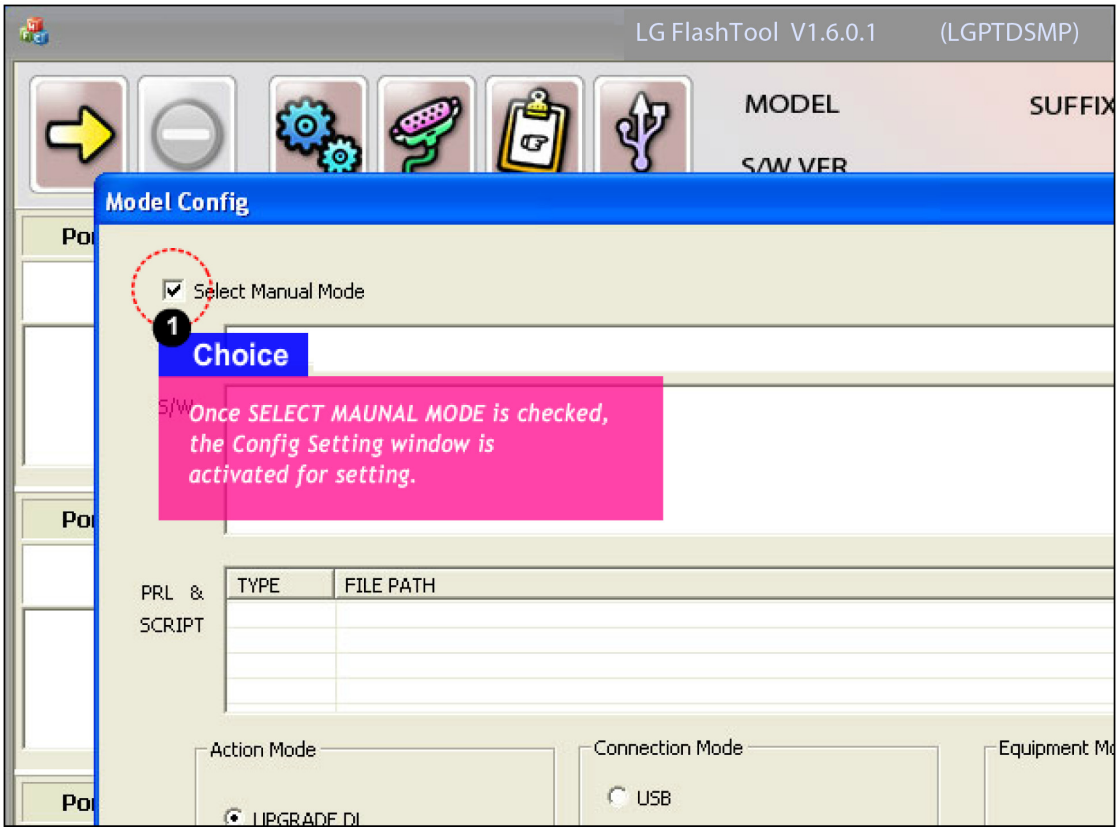


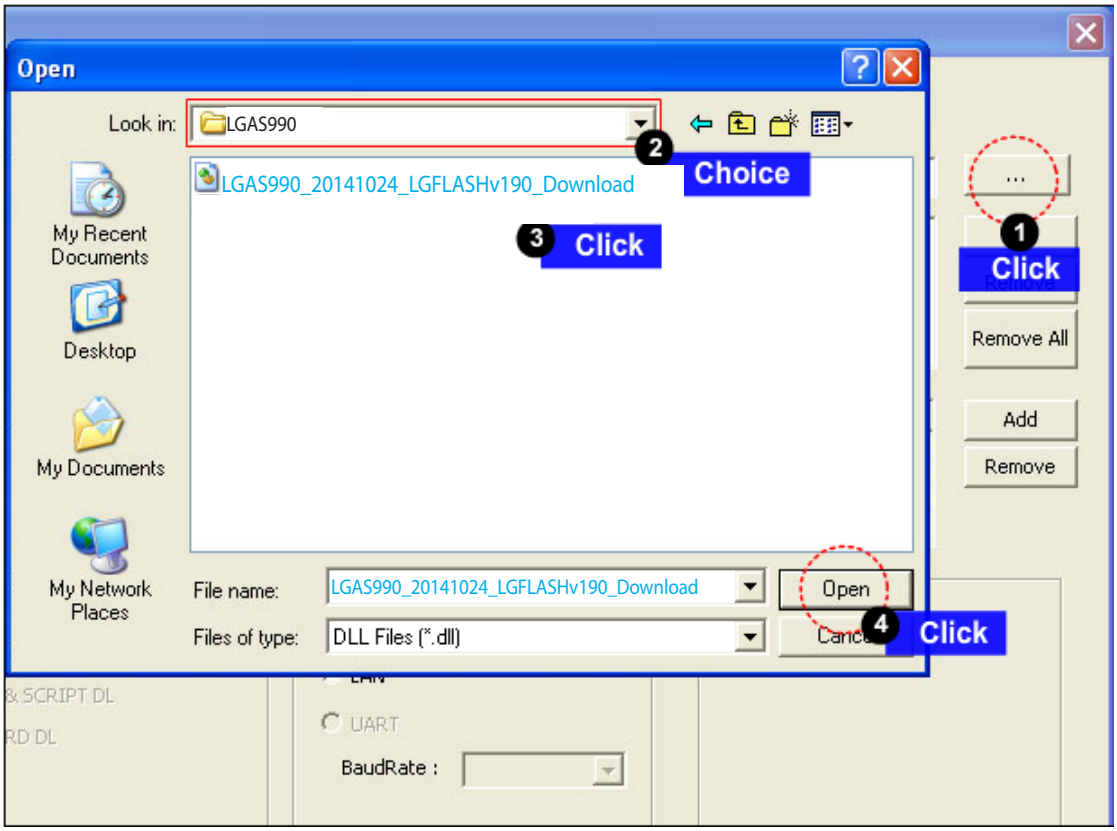


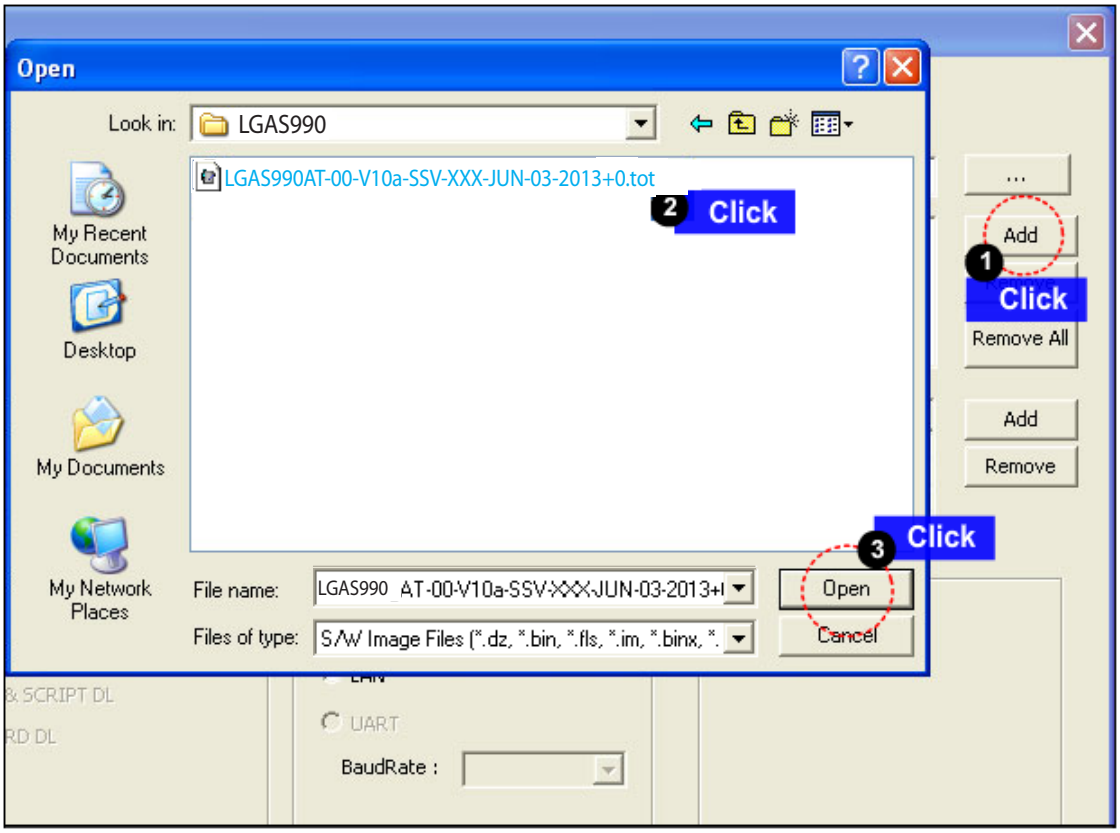


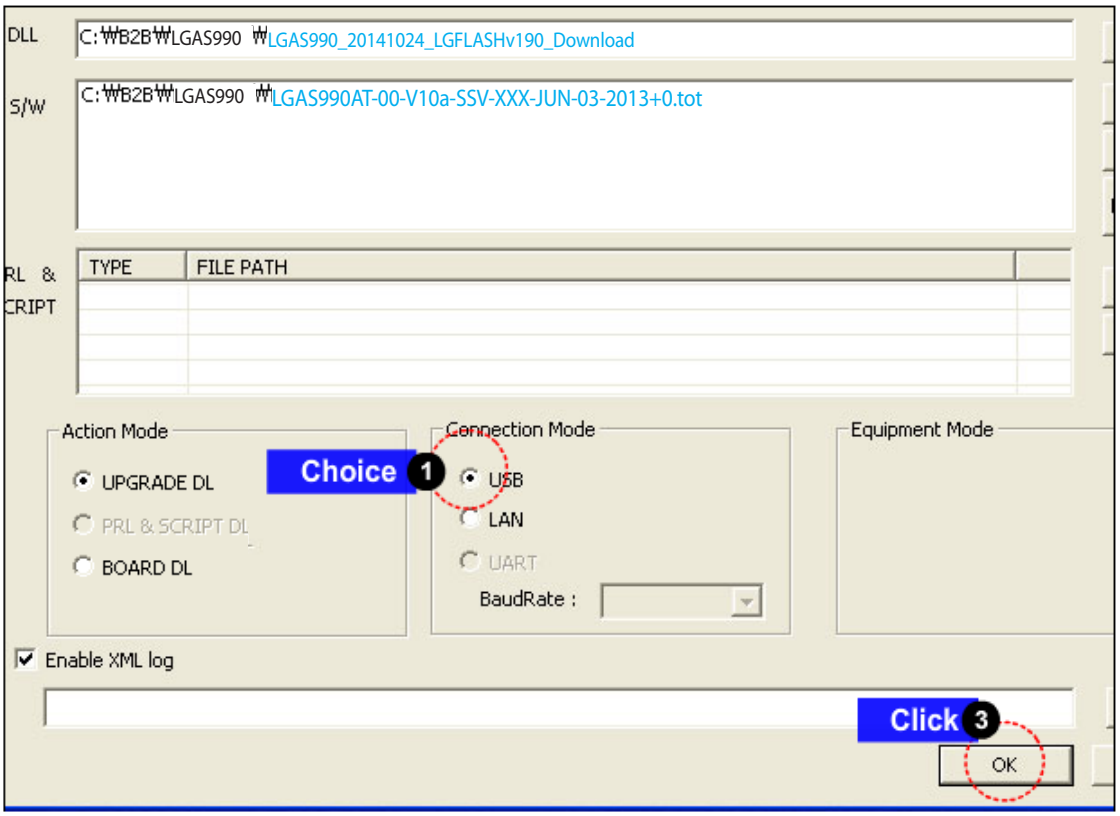


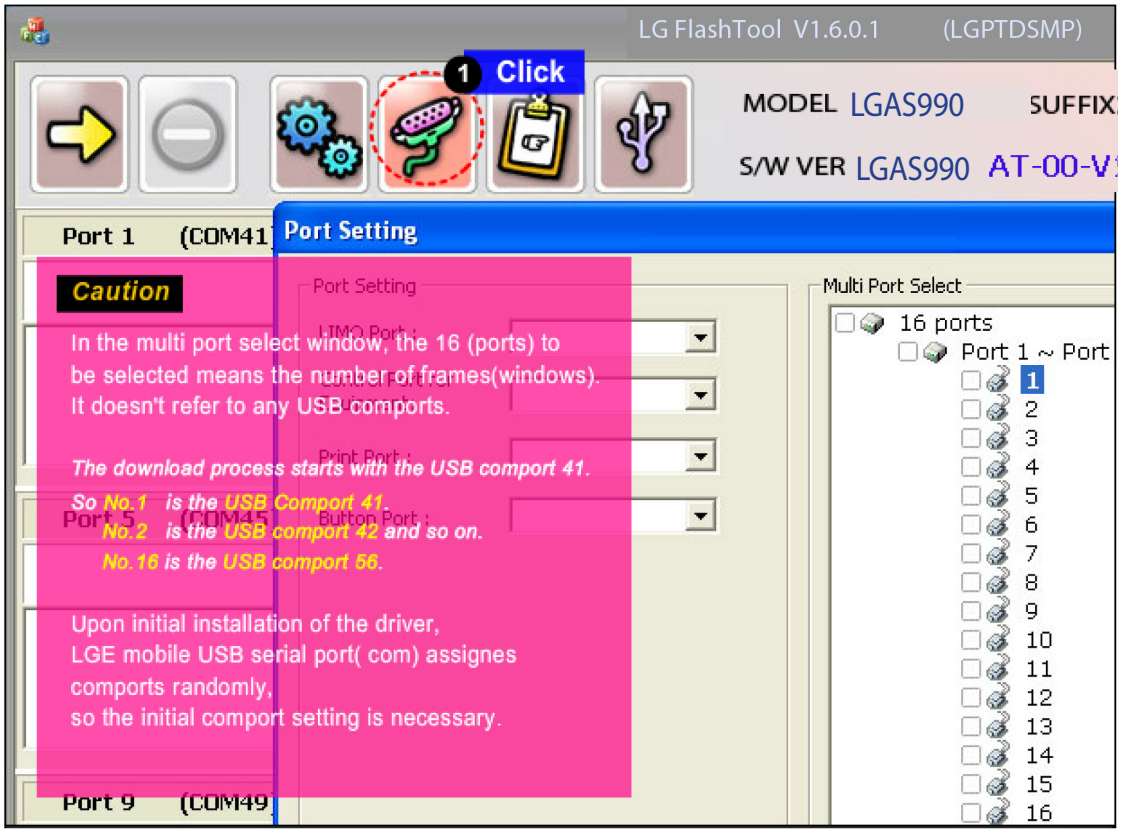


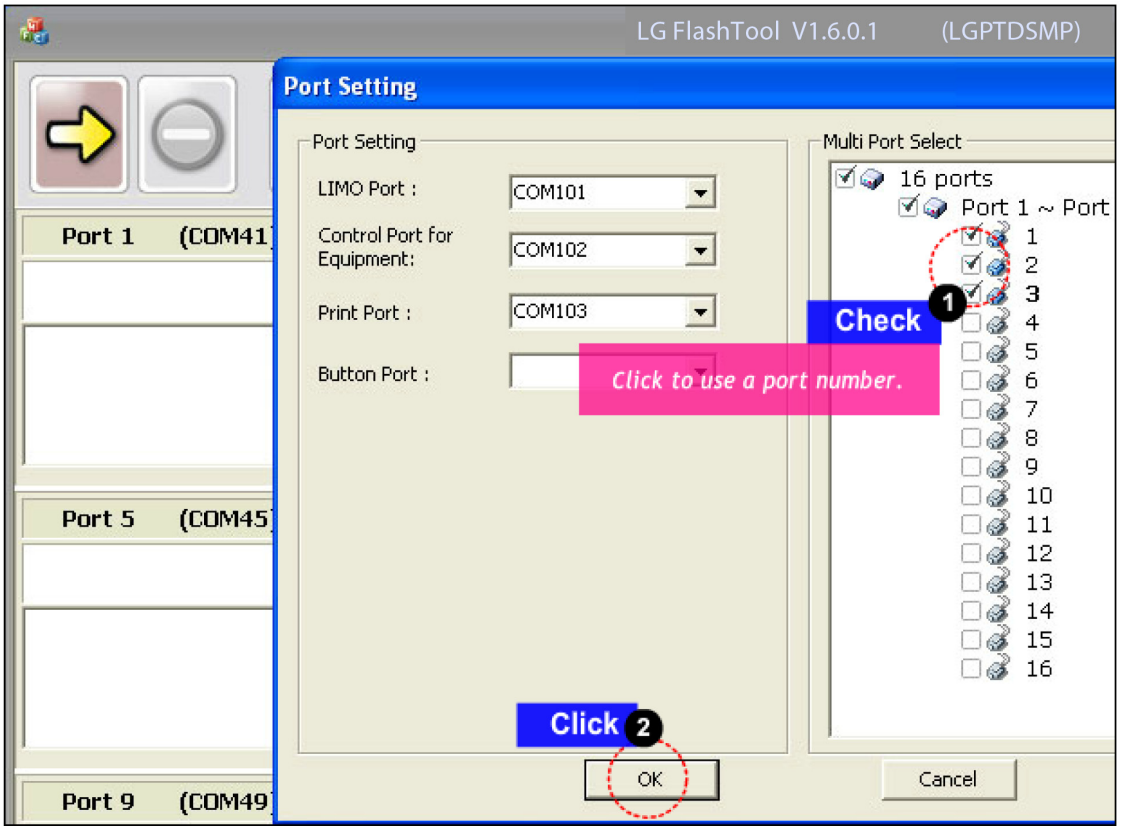


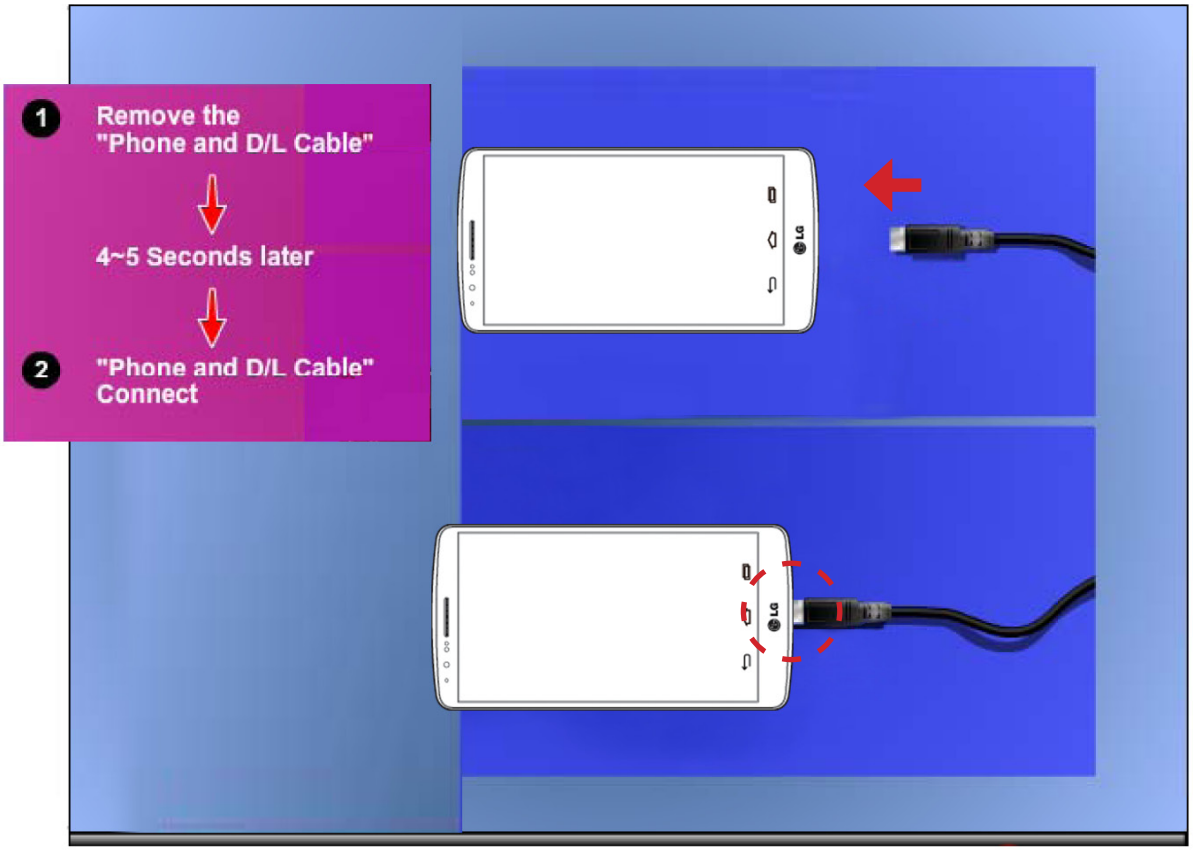


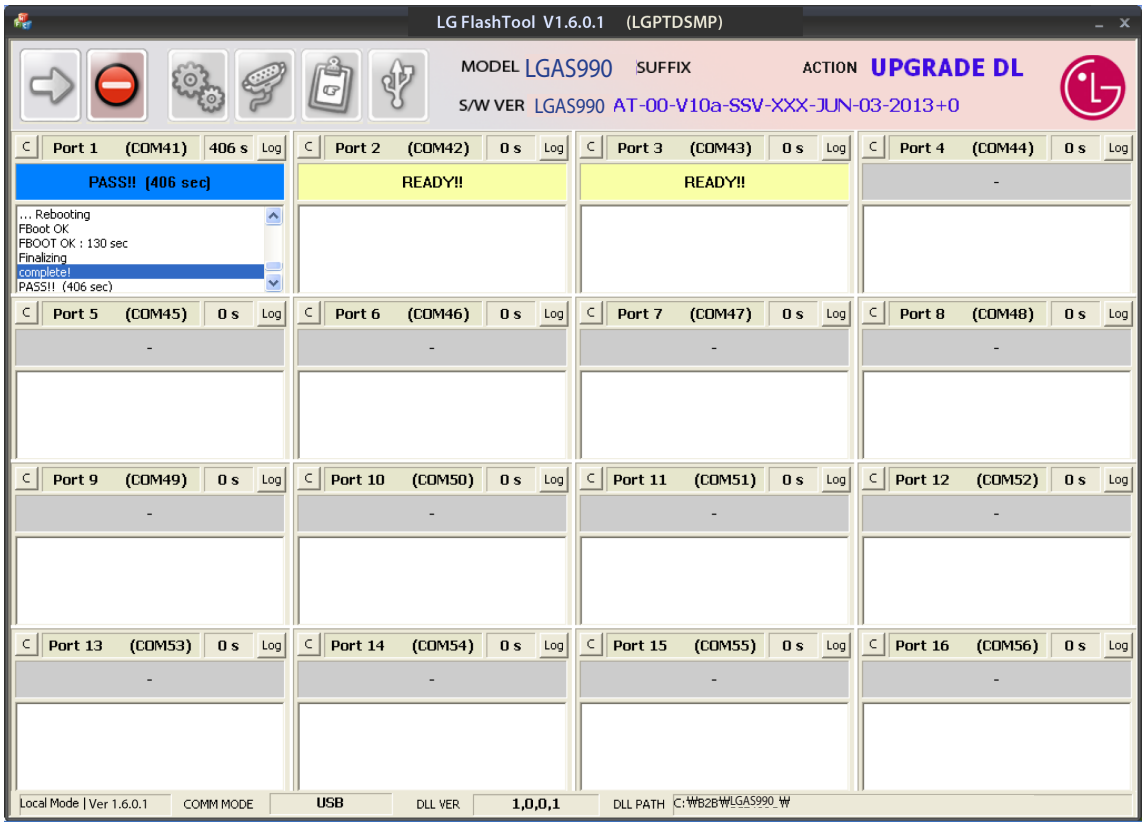


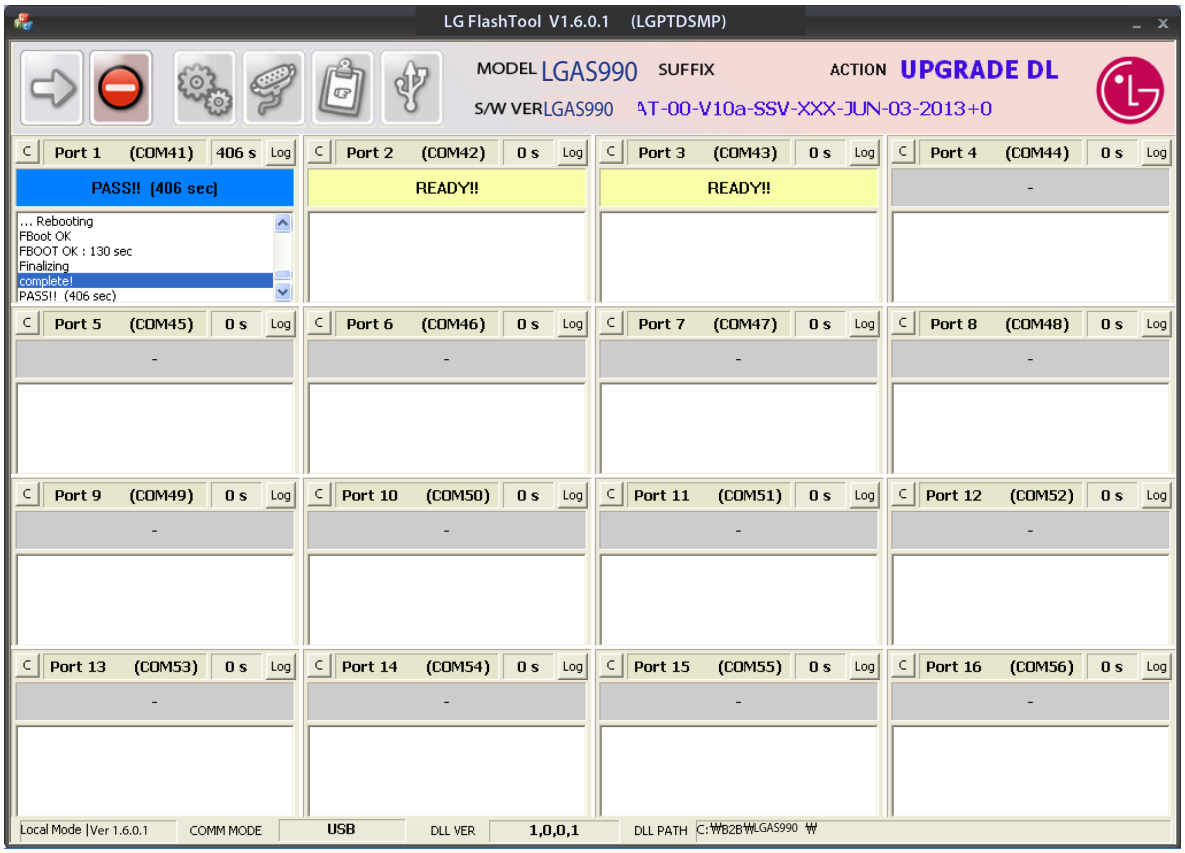






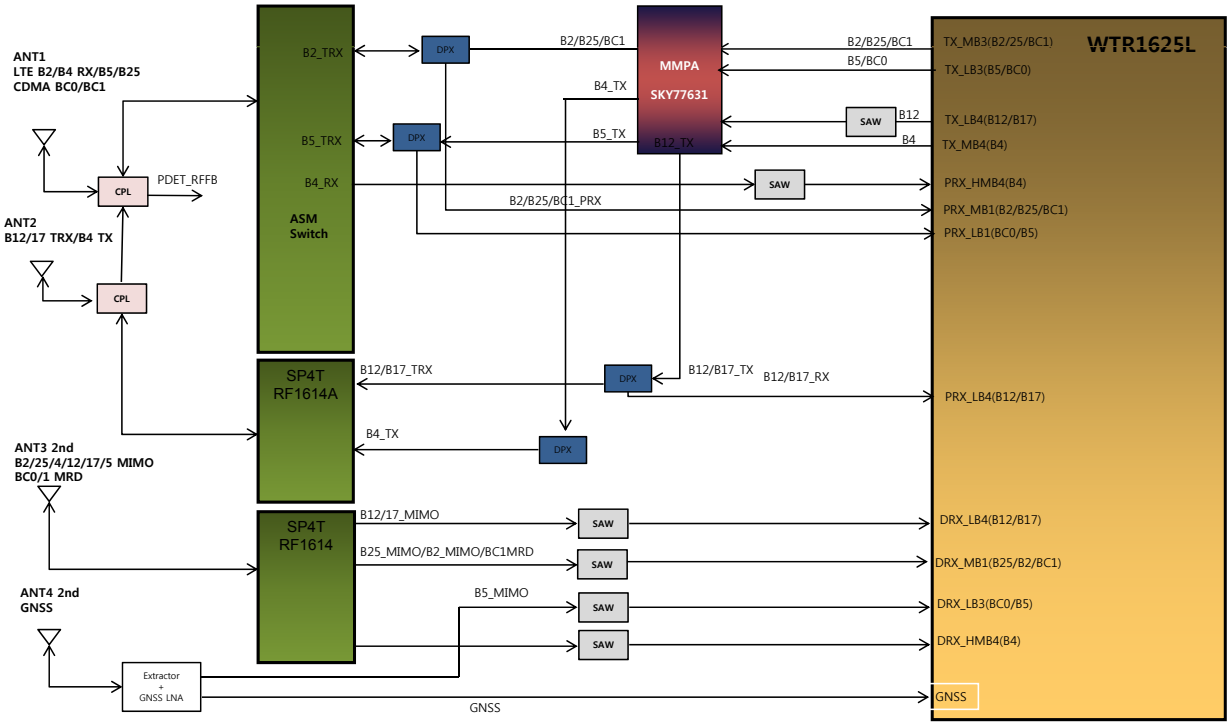




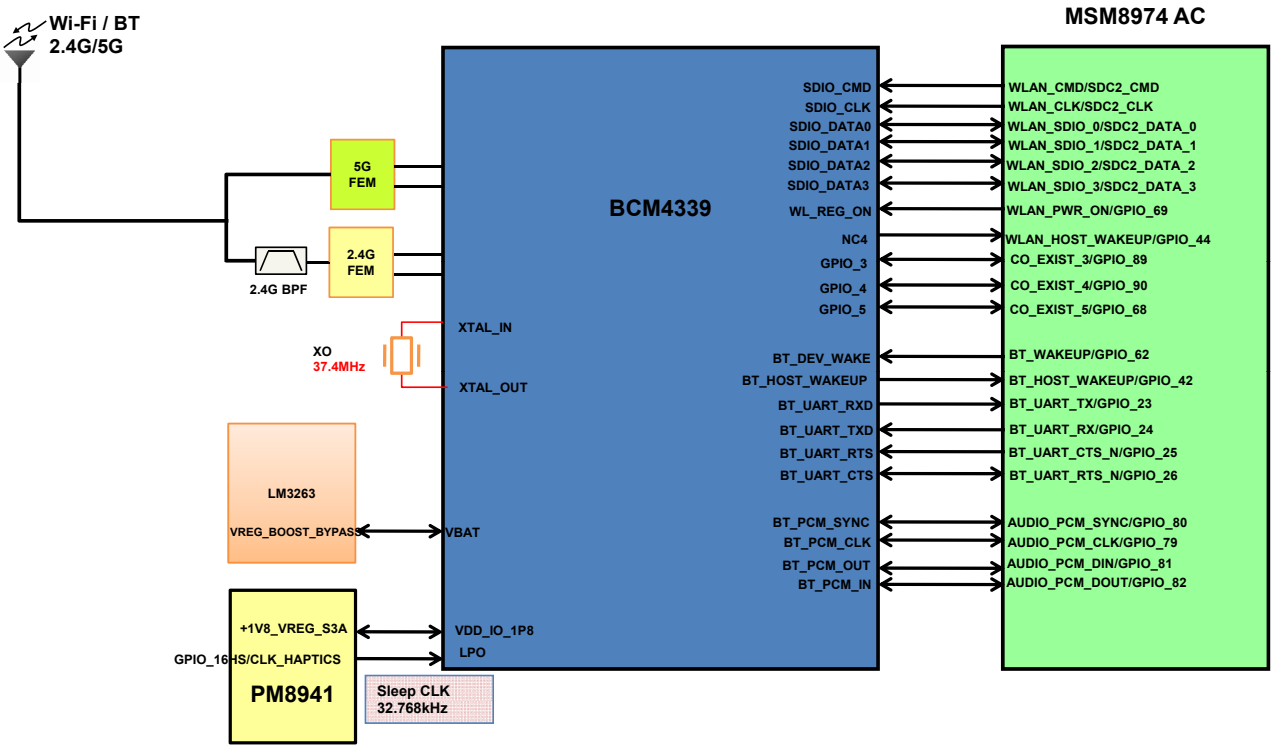


5. BLOCK DIAGRAM

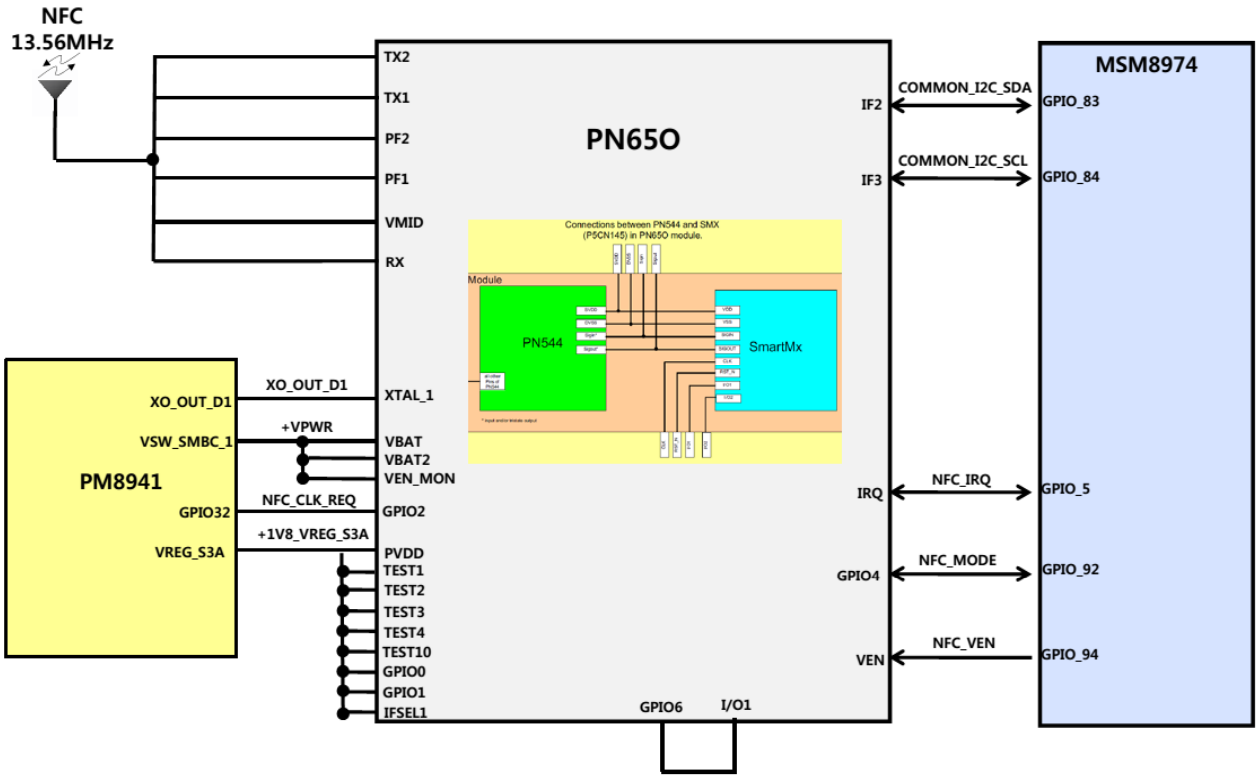
[AS990] RF Block Diagram



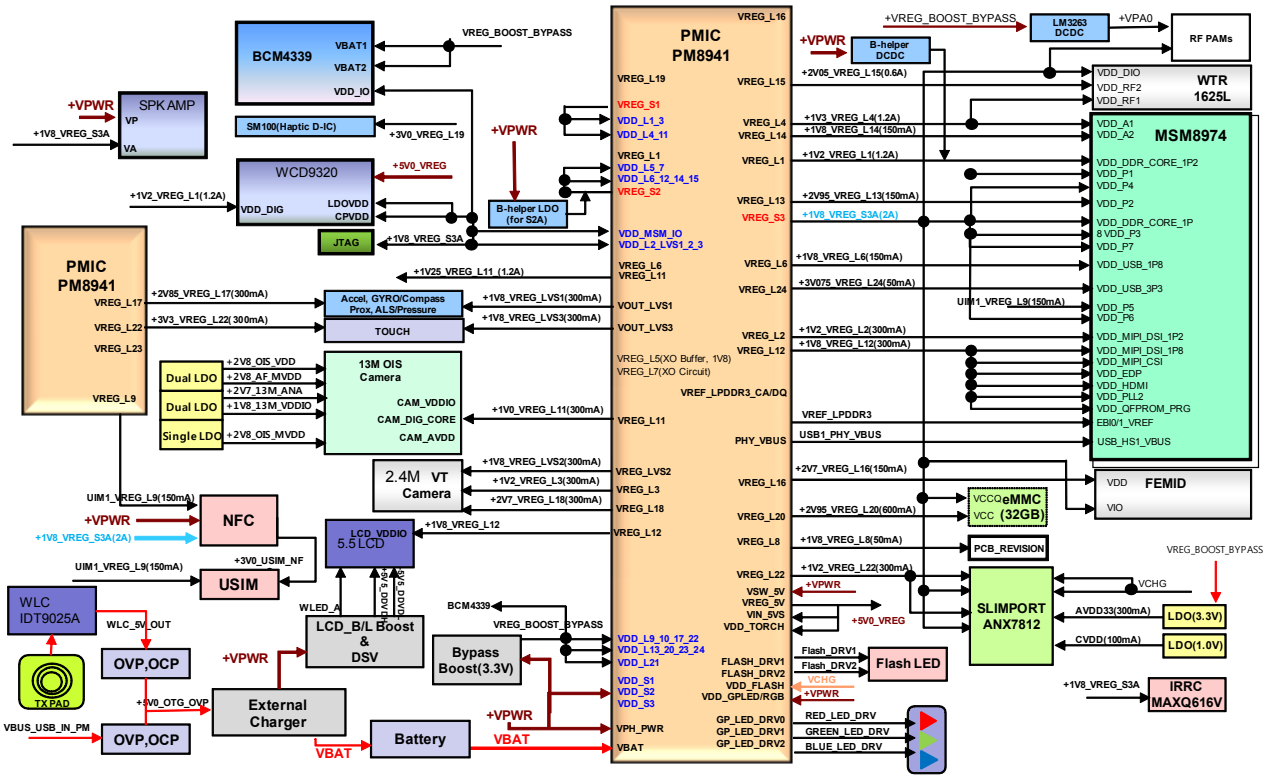
[AS990] BT / Wi-Fi



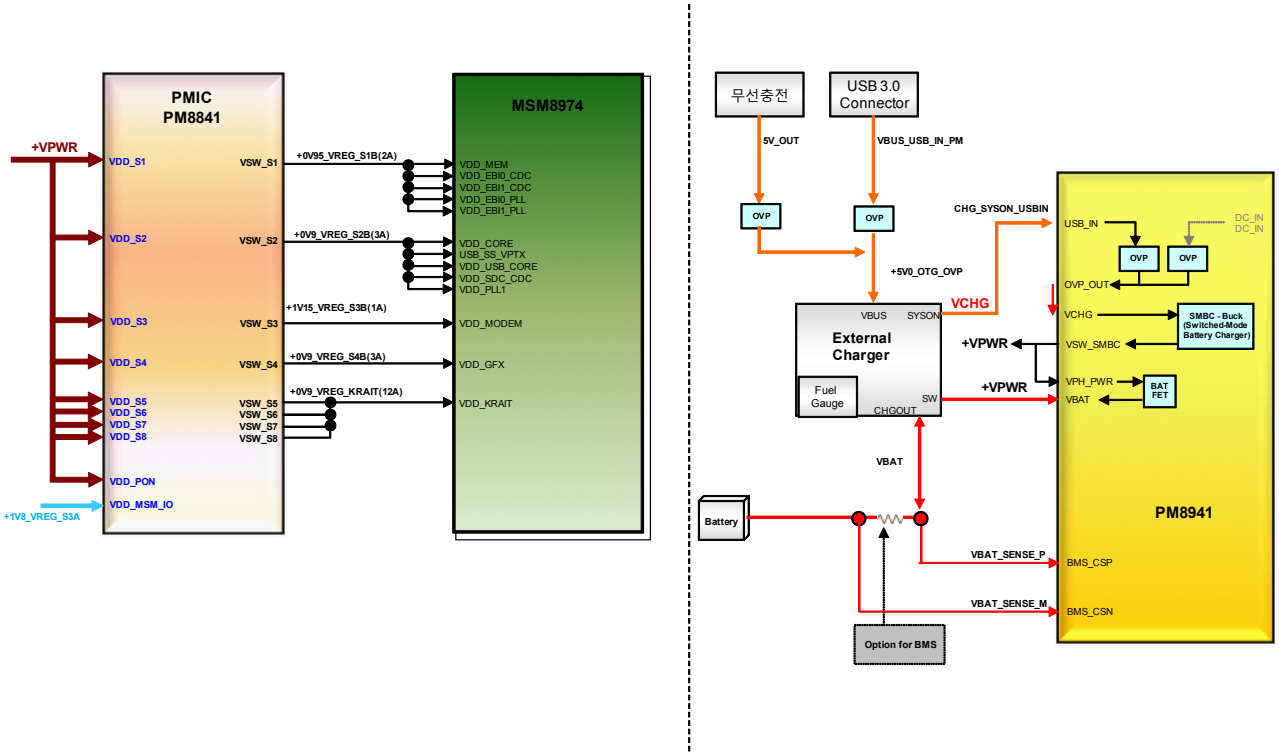
[AS990] NFC



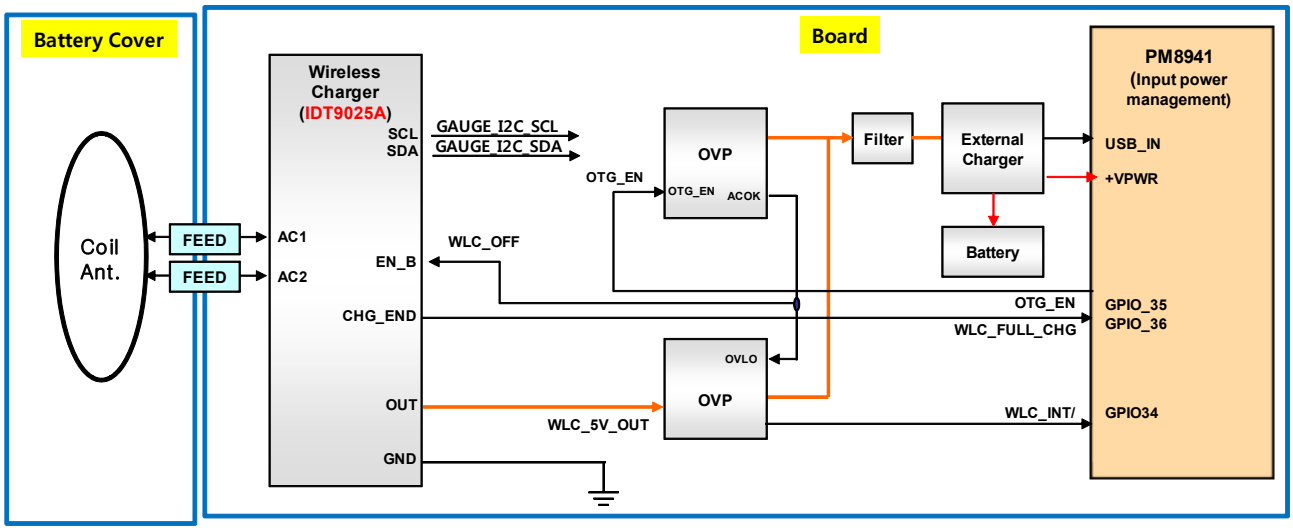
[AS990] PM8941 Output Power Management



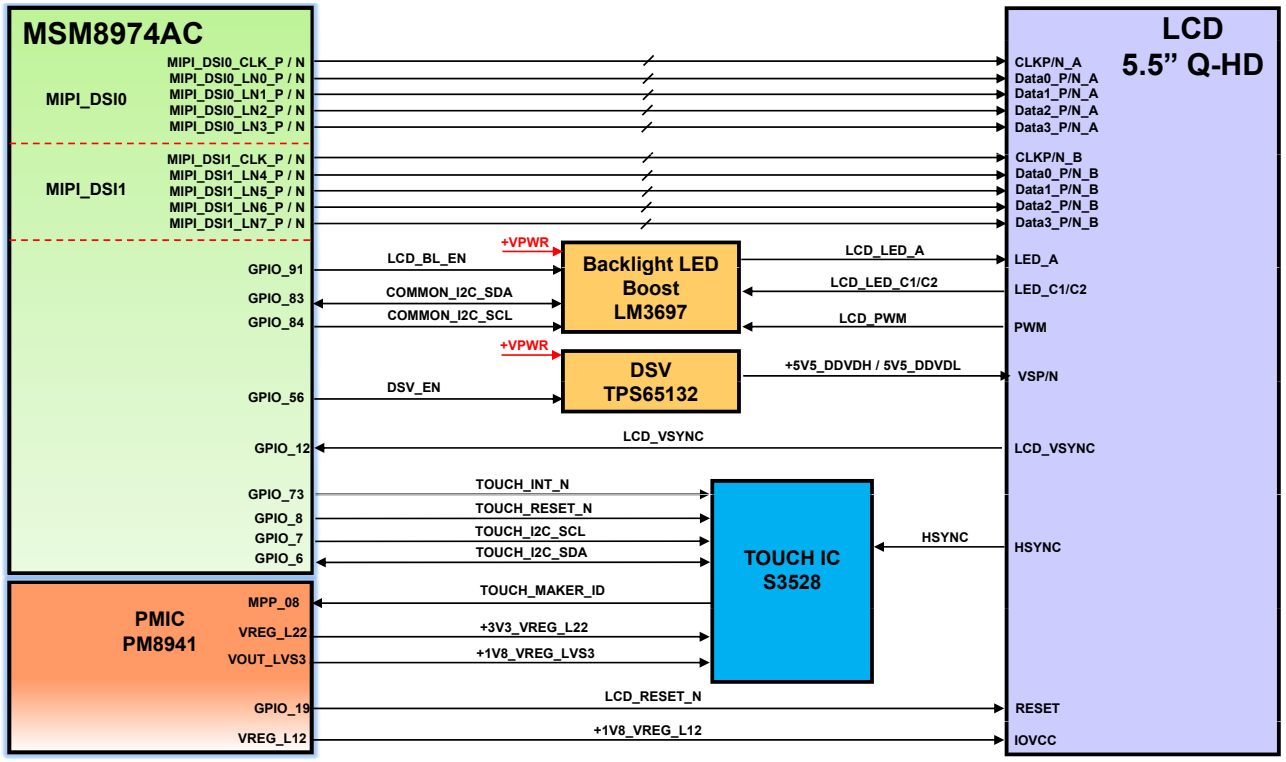
[AS990] PM8841 SMPS / PM8941 Input Power Management



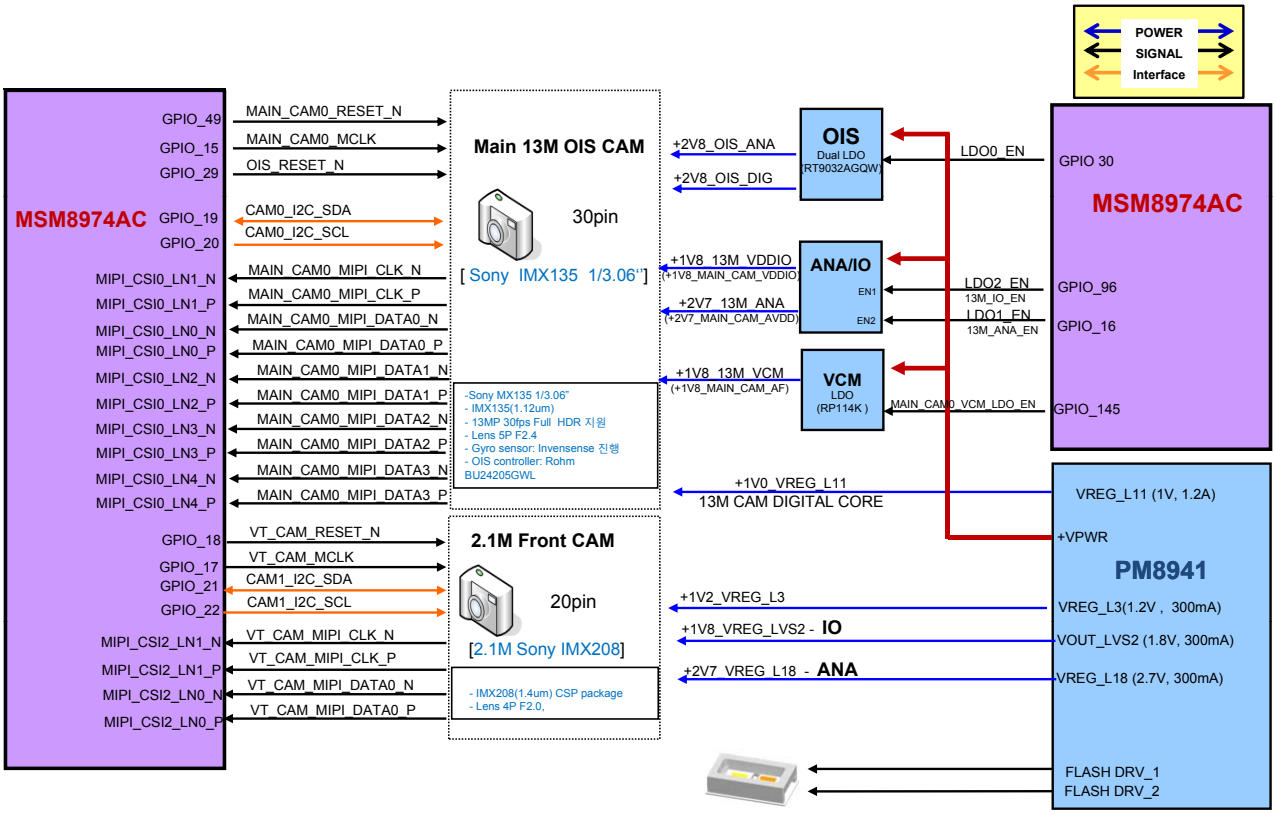
[AS990] Wireless charger



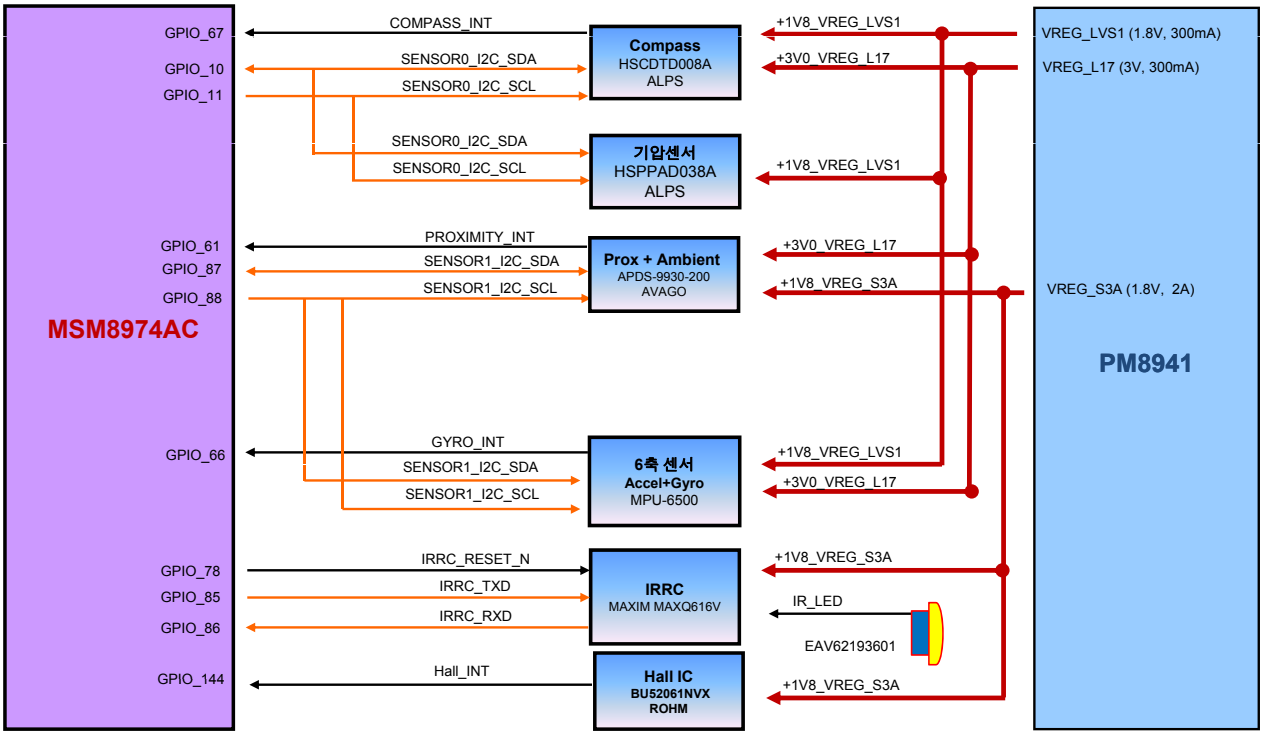
[AS990] Main Display I/F



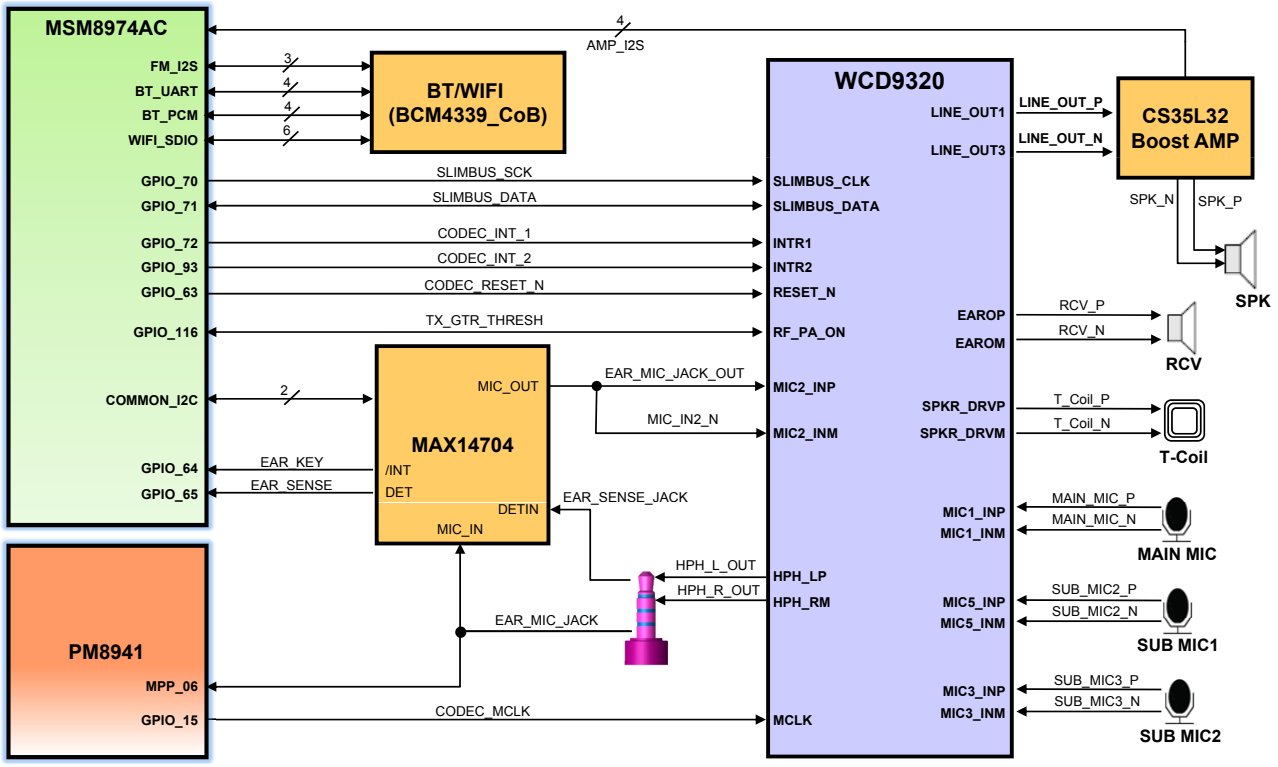
[AS990] Camera I/F



[AS990] Sensor



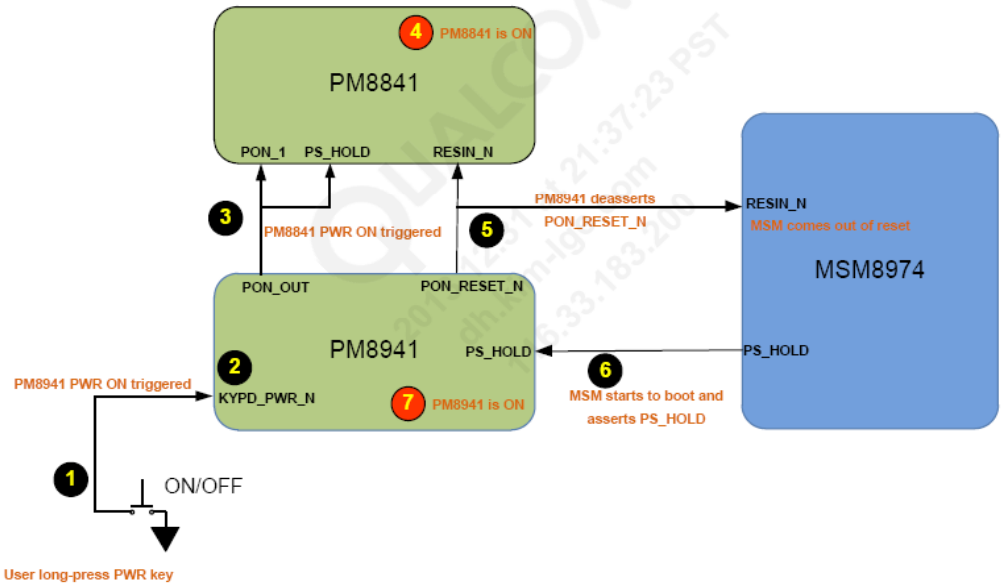
[AS990] Audio Codec I/F



[AS990] Power On Sequence

Poweron Sequence

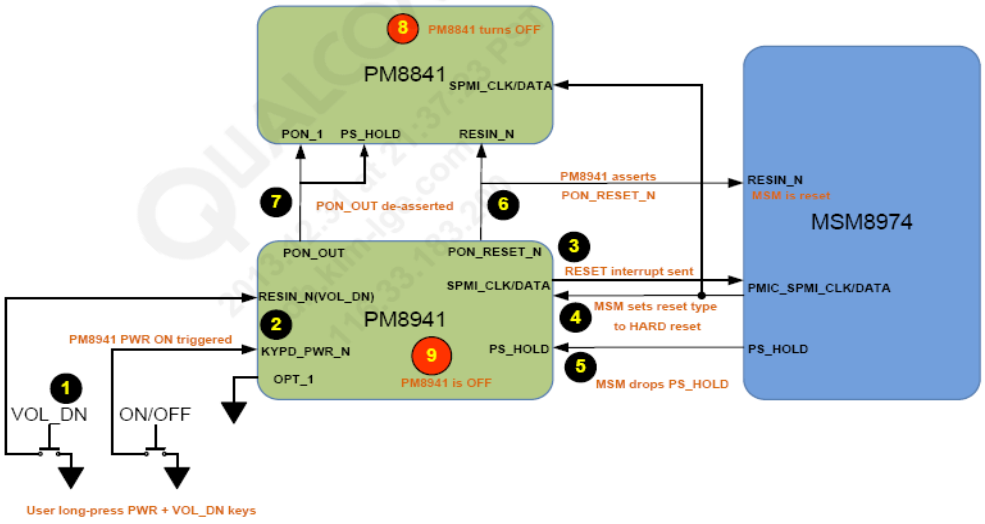
Refer to *PM8841 and PM8941 Power Management Design Guidelines* (80-NA555-5) for more information.



[AS990] Hard Reset

Hard Reset

Refer to *PM8841 and PM8941 Power Management Design Guidelines* (80-NA555-5) for more information.

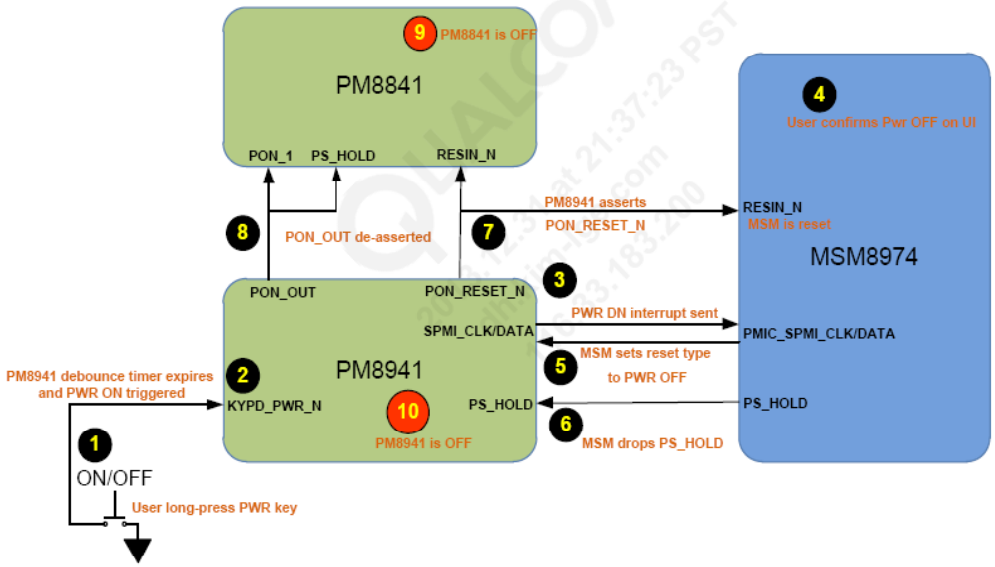


NOTE: If user presses only the VOL_DN key, then RESIN_N on PMIC is used as a GPIO for volume control.

[AS990] Power Off Sequence

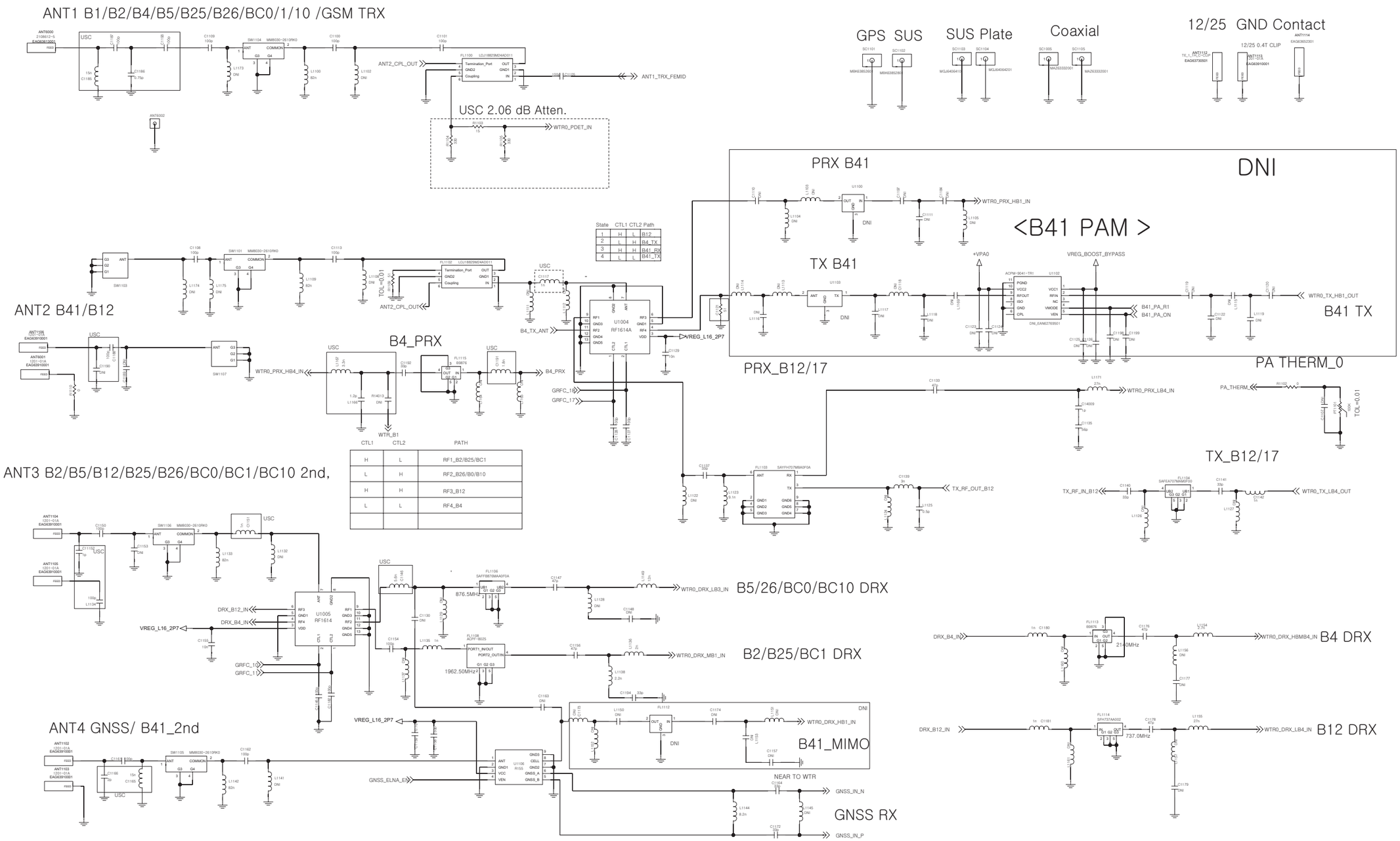
Poweroff Sequence

Refer to *PM8841 and PM8941 Power Management Design Guidelines* (80-NA555-5) for more information.



6. CIRCUIT DIAGRAM

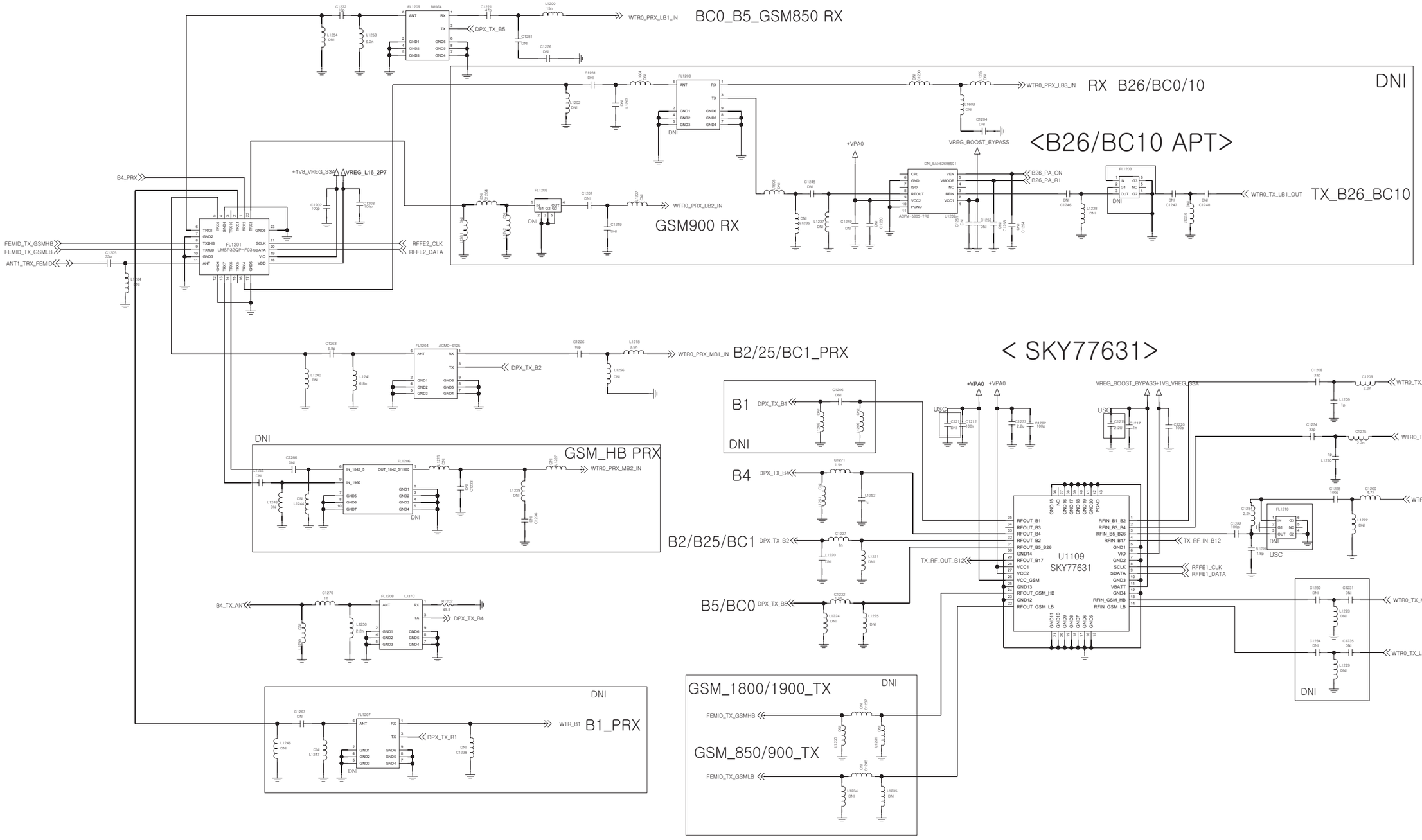
< B2_Sprint_ANT1 >



State	CTL1	CTL2	Path
1	H	L	B12
2	L	H	B4_TX
3	H	H	B41_RX
4	L	L	B41_TX

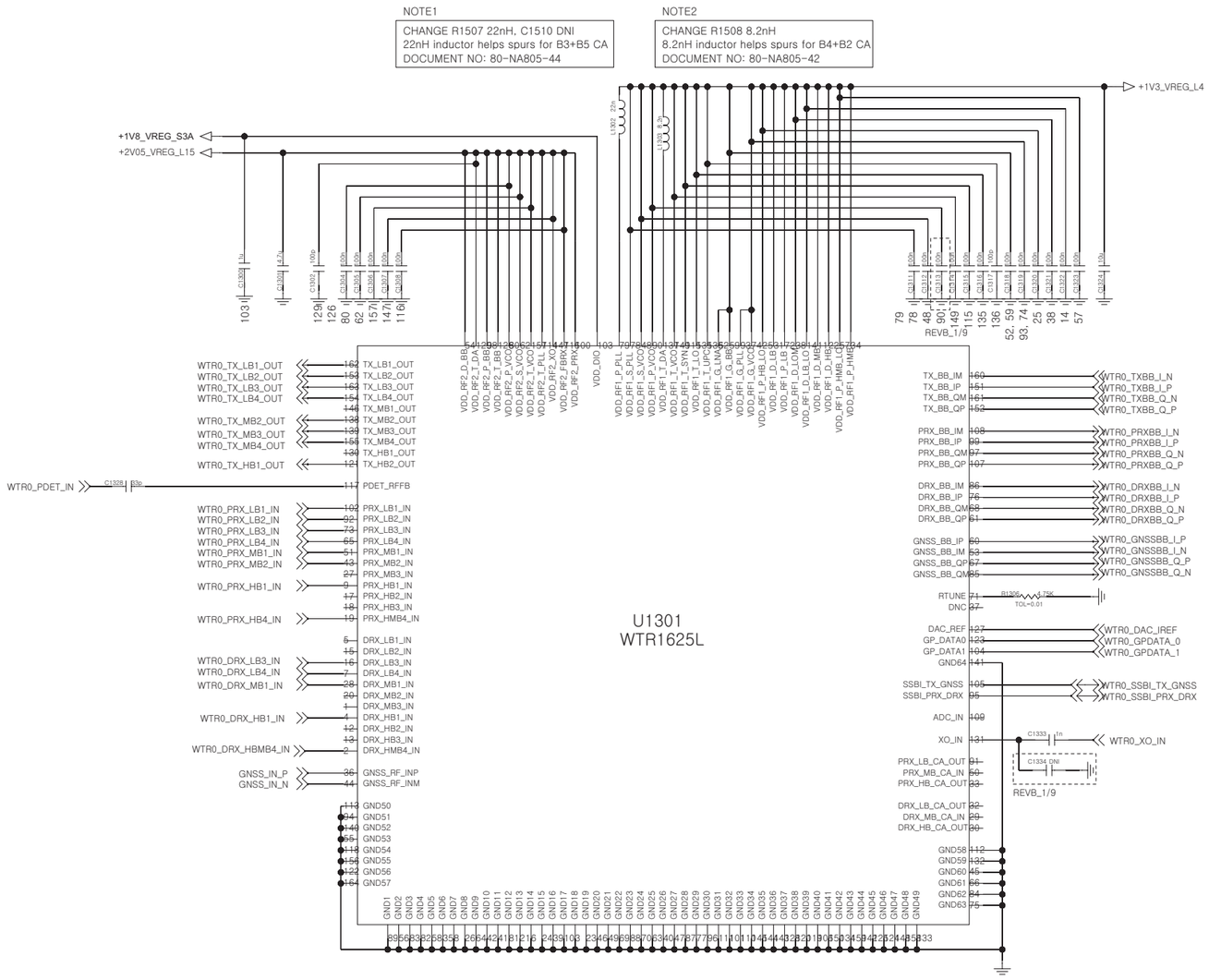
CTL1	CTL2	PATH
H	L	RF1_B2/B25/BC1
L	H	RF2_B26/B0/B10
H	H	RF3_B12
L	L	RF4_B4

< B2_ASM Switch>



< 1-3-5-1_RFIC_CA_nCA_WTR1625 >

CAUTION: YOU MUST CHECK & MODIFY RF PORT AND GPIO ON YOUR SCHEMATICS.



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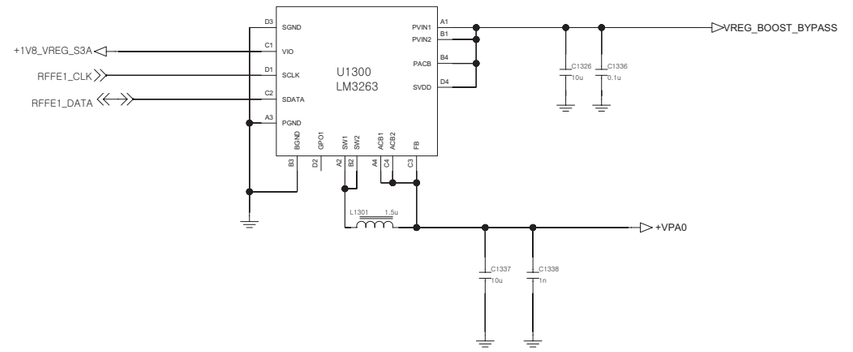

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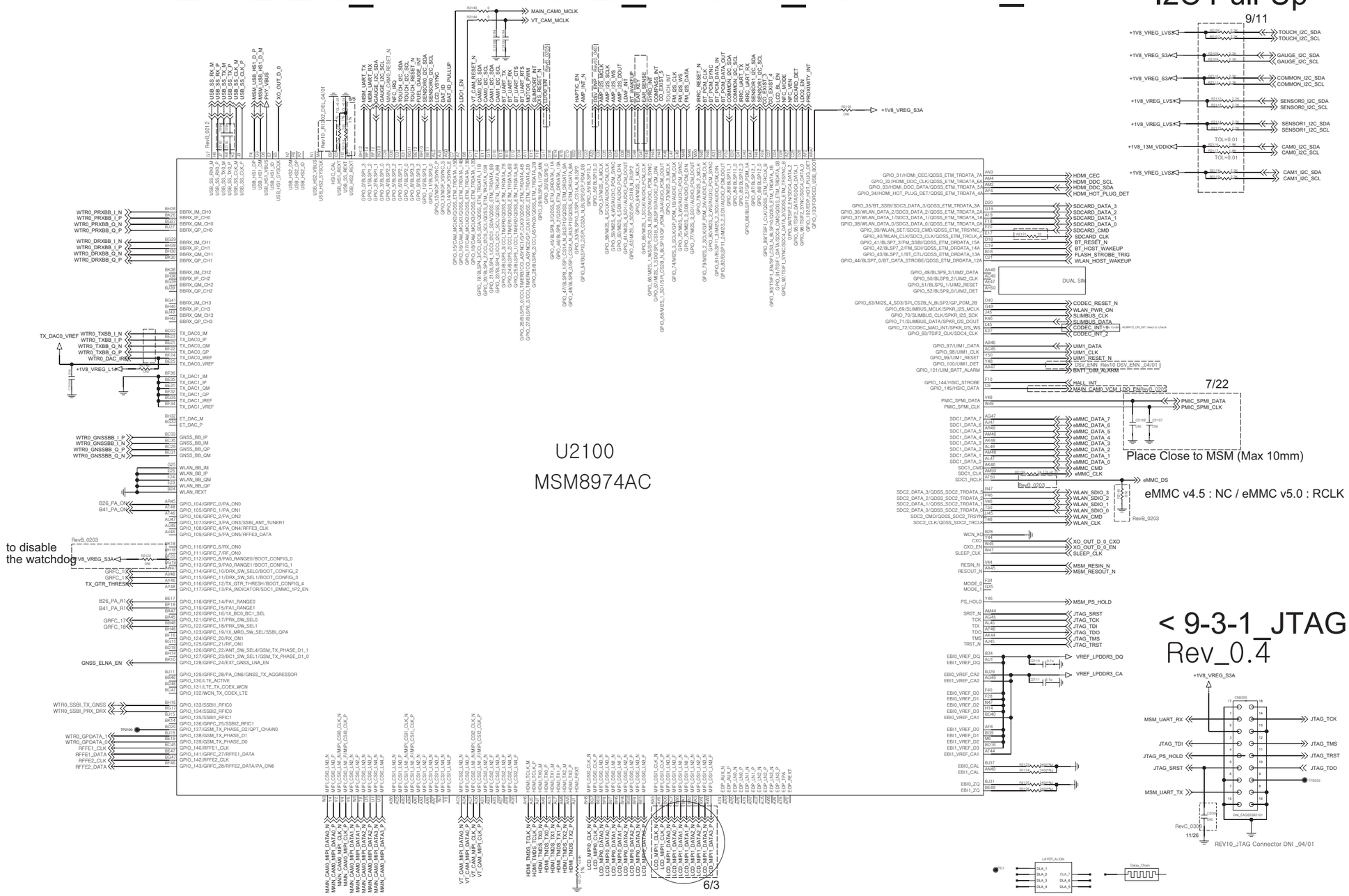
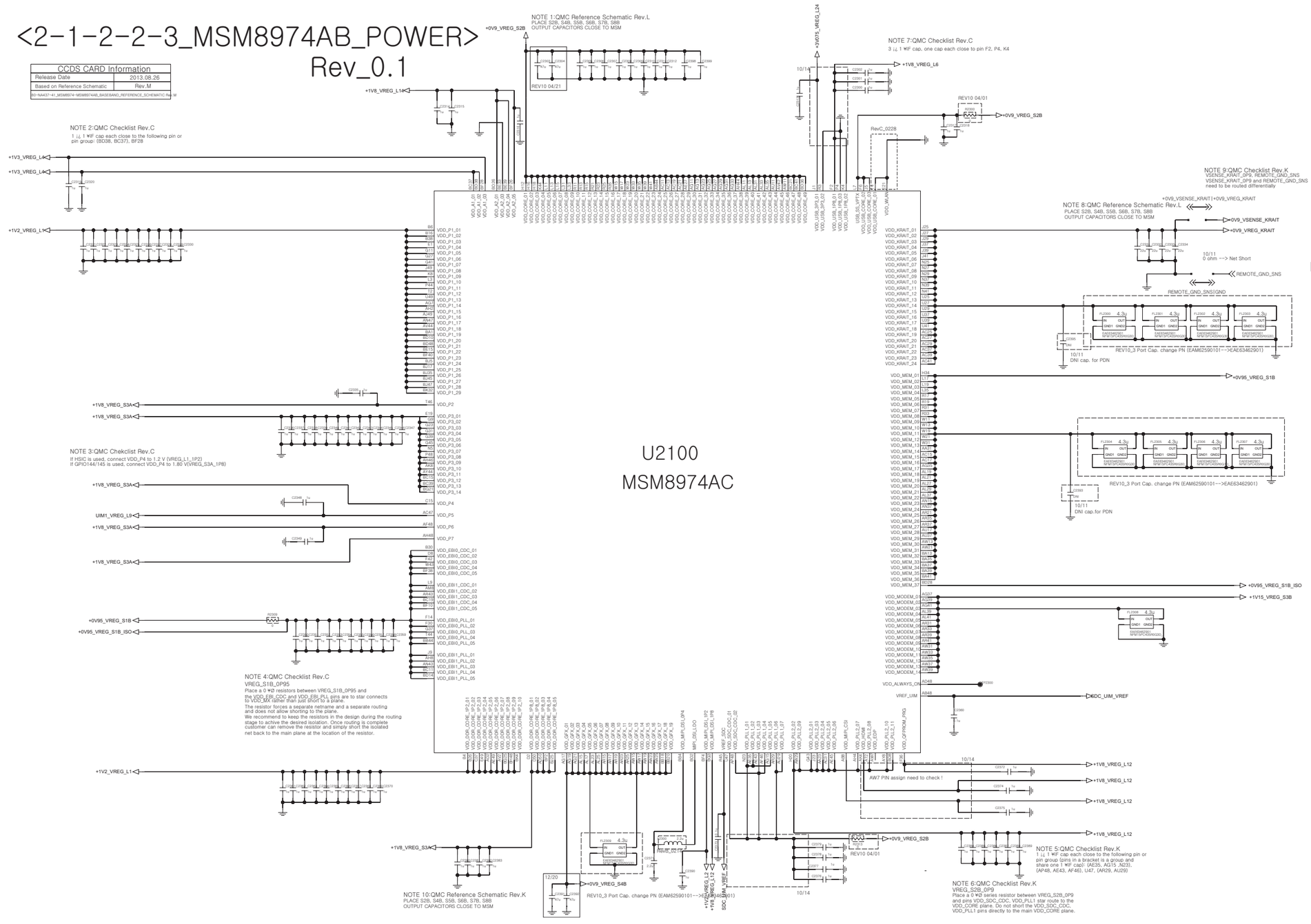
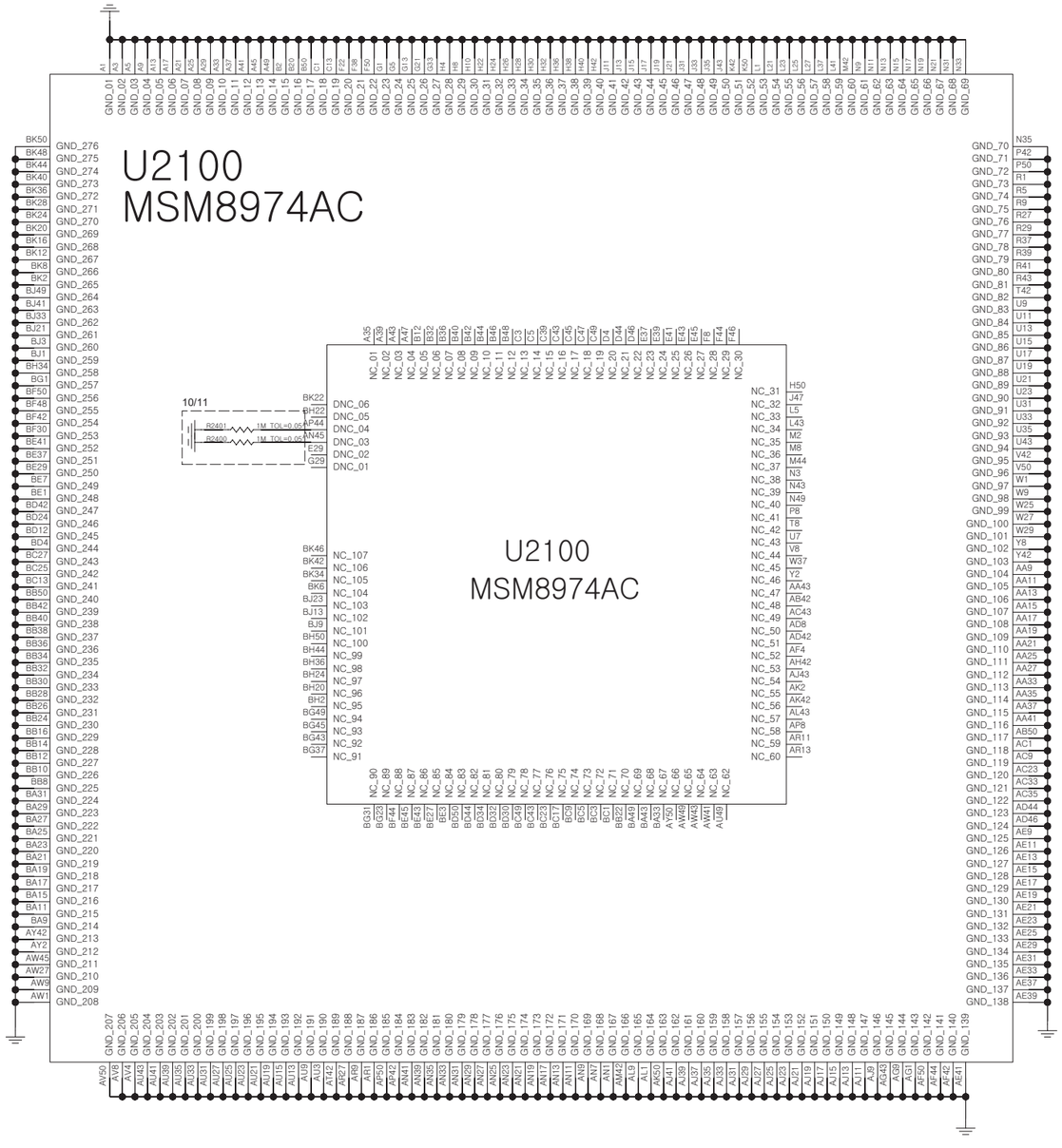




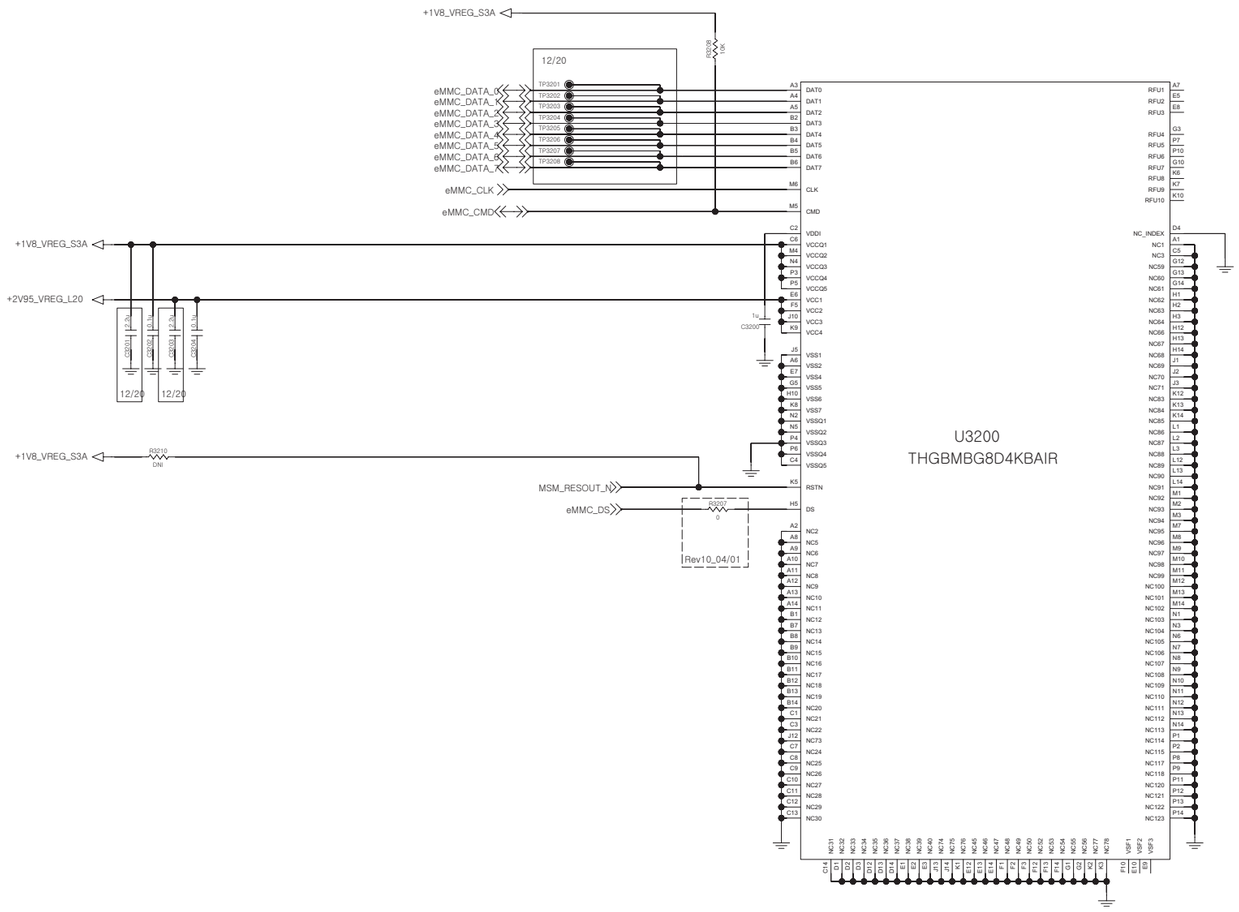
<2-1-2-2-4_MSM8974AB GND & NC> Rev_0.1

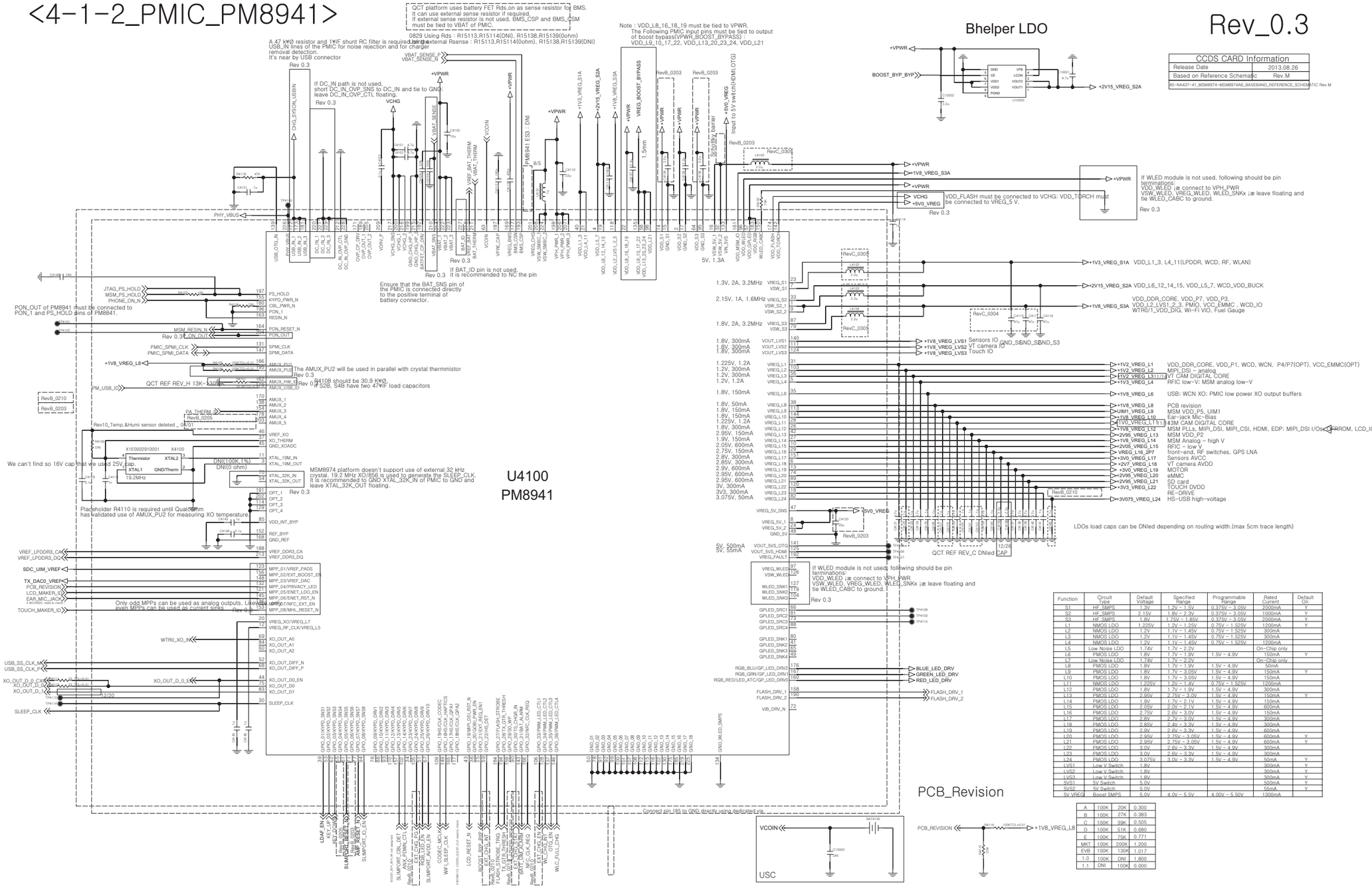


<3-1-4-3-1_LPDDR3_POP_16G-Bit> Rev_0.3

U3100
SDIN2B1600MM-16GCF
Fiducial1
RevB_0203

<3-2-2-3-1_eMMC_4_5_Toshiba_32G-Byte> Rev_0.4




<4-1-2_PMIC_PM8941>
Rev_0.3
Bhelper LDO
CCDS CARD Information
Release Date 2013.08.26
Based on Reference Schematic Rev.M
U4100
PM8941
PCB_Revision
Function
Circuit Type
Default Voltage
Specified Range
Programmable Range
Rated Current
Default On
S1 HF_SMPS 1.3V 1.2V ~ 1.5V 0.375V ~ 3.05V 2000mA Y
S2 HF_SMPS 2.15V 1.8V ~ 2.3V 0.375V ~ 3.05V 1000mA Y
S3 HF_SMPS 1.8V 1.75V ~ 1.85V 0.375V ~ 3.05V 2000mA Y
L1 NMOS LDO 1.225V 1.2V ~ 1.25V 0.75V ~ 1.525V 1200mA Y
L2 NMOS LDO 1.2V 1.1V ~ 1.45V 0.75V ~ 1.525V 300mA
L3 NMOS LDO 1.2V 1.1V ~ 1.45V 0.75V ~ 1.525V 300mA
L4 NMOS LDO 1.2V 1.1V ~ 1.45V 0.75V ~ 1.525V 1200mA
L5 Low Noise LDO 1.74V 1.7V ~ 2.2V On-Chip only
L6 PMOS LDO 1.8V 1.7V ~ 1.9V 1.5V ~ 4.9V 150mA Y
L7 Low Noise LDO 1.74V 1.7V ~ 2.2V On-Chip only
L8 PMOS LDO 1.8V 1.7V ~ 1.9V 1.5V ~ 4.9V 50mA
L9 PMOS LDO 1.8V 1.7V ~ 3.05V 1.5V ~ 4.9V 150mA Y
L10 PMOS LDO 1.8V 1.7V ~ 3.05V 1.5V ~ 4.9V 150mA
L11 NMOS LDO 1.225V 1.2V ~ 1.4V 0.75V ~ 1.525V 1200mA
L12 PMOS LDO 1.8V 1.7V ~ 1.9V 1.5V ~ 4.9V 300mA
L13 PMOS LDO 2.95V 2.75V ~ 3.0V 1.5V ~ 4.9V 150mA Y
L14 PMOS LDO 1.9V 1.7V ~ 2.1V 1.5V ~ 4.9V 150mA
L15 PMOS LDO 2.05V 2.0V ~ 2.1V 1.5V ~ 4.9V 600mA
L16 PMOS LDO 2.75V 2.6V ~ 3.0V 1.5V ~ 4.9V 150mA
L17 PMOS LDO 2.8V 2.7V ~ 3.0V 1.5V ~ 4.9V 300mA
L18 PMOS LDO 2.85V 2.4V ~ 3.3V 1.5V ~ 4.9V 300mA
L19 PMOS LDO 2.9V 2.6V ~ 3.3V 1.5V ~ 4.9V 600mA
L20 PMOS LDO 2.95V 2.75V ~ 3.05V 1.5V ~ 4.9V 600mA Y
L21 PMOS LDO 2.95V 2.75V ~ 3.05V 1.5V ~ 4.9V 600mA Y
L22 PMOS LDO 3.0V 2.6V ~ 3.3V 1.5V ~ 4.9V 300mA
L23 PMOS LDO 3.0V 2.6V ~ 3.3V 1.5V ~ 4.9V 300mA
L24 PMOS LDO 3.075V 3.0V ~ 3.3V 1.5V ~ 4.9V 50mA Y
LVS1 Low V Switch 1.8V 300mA Y
LVS2 Low V Switch 1.8V 300mA Y
LVS3 Low V Switch 1.8V 300mA Y
5VS1 5V Switch 5.0V 500mA Y
5VS2 5V Switch 5.0V 55mA Y
5V VREG Boost SMPS 5.0V 4.00V ~ 5.50V 4.00V ~ 5.50V 1300mA Y
A 100K 20K 0.300
B 100K 27K 0.383
C 100K 39K 0.505
D 100K 51K 0.680
E 100K 75K 0.771
MKT 100K 200K 1.200
EVB 100K 130K 1.017
1.0 100K DNI 1.800
1.1 DNI 100K 0.000
LGE Internal Use Only
- 172 -
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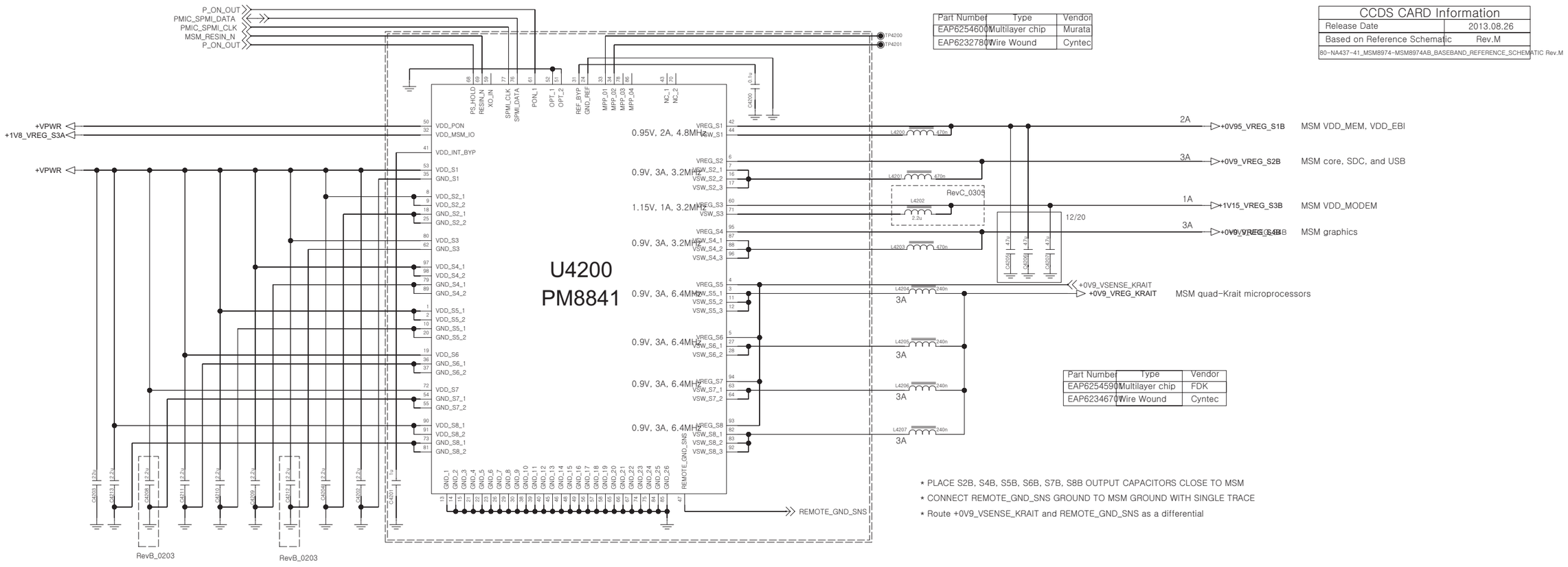
Only for training and service purposes

<4-2-1_PMIC_PM8841>

Rev_0.3



Part Number	Type	Vendor
EAP6254600	Multilayer chip	Murata
EAP6232780	Wire Wound	Cyntec

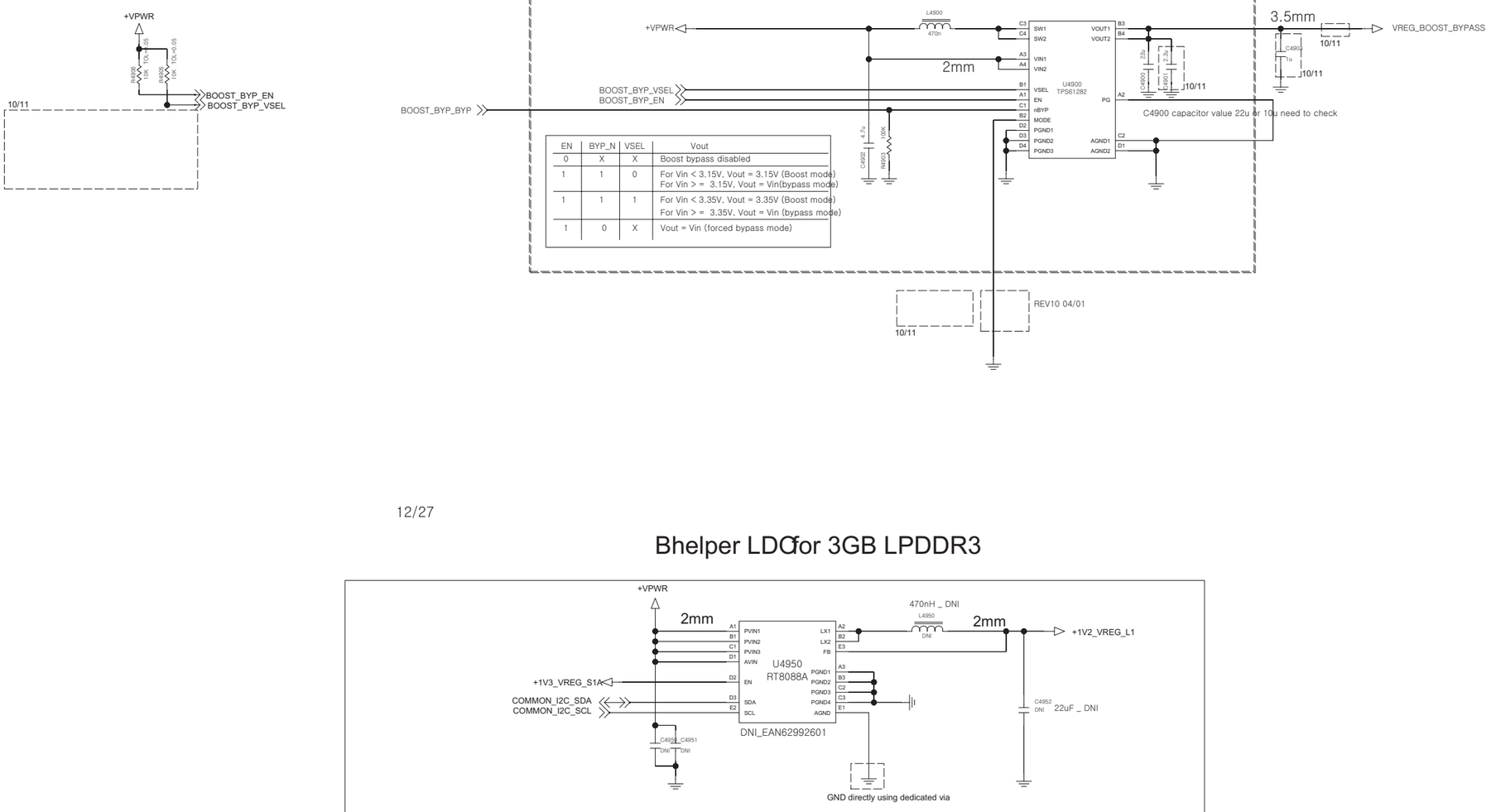
CCDS CARD Information	
Release Date	2013.08.26
Based on Reference Schematic	Rev.M

80-NA437-41_MSM8974-MSM8974AB_BASEBAND_REFERENCE_SCHEMATIC Rev.M

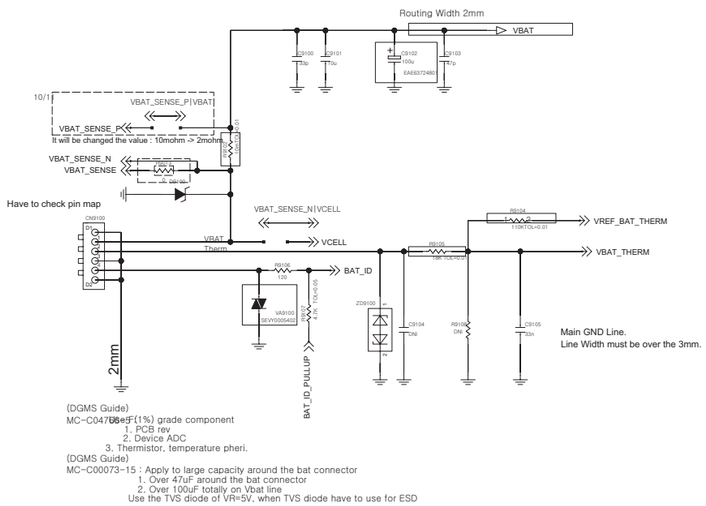
Part Number	Type	Vendor
EAP6254590	Multilayer chip	FDK
EAP6234670	Wire Wound	Cyntec

* PLACE S2B, S4B, S5B, S6B, S7B, S8B OUTPUT CAPACITORS CLOSE TO MSM
* CONNECT REMOTE_GND_SNS GROUND TO MSM GROUND WITH SINGLE TRACE
* Route +0V9_VSENSE_KRAIT and REMOTE_GND_SNS as a differential

<4-9-1-4-3_Bypass_Booster_Single_TPS61282> Rev_0.3

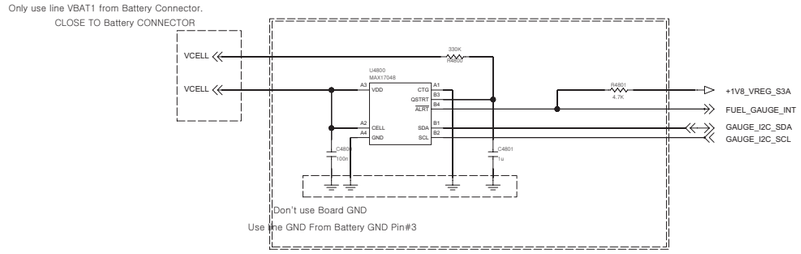


<9-1-2_Battery_CNT_4P>REV.0.5



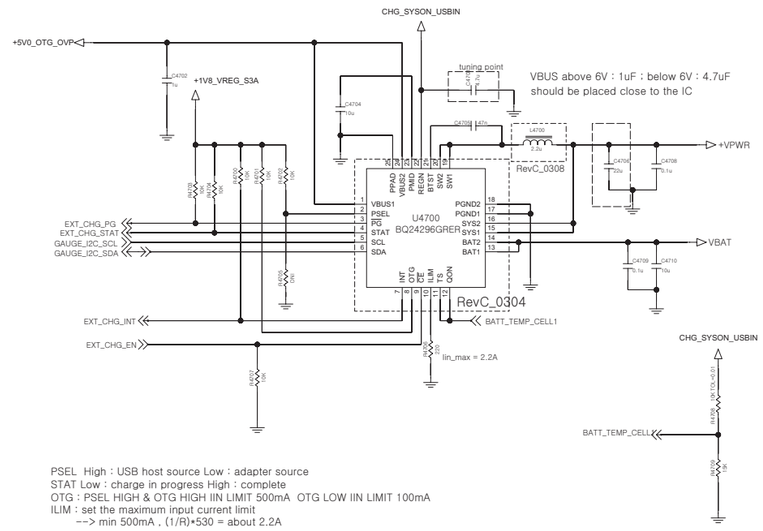
RevB_0210

<4-8-1_Fuel_Gauge_MAX17048> Rev_0.3



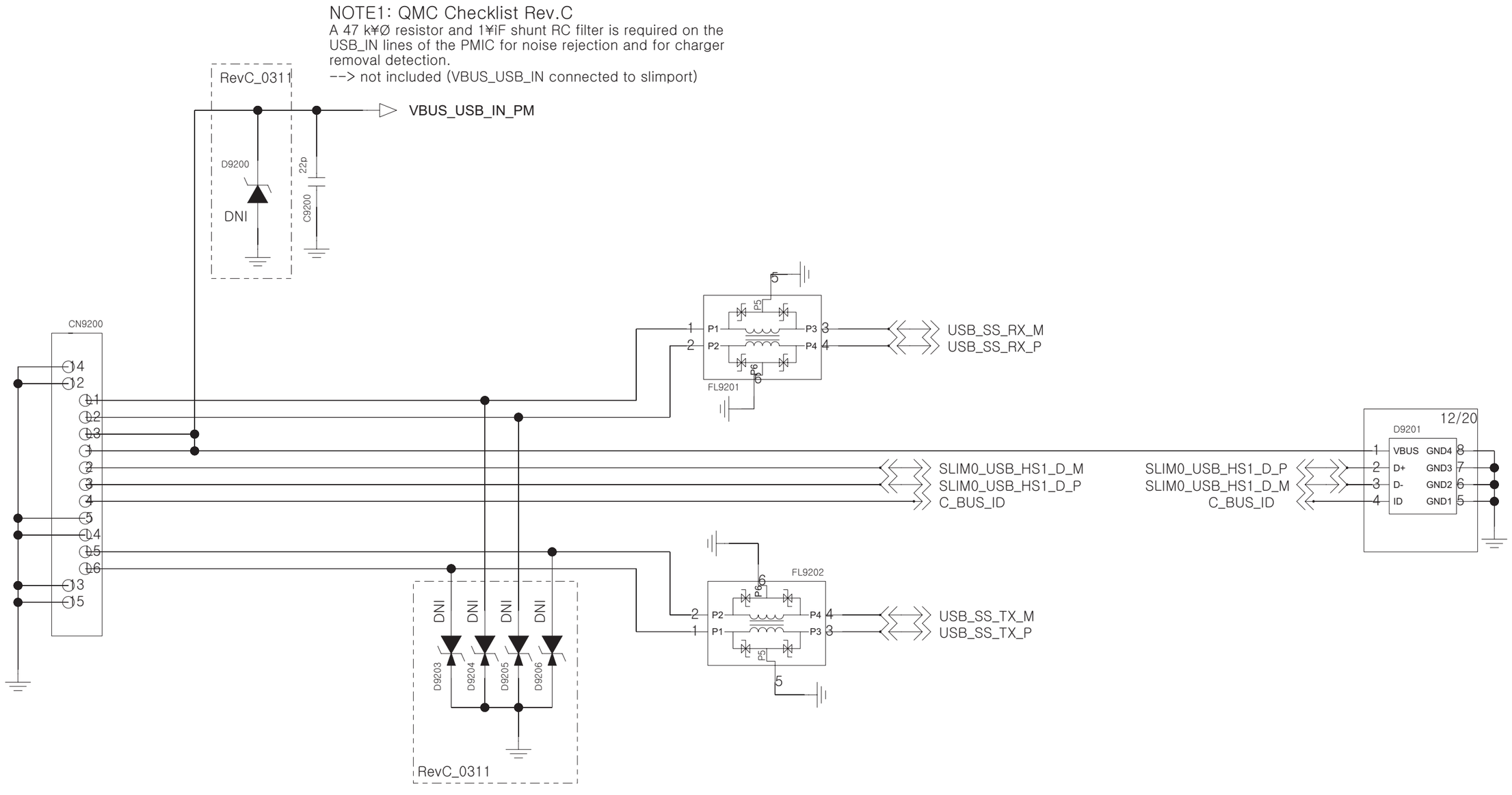
RevB_0210

<4-7-2-4_Charger_Switching_BQ24192>Rev_0.3



PSEL High : USB host source Low : adapter source
STAT Low : charge in progress High : complete
OTG : PSEL HIGH & OTG HIGH IIN LIMIT 500mA OTG LOW IIN LIMIT 100mA
ILIM : set the maximum input current limit
--> min 500mA , (1/R)*530 = about 2.2A

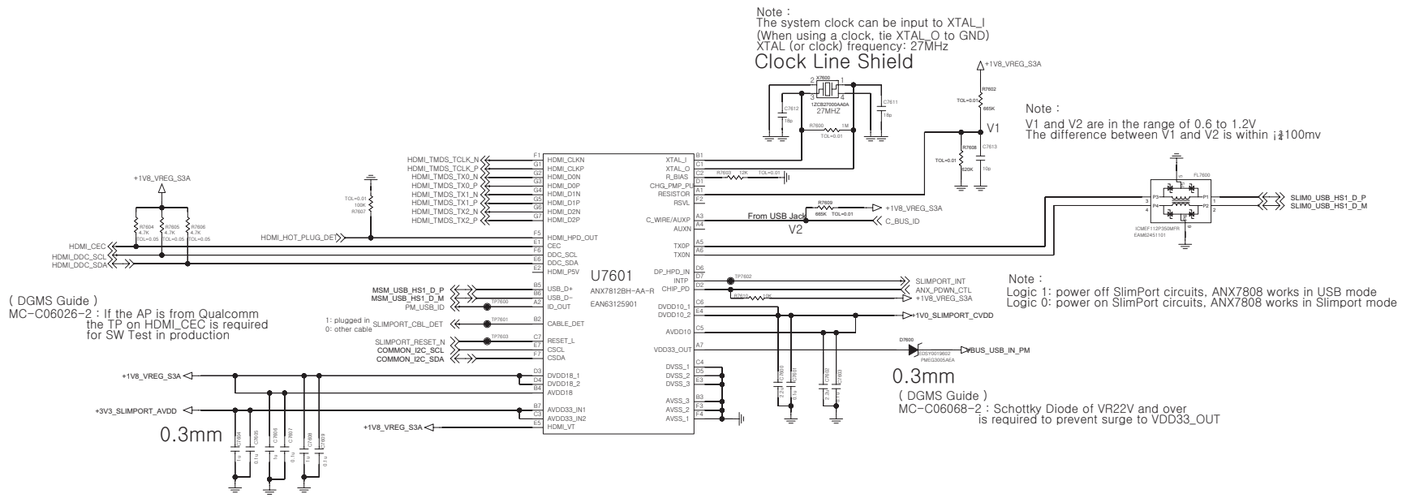
<9-2-2_Multi_IO_USB3_0> Rev_0.3



SLIMPORT/USB3.0

<7-6-2-1_SlimPort_ANX7812BH-AA-R>

Rev_0.3

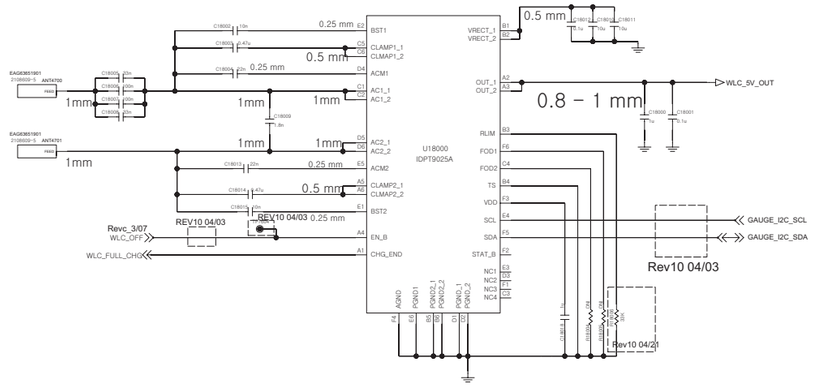


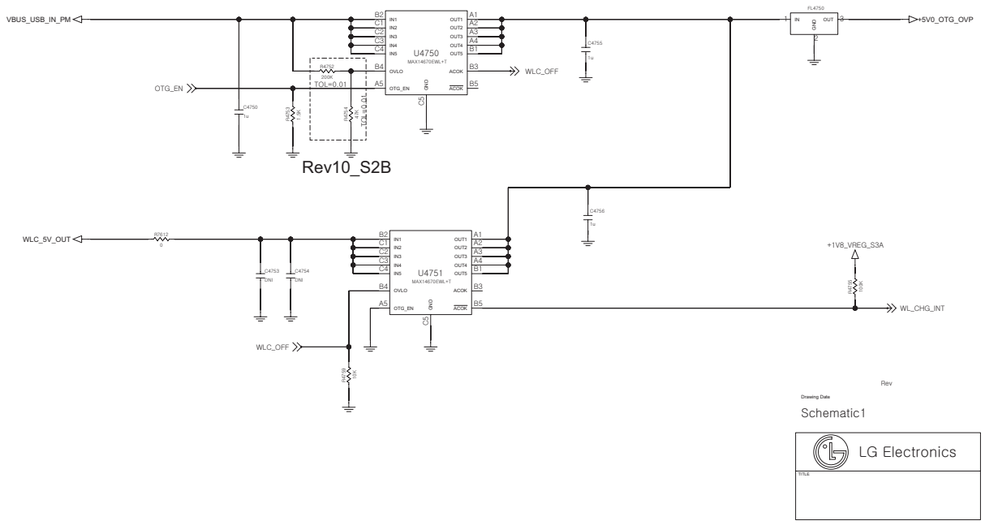
Wireless Charger

< IDT9025A >

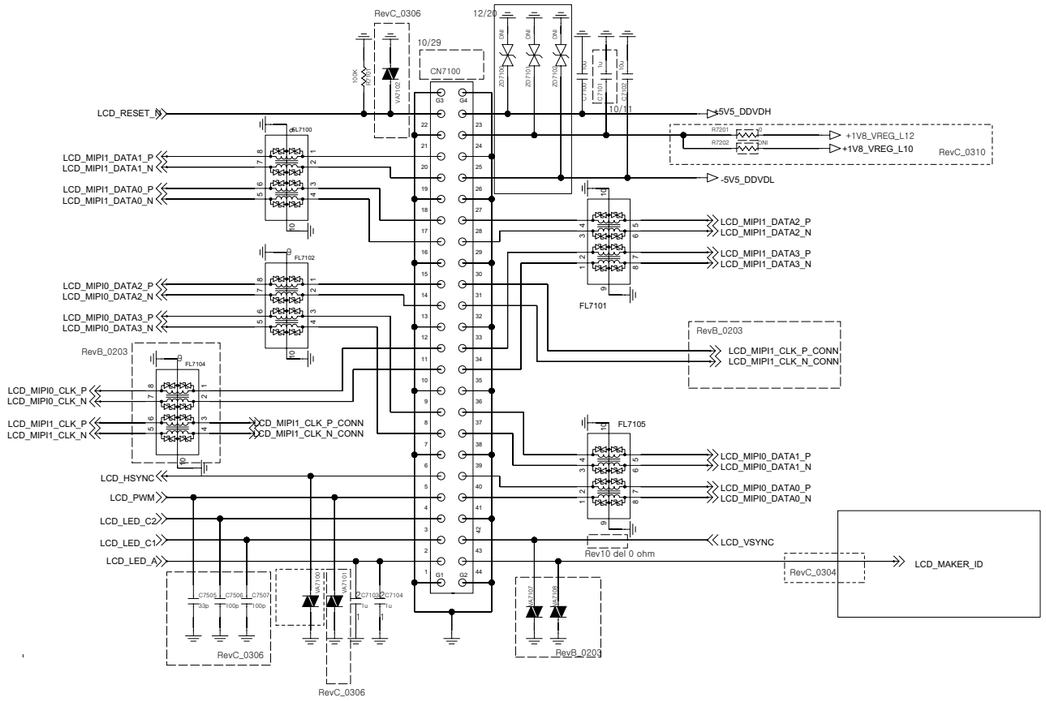
<4-7-3-1_Wireless_Charger_MAX14670EWL_T>

Rev_0.3



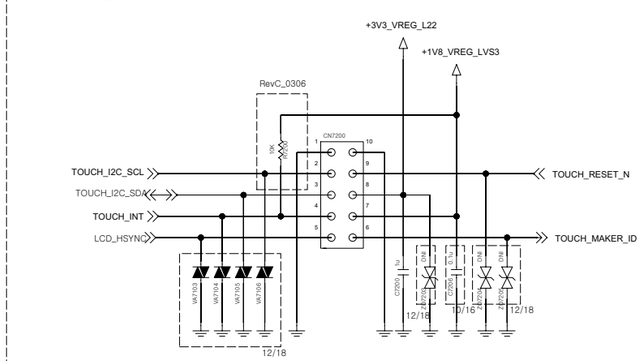


<7-1-8-4-2_Quad_LCD_5.5"> Rev_0.1



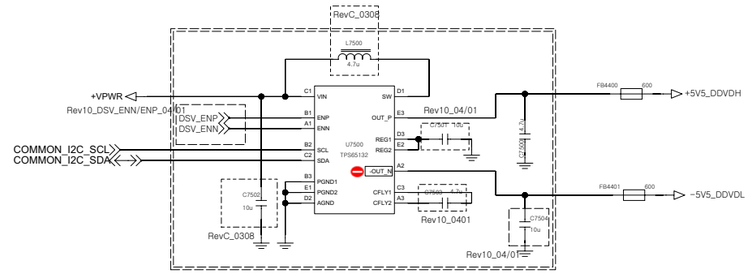
5.5" Touch

RevB_0203



RevB_0213

<7-5-1_DSV_TPS65132>Rev_0.3



DGMS Guide
MC-C06162-1 : 1. Don't connect Positive of Tantal, TVS diode to Negative voltage if use
2. We recommend MLCC capacitor in this case

RevB_0213

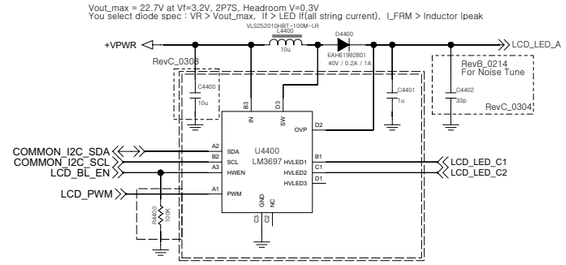
<4-4-4_LCD_BL_Booster_LM3697> Rev_0.1

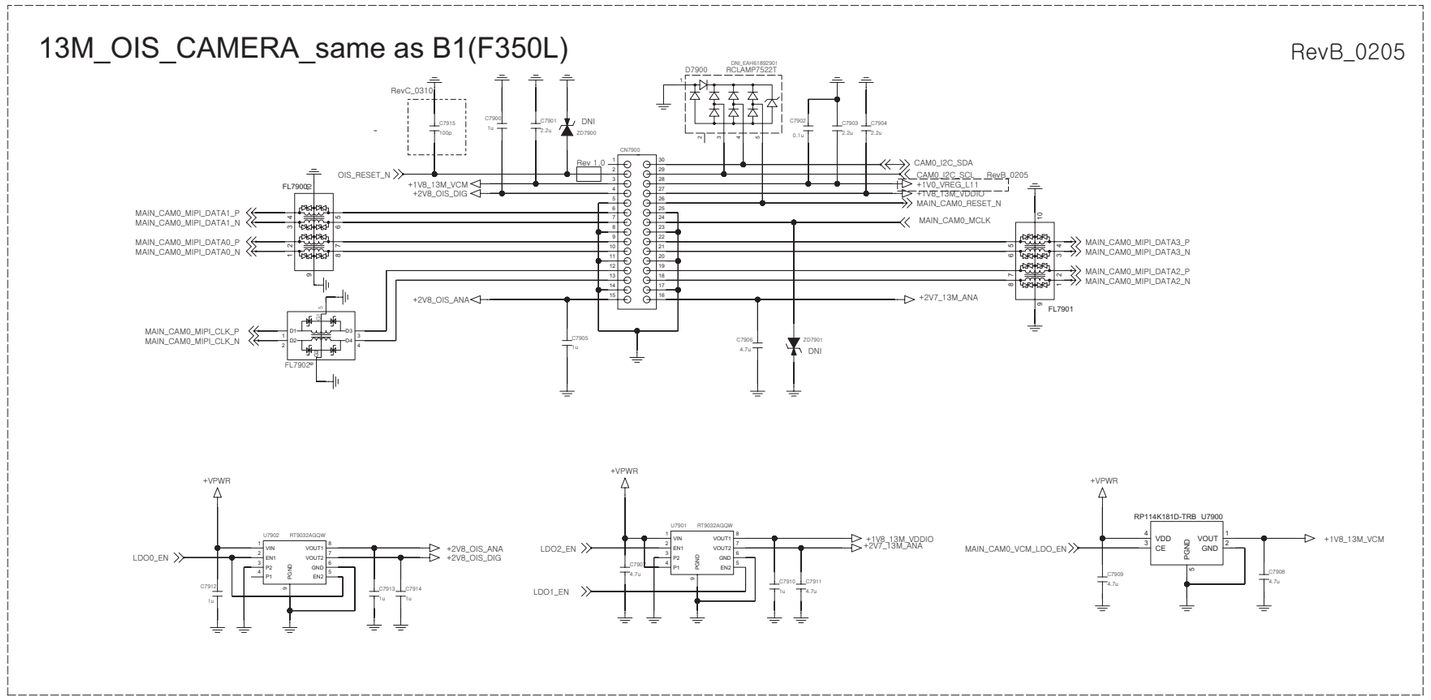
LED Vf=3.2V, If=23mA/46mA(2string), 2P7S
20% inductor tolerance => fsw=500khz : Ipeak = 722.6mA, fsw=1MHz : Ipeak = 541.9mA
30% inductor tolerance => fsw=500khz : Ipeak = 774.2mA, fsw=1MHz : Ipeak = 567.7mA

LED Vf=3.0V, If=20mA/46mA(2string), 2P7S
20% inductor tolerance => fsw=500khz : Ipeak = 651.9mA, fsw=1MHz : Ipeak = 473.3mA
30% inductor tolerance => fsw=500khz : Ipeak = 702.9mA, fsw=1MHz : Ipeak = 498.9mA

If you have other LED spec&quantity, recaculate Ipeak And select Power inductor

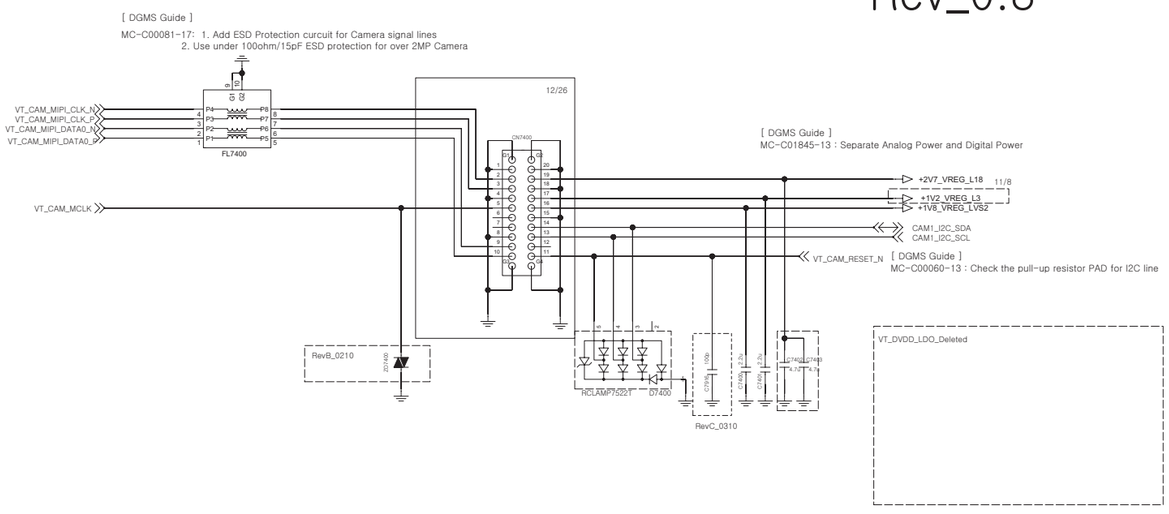
Vout_max = 22.7V at Vf=3.2V, 2P7S, Headroom V=0.3V
You select diode spec : VR > Vout_max, If > LED If(all string current), I_FRM > Inductor Ipeak



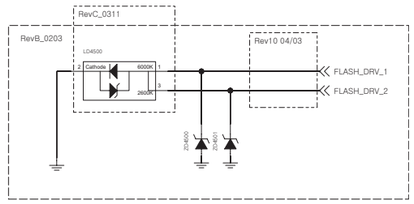


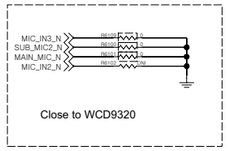
< 7-4-1_VT_Camera_20pin_VGA_1.26M_1.3M_2.4M>

Rev_0.3



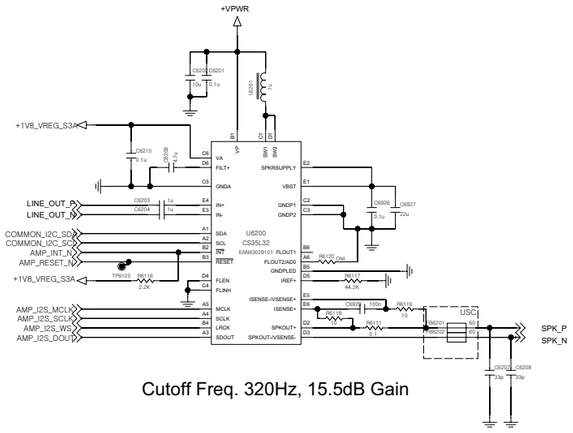
< Flash LED >





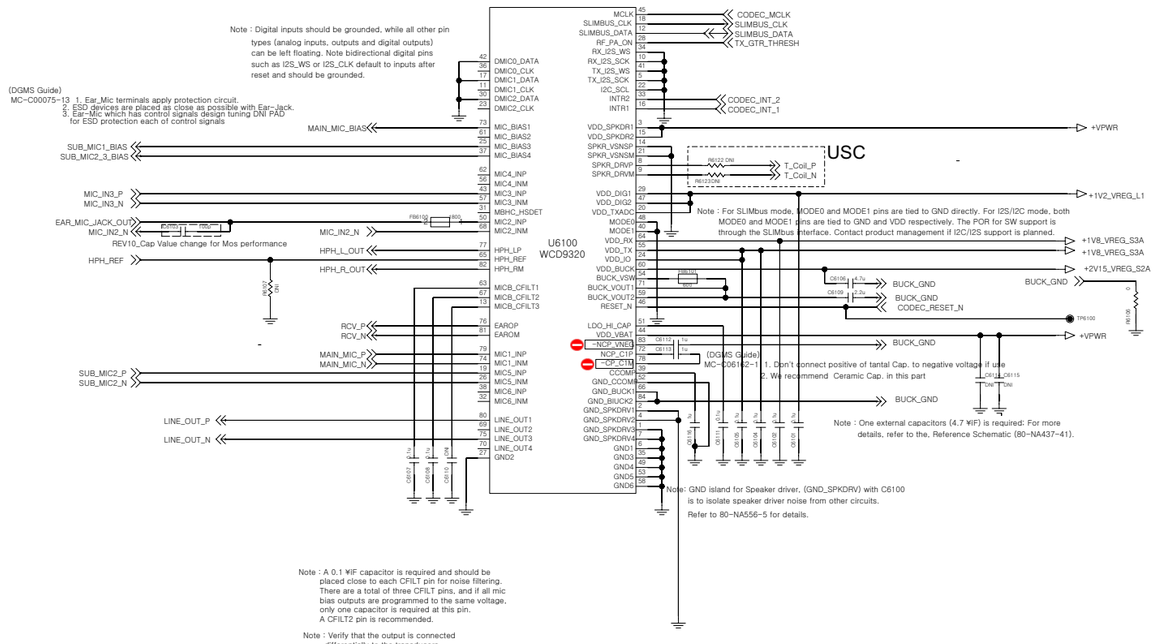
12/16

SPK BOOST AMP



Cutoff Freq. 320Hz, 15.5dB Gain

<6-1-1-5_WCD9320>



Note : Digital inputs should be grounded, while all other pin types (analog inputs, outputs and digital outputs) can be left floating. Note bidirectional digital pins such as I2S_WS or I2S_CLK default to inputs after reset and should be grounded.

(DGMS Guide)
MC-C00075-13 1. Ear_Mic terminals apply protection circuit.
2. ESD devices are placed as close as possible with Ear- Jack.
3. Ear-Mic which has control signals design tuning DNI PAD for ESD protection each of control signals

REV10_Cap Value change for Mos performance

Note : For SLIMbus mode, MODE0 and MODE1 pins are tied to GND directly. For I2S/I2C mode, both MODE0 and MODE1 pins are tied to GND and VDD respectively. The POR for SW support is through the SLIMbus interface. Contact product management if I2C/I2S support is planned.

(DGMS Guide)
MC-C06162-1 1. Don't connect positive of tantal Cap. to negative voltage if use
2. We recommend Ceramic Cap. in this part

Note : One external capacitors (4.7 ¥iF) is required: For more details, refer to the, Reference Schematic (80-NA437-41).

Note: GND island for Speaker driver, (GND_SPKDRV) with C6100 is to isolate speaker driver noise from other circuits.
Refer to 80-NA556-5 for details.

Note : A 0.1 ¥iF capacitor is required and should be placed close to each CFILT pin for noise filtering. There are a total of three CFILT pins, and if all mic bias outputs are programmed to the same voltage, only one capacitor is required at this pin. A CFILT2 pin is recommended.

Note : Verify that the output is connected differentially to the transducers.

Main MIC

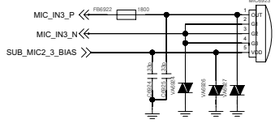
Lower FPCB assigned

Sub_MIC1

Upper FPCB assigned

(DGMS Guide)
MC-C00074-11 : For ESD Protection / Tuning points
When USE) TVS devices's Working Voltage must be greater than the Path voltage

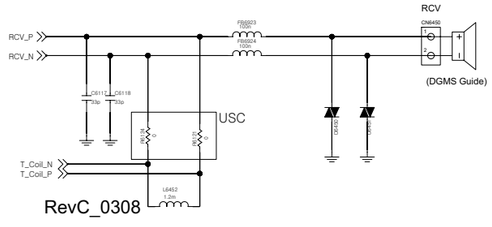
Sub_MIC2



Sub_MIC3

Deleted

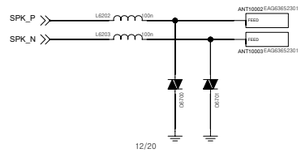
< 6-8-2_Receiver >



(DGMS Guide)

RevC_0308

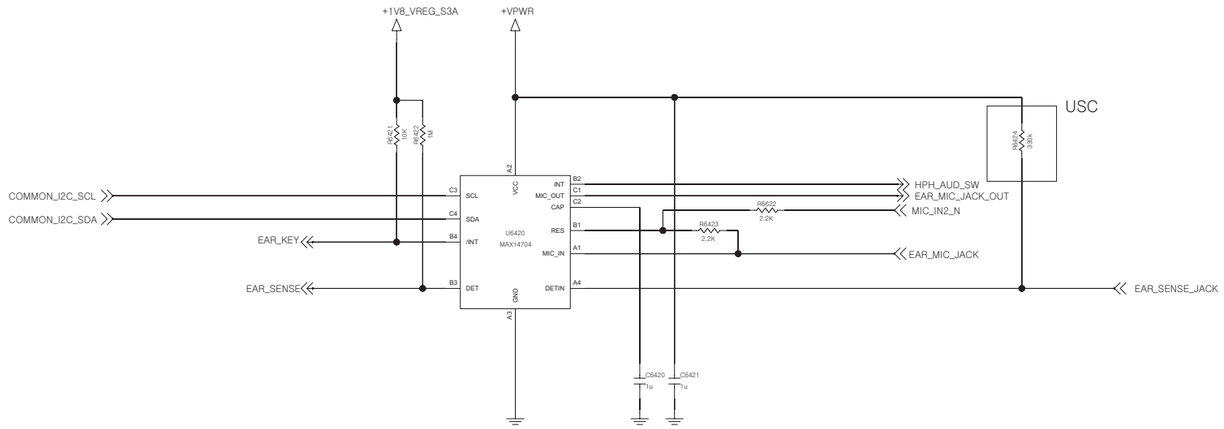
< 6-7-1_Speaker >



12/20

MC-C04773-8 : For ESD Protection / Tuning points
When USE) TVS devices's Working Voltage must be greater than the Path voltage should apply capacitor under 50pF value for ESD protection with d-class amp

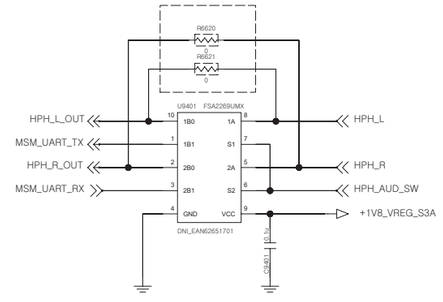
< Earjack detect IC >



12/4

<Earjack_Debug_Port >

Rev10_Earjack debugger Will be Disabled 04/03



REV10 Earjack debug prot deled 04/01

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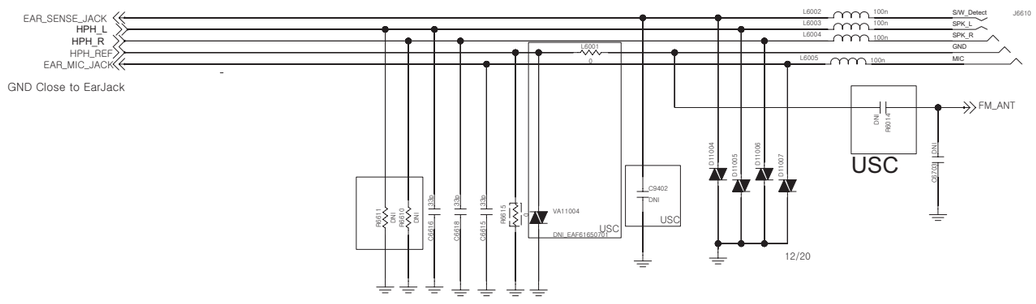
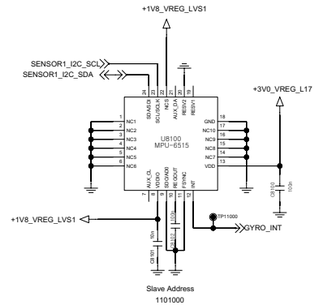


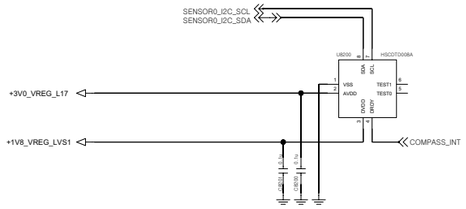
SENSOR/MOTOR/IRRC/SIM/SD/LED

I2C	Devices
Sensor0	Compass, Temp+Humid+Pressure
Sensor1	Accel+Gyro, Pressure, UV, Prox+RGB+IR Gesture

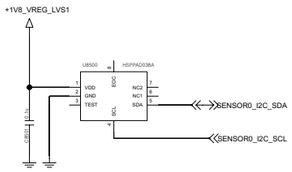
<8-1-3-3_Accel_Gyro_MPU-6500 >



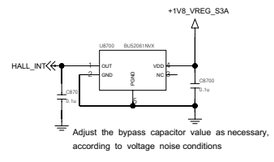
< 8-2-1-2_Compass_HSCDTD008A>
Rev_0.3



<Pressure_HSPPAD038A >

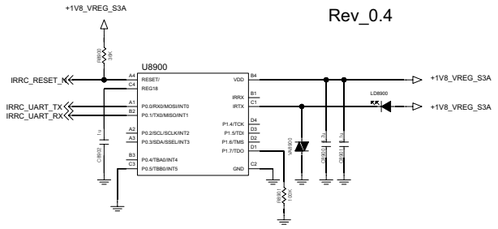


<8-7-1-1_Hall IC_BU52061NVX>



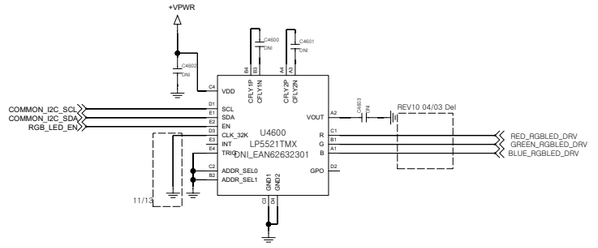
< 8-9-1-1_IRRC_MAXQ616V >

Rev_0.4



REV.1.0

<4-6-1_LED_Driver_IC_LP5521>



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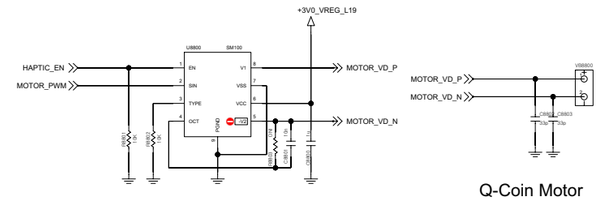
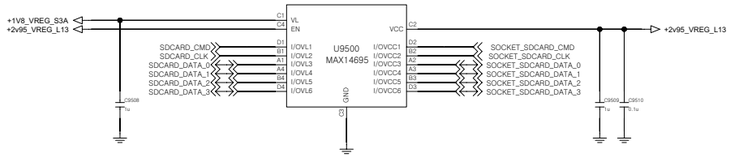


Q-Coin Motor

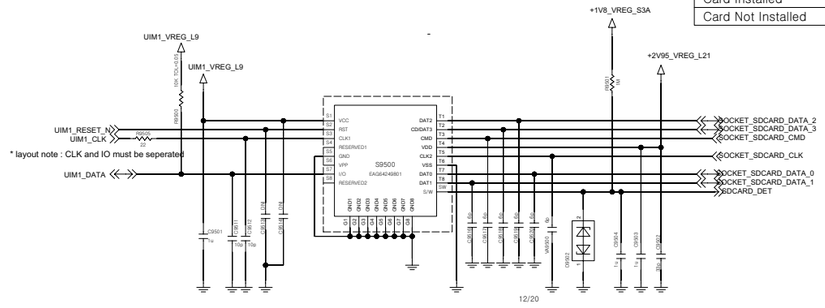
<LEVEL TRANSLATOR>



< 9-5-3_Micro_SD_Combo >

Rev_0.3

Card Detect	SW	VSS(T6)	SD_CARD_DET
Card Installed	—o o—		GND
Card Not Installed	—o o—		1.8V



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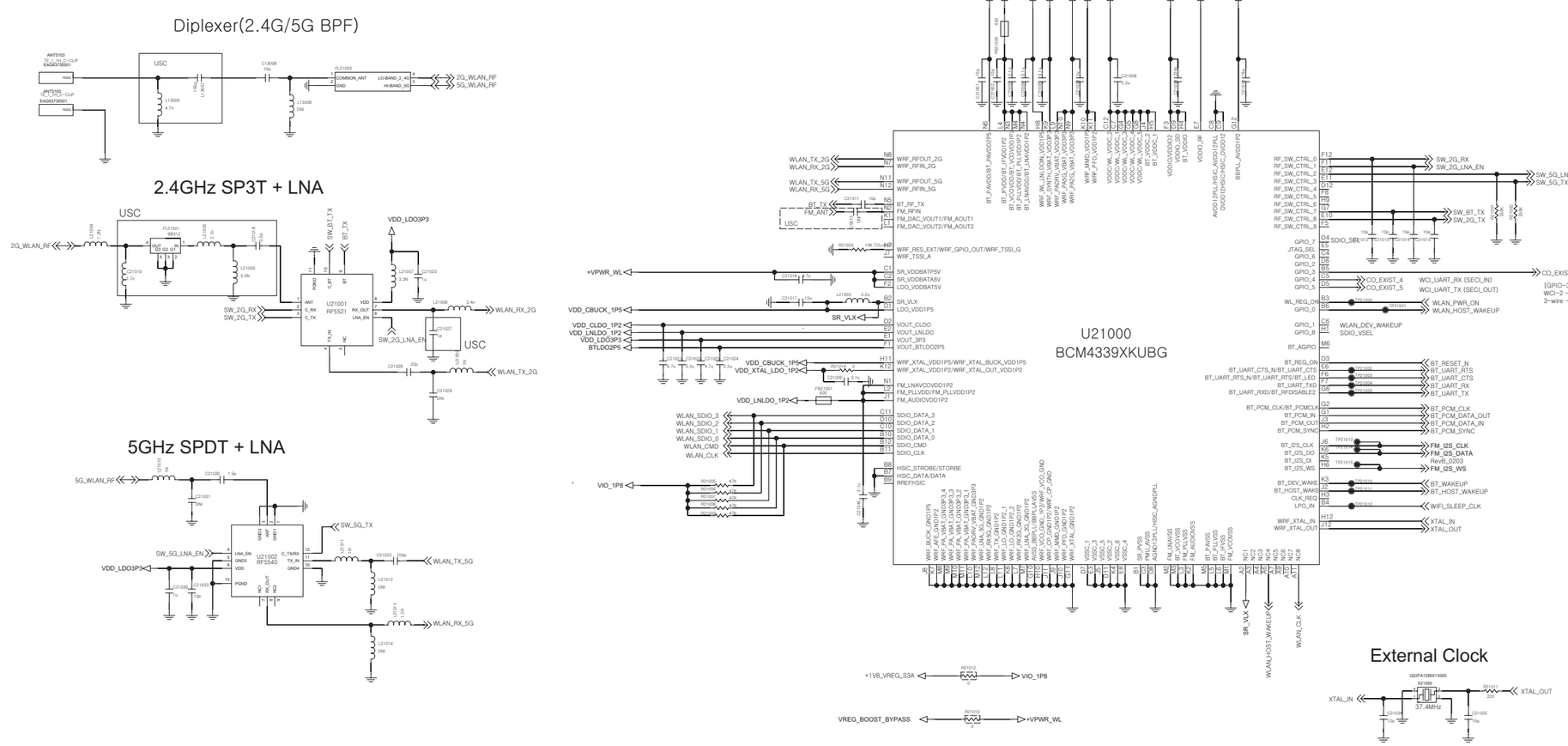
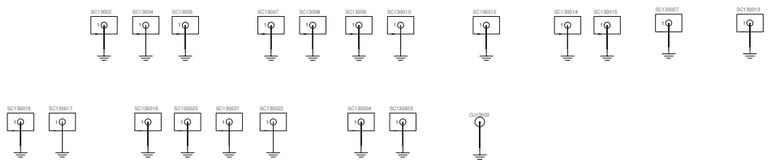
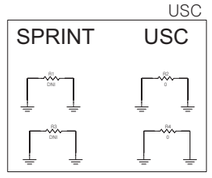


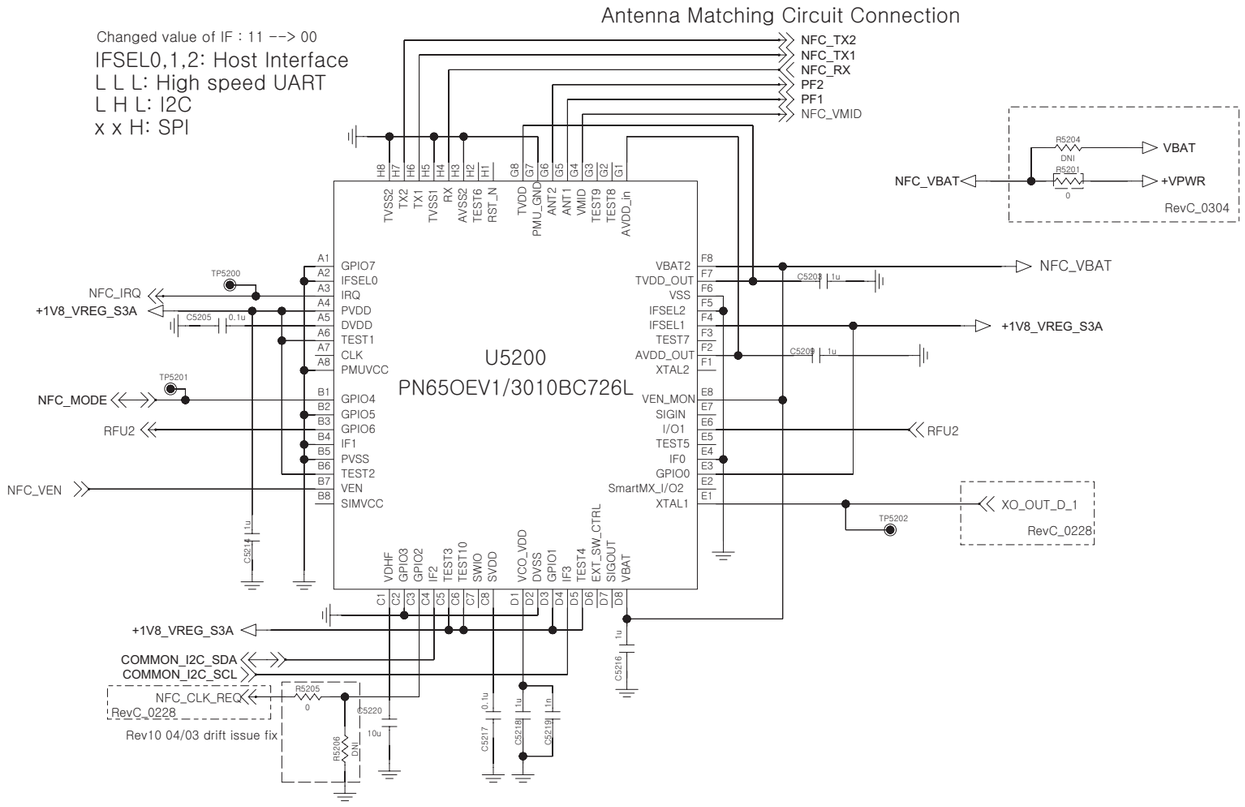
SMT Boss / Screw / Shield can frame / Clip



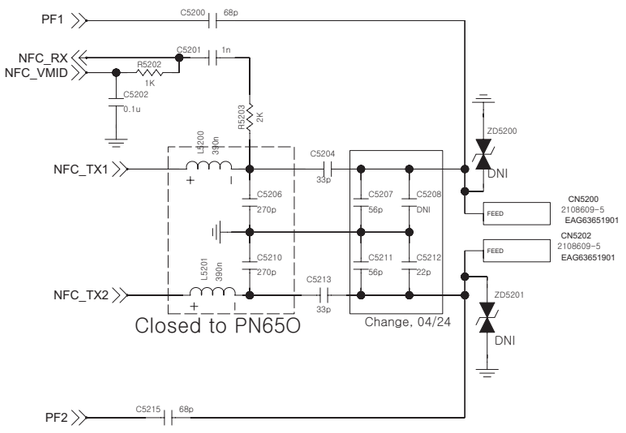
PCB CARRIER SELECT



NFC – PN65O



NFC Antenna



FPCB_CNT

I2C	Devices
Sensor0	Compass, Temp+Humid+Pressure
Sensor1	Accel+Gyro, Pressure, UV, Prox+RGB+IR Gesture

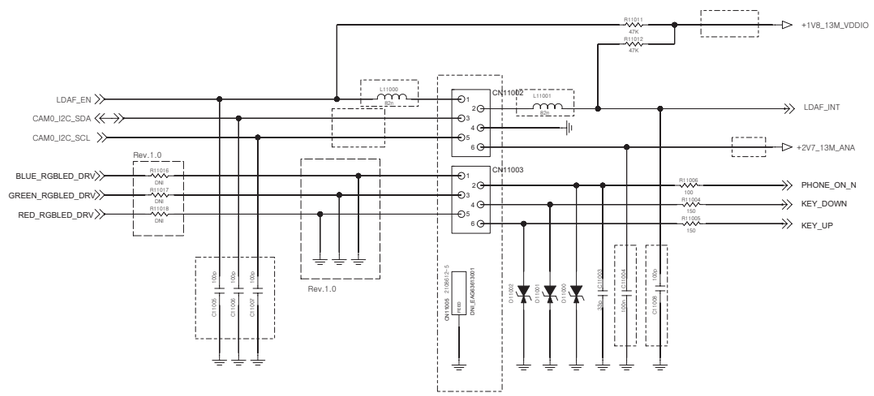
Upper FPCB

11/13

Deleted

RevC_0302

Back_Key_LDAF_FPCB



Lower FPCB

11/13

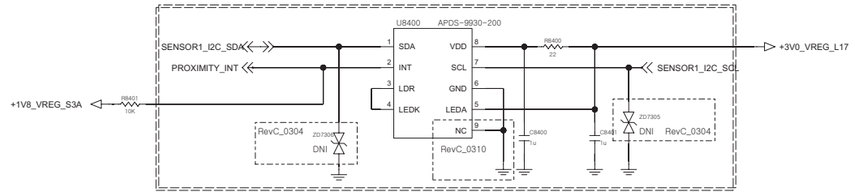
Deleted

12/18

From previously Upper FPCB to Main PCB (11/13 now)

11/26

<8-4-3-3_Proximity_Ambient_APDS_9930>
Rev_0.3



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Rev_0.1

10/25

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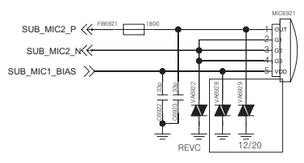
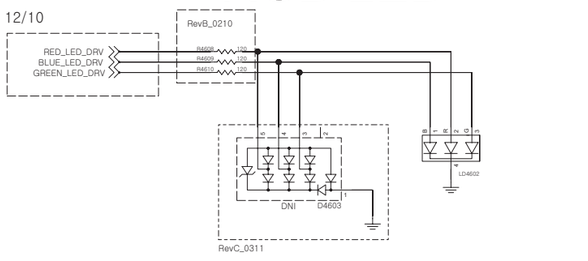
Sub_MIC1

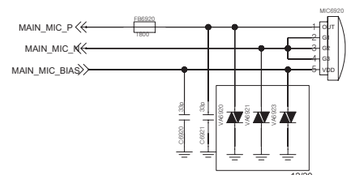


RGB LED 11/13

12/10



From previously Lower FPCB to Main PCB (11/13 now)



RGB LED

11/13

Deleted

Temperature

8/16

8/16

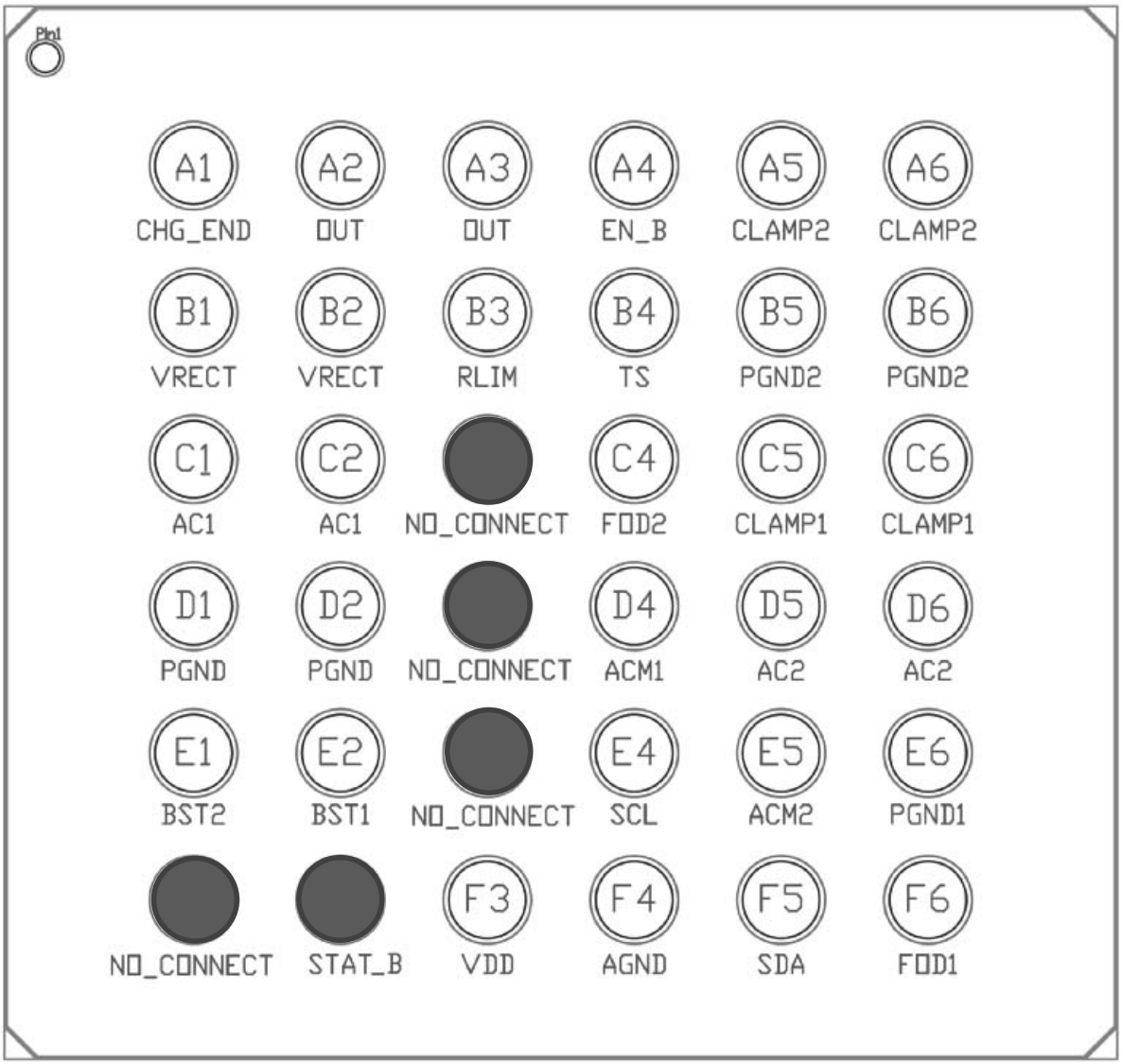
REV10_Temperature&Humidity function deleted _ 04/01

7. BGA PIN MAP

U6100_WCD9320_IC,Audio Codec(Top view)

Not Used

U18000_IC,Charger_IDTP9025A (Top View)



Not Used

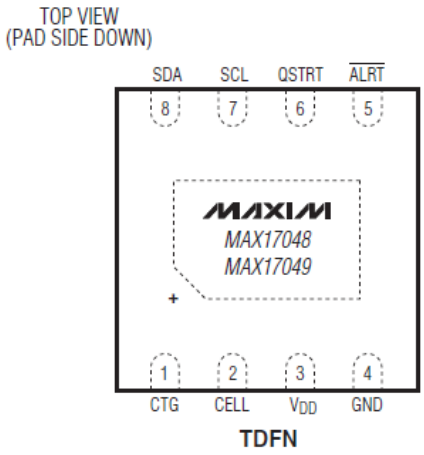
U4200_PM8841_PMIC(TOP view)

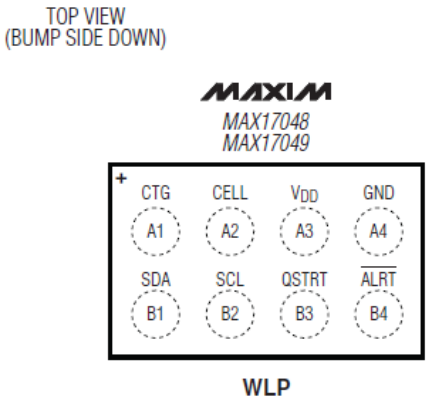
1 VDD _S5	2 VDD _S5	3 VSW _S5	4 VREG _S5	5 VREG _S6	6 VREG _S2	7 VSW _S2	8 VDD _S2	9 VDD _S2
10 GND _S5	11 VSW _S5	12 VSW _S5	13 GND	14 GND	15 GND	16 VSW _S2	17 VSW _S2	18 GND _S2
19 VDD _S6	20 GND _S5	21 GND	22 GND	23 GND	24 GND _REF		25 GND _S2	26 GND
27 VSW _S6	28 VSW _S6	29 GND	30 GND	31 REF _BYP	32 VDD_ MSM_IO	33 MPP _01	34 MPP _02	35 GND S1
36 GND _S6	37 GND _S6	38 GND	39 GND	40 GND	41 VDD_ INT_BYP	42 VREG _S1		44 VSW _S1
45 GND	46 GND	47 REMOTE_ GND_SNS	48 GND	49 DNC	50 VDD _PON	51 OPT_2	52 OPT_1	53 VDD _S1
54 GND _S7	55 GND _S7	56 GND	57 GND	58 DNC		60 VREG _S3	61 PON_1	62 GND _S3
63 VSW _S7	64 VSW _S7	65 GND	66 GND	67 GND	68 PS_ HOLD	69 RESIN _N		71 VSW _S3
72 VDD _S7	73 GND _S8	74 GND	75 GND	76 SPMI _DATA	77 SPMI _CLK		79 GND _S4	80 VDD _S3
81 GND _S8	82 VSW _S8	83 VSW _S8	84 GND	85 GND		87 VSW _S4	88 VSW _S4	89 GND _S4
90 VDD _S8	91 VDD _S8	92 VSW _S8	93 VREG _S8	94 VREG _S7	95 VREG _S4	96 VSW _S4	97 VDD _S4	98 VDD _S4

OUTPUT PWR MGT	IC I/F	MPPs and GPIOs	No Connection	Power	Ground

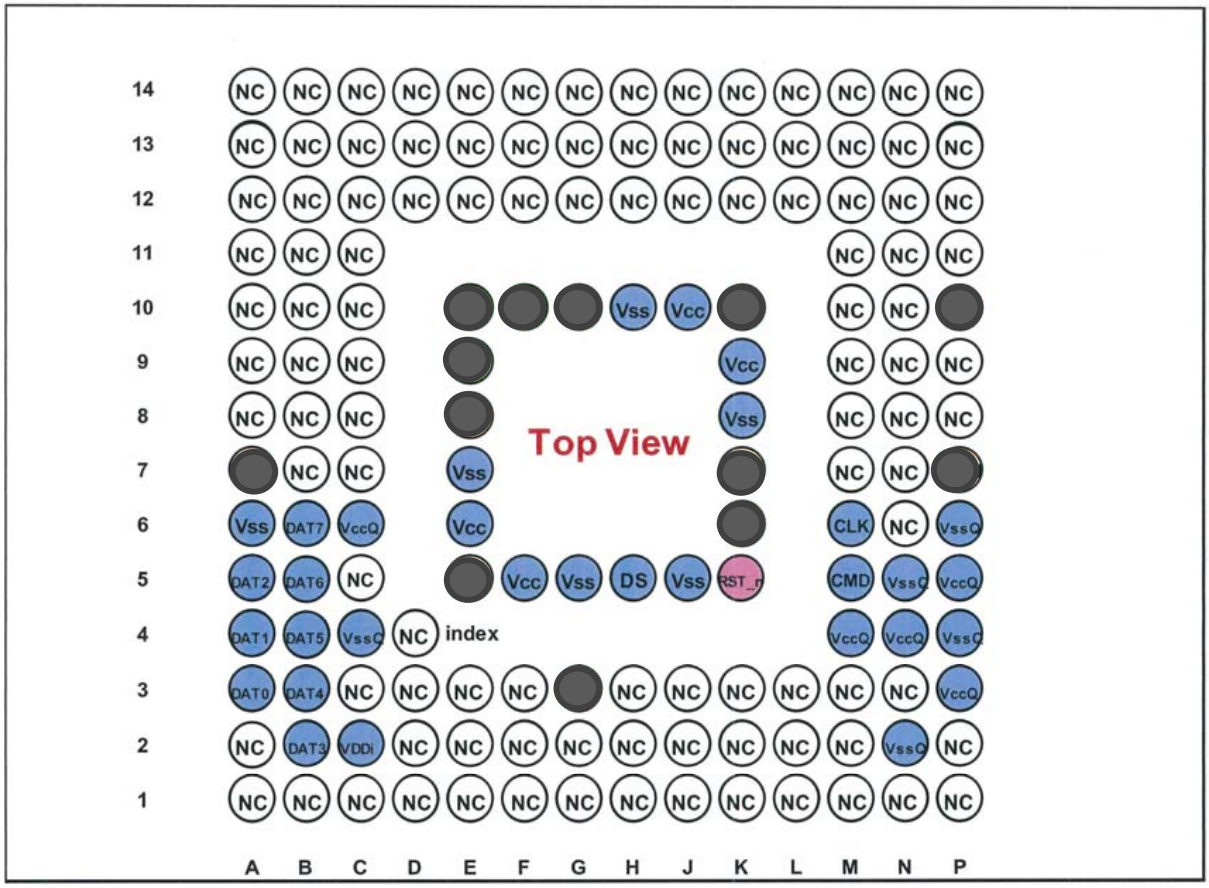
Not Used

U4800_IC,Fule Gage (Top view)





U3200_eMMC(TOP_view)



Not Used

U5200_PN650/NFC Controller

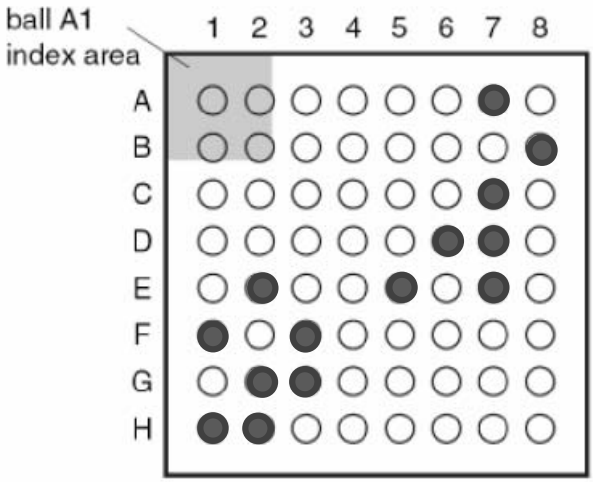


Table 4. PN65O Pin description

Symbol	Pin	Type	Refer	Description
GPIO7	A1	IO	PV_{DD}	General purpose IO/Debug interface
IFSEL0	A2	I	PV_{DD}	Host interface select input 0
IRQ	A3	O	PV_{DD}	IRQ output
PVDD	A4	Power	n/a	Pad supply voltage input (VI/O)
DVDD	A5	Power	n/a	Digital supply voltage output for decoupling
TEST1	A6	I	PV_{DD}	NXP production test - Shall be connected to PVDD
CLK	A7	I	SVDD	CLK pin of ISO IEC 7816 interface of embedded Smart*MX*
PMUVCC	A8	Power	n/a	UICC Power in from external PMU
GPIO4	B1	IO	PV_{DD}	General purpose IO/Download mode control/Debug interface
GPIO5	B2	IO	PV_{DD}	General purpose IO/Debug interface This pin must be kept low until embedded PN544 has ended its boot, otherwise PN65O enters a test mode.
GPIO6	B3	IO	PV_{DD}	Shall be externally connected to I/01
IF1	B4	IO	PV_{DD}	Host interface pin - functionality depends on selected interface
PVSS	B5	Ground	n/a	Pad VSS
TEST2	B6	I	PV_{DD}	NXP production test - Shall be connected to PV_{DD}
VEN	B7	I	V_{BAT}	Enable/disable LDO regulator/Reset
SIMVCC	B8	Power	n/a	Power output to supply the UICC
VDHF	C1	Power	n/a	Powered-by-Field rectifier output voltage
GPIO3	C2	IO	PV_{DD}	PWR_REQ: power request / General purpose IO/ Debug interface

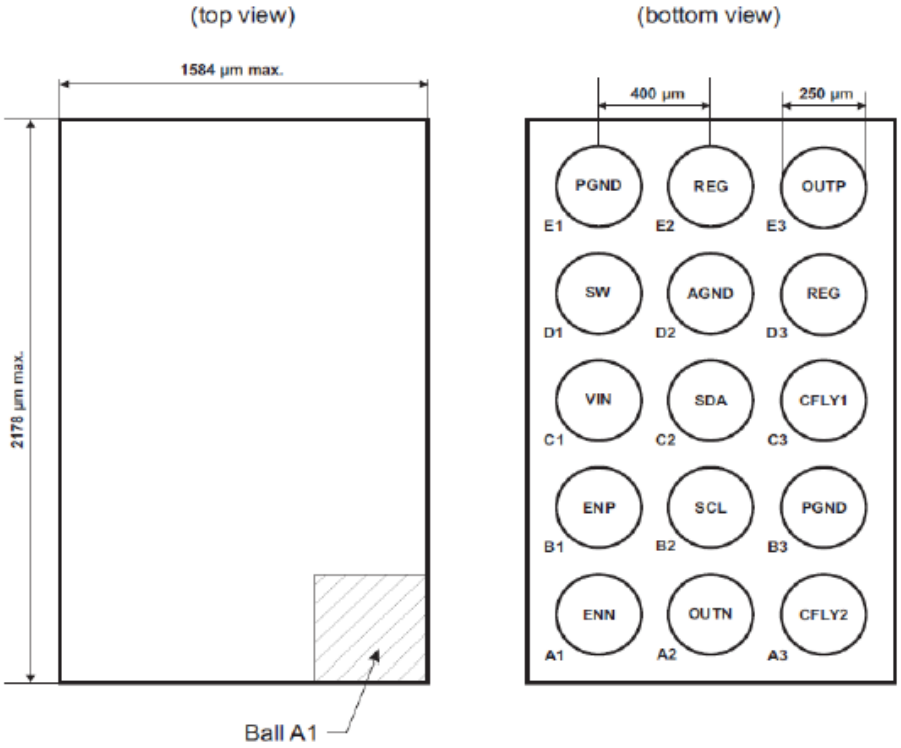
Table 4. PN65O Pin description *...continued*

Symbol	Pin	Type	Refer	Description
GPIO2	C3	IO	PV_{DD}	CLK_REQ: clock request/General purpose IO/Debug interface
IF2	C4	IO	PV_{DD}	Host interface pin - functionality depends on selected interface
TEST3	C5	I	PV_{DD}	NXP production test - Shall be connected to PV_{DD}
TEST10	C6	I	PV_{DD}	NXP production test - Shall not be connected or connected to PV_{DD}
SWIO	C7	IO	DV_{DD} or $SIMV_{CC}$	SWP data connection
SVDD	C8	Power	n/a	Connected between SVDD pin of embedded PN544 and VDD pin of embedded Smart*MX*
VCO_VDD	D1	Power	n/a	FracNPLL supply voltage output for decoupling
DVSS	D2	Ground	n/a	Digital VSS
GPIO1	D3	IO	PV_{DD}	CLK_ACK: clock acknowledge/General purpose IO/ Debug interface
IF3	D4	IO	PV_{DD}	Host interface pin - functionality depends on selected interface
TEST4	D5	I	PV_{DD}	NXP production test - Shall be connected to PV_{DD}
EXT_SW_CTRL	D6	O	$SIMV_{CC}$	Control output signal for external UICC power switch
SIGOUT	D7	O	SV_{DD}	Shall be let High Impedance. Connected internally between SIGOUT pin of embedded PN544 and LB pin of the embedded Smart*MX* and is used for test purpose.
VBAT	D8	Power	n/a	Battery voltage
XTAL1	E1	I	AV_{DD}	Oscillator or FracNPLL input
SmartMX I/O2	E2	IO	SVDD	Smart*MX* I/O2
GPIO0	E3	IO	PV_{DD}	General purpose IO/Debug interface
IF0	E4	IO	PV_{DD}	Host interface pin - functionality depends on selected interface
TEST5	E5	O	PV_{DD}	NXP production test - Shall not be connected
I/O1	E6	I/O	SV_{DD}	Shall be externally connected to GPIO6
SIGIN	E7	I	SV_{DD}	Shall be let High Impedance. Connected internally between SIGIN pin of embedded PN544 and IO3 pin of the embedded Smart*MX* and is used for test purpose.
VEN_MON	E8	I	V_{BAT}	Enable of the battery voltage monitor
XTAL2	F1	O	AV_{DD}	Oscillator output
AVDD_out	F2	Power		Analog supply voltage output for decoupling
TEST7	F3	O	AV_{DD}	NXP production test - Shall not be connected
IFSEL1	F4	I	PV_{DD}	Host interface select input 1
IFSEL2	F5	I	PV_{DD}	Host interface select input 2
VSS	F6	Ground	n/a	VSS
TVDD_OUT	F7	Power	n/a	Contactless transmitter supply voltage output for decoupling

Table 4. PN65O Pin description *...continued*

Symbol	Pin	Type	Refer	Description
VBAT2	F8	Power	n/a	Power pin reserved for future use. Shall be connected to V_{BAT} pin
AVDD_in	G1	Power	n/a	Analog supply voltage input after decoupling
TEST8	G2	O	AV_{DD}	NXP production test - Shall not be connected
TEST9	G3	O	AV_{DD}	NXP production test - Shall not be connected
VMID	G4	Power	AV_{DD}	Contactless receiver Voltage reference
ANT1	G5	Power	n/a	Antenna connection for card emulation
ANT2	G6	Power	n/a	Antenna connection for card emulation
PMU_GND	G7	Ground	n/a	PMU VSS
TVDD	G8	Power	n/a	Contactless transmitter supply voltage input after decoupling
RST_N	H1	I	SV_{DD}	RST pin of ISO IEC 7816 interface of embedded Smart*MX*
TEST6	H2	O	AV_{DD}	NXP production test - Shall not be connected
AVSS2	H3	Ground	n/a	Analog VSS
RX	H4	I	AV_{DD}	Contactless Receiver input
TVSS1	H5	Ground	n/a	Contactless Transmitter ground1
TX1	H6	O	TV_{DD}	Contactless Transmitter output1
TX2	H7	O	TV_{DD}	Contactless Transmitter output2
TVSS2	H8	Ground	n/a	Contactless Transmitter ground2

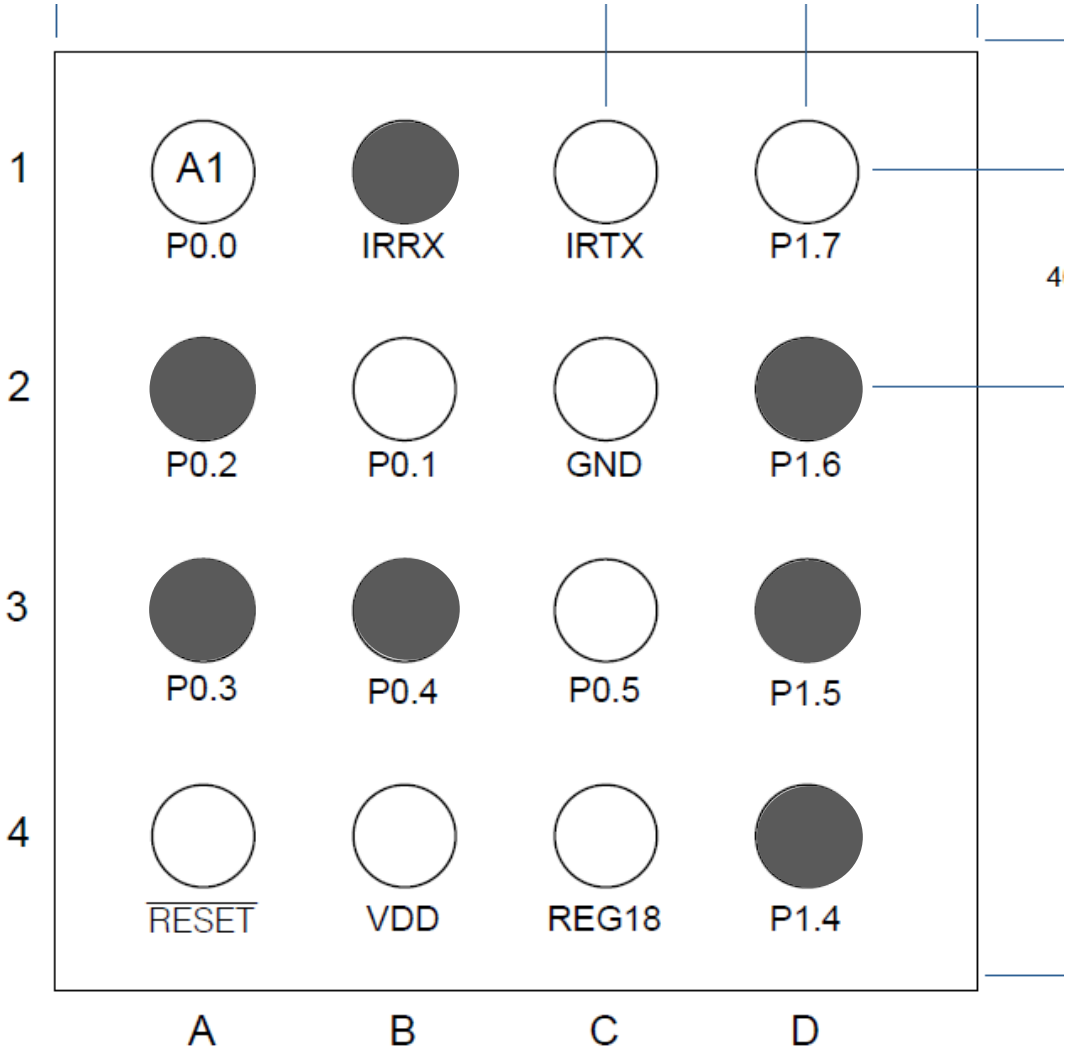
U7500_IC,DC-DC Converter



PIN FUNCTIONS

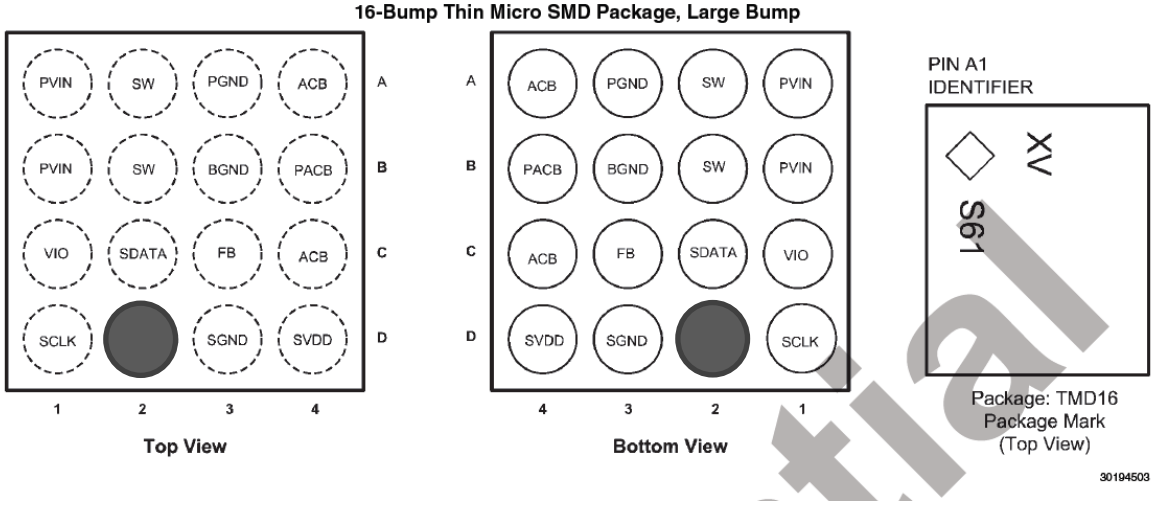
PIN		I/O	DESCRIPTION
NAME	NO.		
ENN	A1	I	Enable pin for V_{NEG} rail
OUTN	A2	O	Output pin of the negative charge pump (V_{NEG})
CFLY2	A3	I/O	Negative charge pump flying capacitor pin
ENP	B1	I	Enable pin for V_{POS} rail
SCL	B2	I/O	I²C interface clock signal pin
PGND	B3, E1	G	Power ground
VIN	C1	I	Input voltage supply pin
SDA	C2	I/O	I²C interface data signal pin
CFLY1	C3	I/O	Negative charge pump flying capacitor pin
SW	D1	I/O	Switch pin of the boost converter
AGND	D2	G	Analog ground
REG	D3, E2	I/O	Boost converter output pin
OUTP	E3	O	Output pin of the LDO (V_{POS})

U8900_IC,Microprocessors(Bottom view)



Not Used

U1300_IC,DC-DC Converter



Pin Descriptions

Pin #	Name	Description
A1	PVIN	Power Supply Voltage Input to the internal PFET switch and ACB.
B1		
C1	VIO	VIO functions as the RFFE interface reference voltage. VIO also functions as reset and enable input to the LM3263. Typically connected to voltage regulator controlled by RF or Baseband IC.
D1	SCLK	Digital control interface RFFE Bus clock input. Typically connected to RFFE master on RF or Baseband IC. SCLK must be held low when VIO is not applied.
A2	SW	Switching Node connection to the internal PFET switch and NFET synchronous rectifier.
B2		
C2	SDATA	Digital control interface RFFE Bus data input/output. Typically connected to RFFE master on RF or Baseband IC. SDATA must be held low when VIO is not applied.
D2	GPO1	General Purpose Output. Also used to reconfigure USID.
A3	PGND	Power Ground to the internal NFET switch.
B3	BGND	Active Current assist and Analog Bypass Ground and Digital Ground.
C3	FB	Feedback Analog Input. Connect to the output at the output filter capacitor.
D3	SGND	Signal Analog Ground (Low Current).
A4	ACB	Active Current assist and analog Bypass output. Connect to the output at the output filter capacitor.
C4		
B4	PACB	ACB Power Supply Input.
D4	SVDD	Analog Power Supply Voltage.

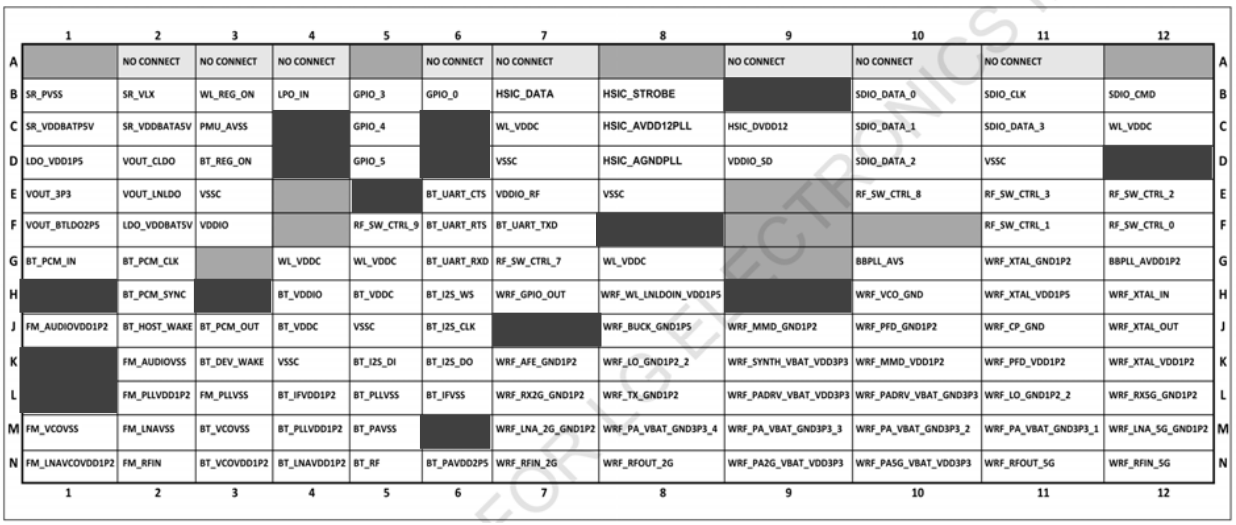
Not Used

U7601_IC,Signal Bridge

	1	2	3	4	5	6	7	
A	RESISTOR	ID_OUT	C-WIRE /AUXP (AUX_HPD)		TX0P	TX0N	VDD33_OUT	A
B	XTAL_I	CABLE_DET	AVSS	AVDD18	USB_D+	USB_D-	AVDD33_IN	B
C	XTAL_O	R_BIAS	AVDD33_IN	DVSS	AVDD10	DVDD10	RESET_L	C
D		CHIP_PD	DVDD18	DVDD18	DVSS		INTP	D
E	CEC		DVSS	DVDD10	HDMI_VT	DDC_SDA	CSCL	E
F	HDMI_CLKN		AVSS	AVSS	HDMI_HPD_ OUT	DDC_SCL	CSDA	F
G	HDMI_CLKP	HDMI_D0N	HDMI_D0P	HDMI_D1N	HDMI_D1P	HDMI_D2N	HDMI_D2P	G
	1	2	3	4	5	6	7	

Not Used

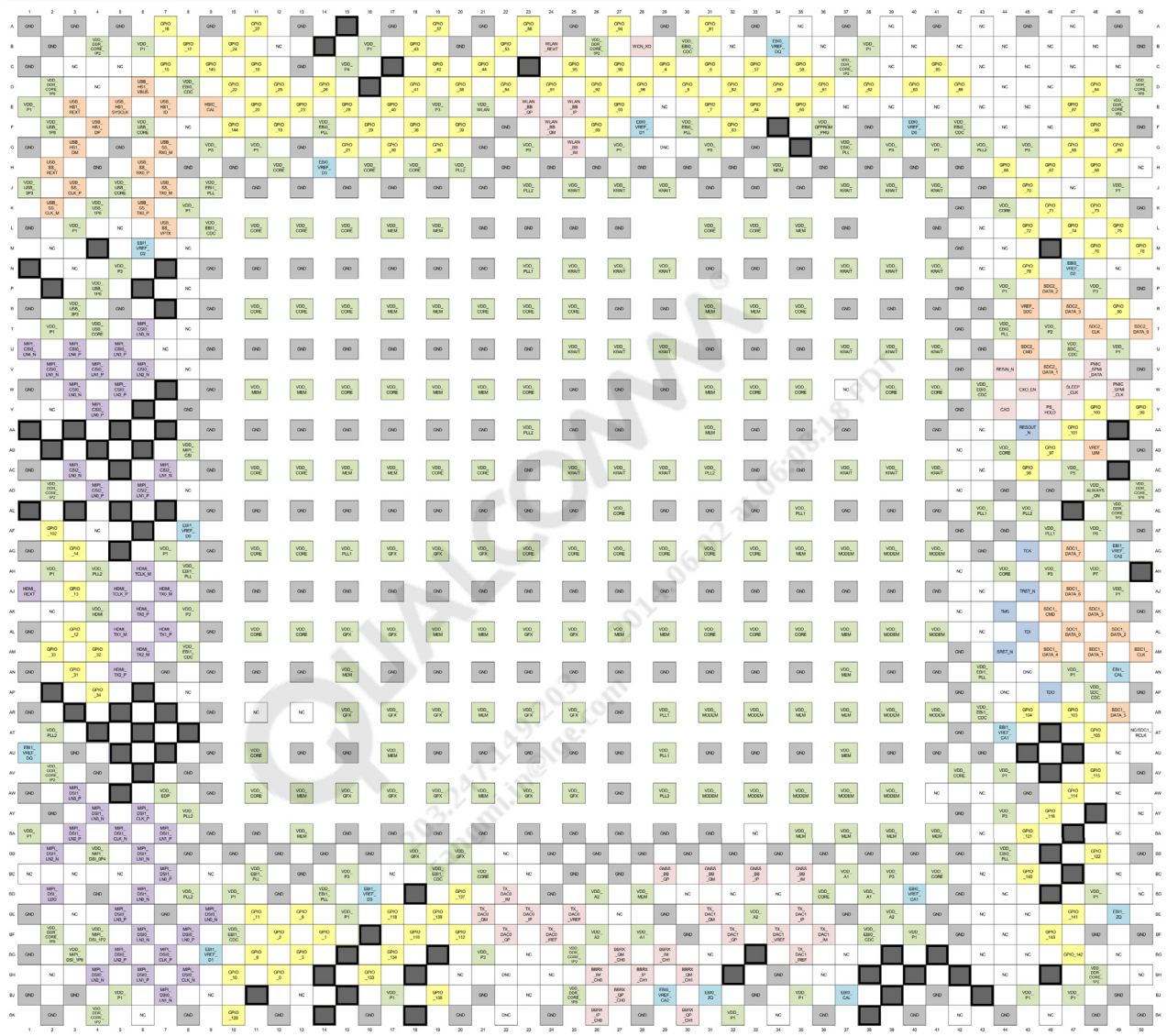
U21000_BCM4339,WiFi (Top View)



	1	2	3	4	5	6	7	8	9	10	11	12	
A		NO CONNECT	NO CONNECT	NO CONNECT		NO CONNECT	NO CONNECT		NO CONNECT	NO CONNECT	NO CONNECT		A
B	SR_PVSS	SR_VLX	WL_REG_ON	LPO_IN	GPIO_3	GPIO_0	HSIC_DATA	HSIC_STROBE		SDIO_DATA_0	SDIO_CLK	SDIO_CMD	B
C	SR_VDDBATP5V	SR_VDDBATA5V	PMU_AVSS		GPIO_4		WL_VDDC	HSIC_AVDD12PLL	HSIC_DVDD12	SDIO_DATA_1	SDIO_DATA_3	WL_VDDC	C
D	LDO_VDD1P5	VOUT_CLDO	BT_REG_ON		GPIO_5		VSSC	HSIC_AGNDPLL	VDDIO_SD	SDIO_DATA_2	VSSC		D
E	VOUT_3P3	VOUT_LNLDO	VSSC			BT_UART_CTS	VDDIO_RF	VSSC		RF_SW_CTRL_8	RF_SW_CTRL_3	RF_SW_CTRL_2	E
F	VOUT_BTLDO2P5	LDO_VDDBAT5V	VDDIO		RF_SW_CTRL_9	BT_UART_RTS	BT_UART_TXD				RF_SW_CTRL_1	RF_SW_CTRL_0	F
G	BT_PCM_IN	BT_PCM_CLK		WL_VDDC	WL_VDDC	BT_UART_RXD	RF_SW_CTRL_7	WL_VDDC		BBPLL_AVS	WRF_XTAL_GND1P2	BBPLL_AVDD1P2	G
H		BT_PCM_SYNC		BT_VDDIO	BT_VDDC	BT_I2S_WS	WRF_GPIO_OUT	WRF_WL_LNLDOIN_VDD1P5		WRF_VCO_GND	WRF_XTAL_VDD1P5	WRF_XTAL_IN	H
J	FM_AUDIOVDD1P2	BT_HOST_WAKE	BT_PCM_OUT	BT_VDDC	VSSC	BT_I2S_CLK		WRF_BUCK_GND1P5	WRF_MMD_GND1P2	WRF_PFD_GND1P2	WRF_CP_GND	WRF_XTAL_OUT	J
K		FM_AUDIOVSS	BT_DEV_WAKE	VSSC	BT_I2S_DI	BT_I2S_DO	WRF_AFE_GND1P2	WRF_LO_GND1P2_2	WRF_SYNTH_VBAT_VDD3P3	WRF_MMD_VDD1P2	WRF_PFD_VDD1P2	WRF_XTAL_VDD1P2	K
L		FM_PLLVDD1P2	FM_PLLVSS	BT_IFVDD1P2	BT_PLLVSS	BT_IFVSS	WRF_RX2G_GND1P2	WRF_TX_GND1P2	WRF_PADRV_VBAT_VDD3P3	WRF_PADRV_VBAT_GND3P3	WRF_LO_GND1P2_2	WRF_RX5G_GND1P2	L
M	FM_VCOVSS	FM_LNAVSS	BT_VCOVSS	BT_PLLVDD1P2	BT_PAVSS		WRF_LNA_2G_GND1P2	WRF_PA_VBAT_GND3P3_4	WRF_PA_VBAT_GND3P3_3	WRF_PA_VBAT_GND3P3_2	WRF_PA_VBAT_GND3P3_1	WRF_LNA_5G_GND1P2	M
N	FM_LNAVCOVDD1P2	FM_RFIN	BT_VCOVDD1P2	BT_LNAVDD1P2	BT_RF	BT_PAVDD2P5	WRF_RFIN_2G	WRF_RFOUT_2G	WRF_PA2G_VBAT_VDD3P3	WRF_PA5G_VBAT_VDD3P3	WRF_RFOUT_5G	WRF_RFIN_5G	N
	1	2	3	4	5	6	7	8	9	10	11	12	

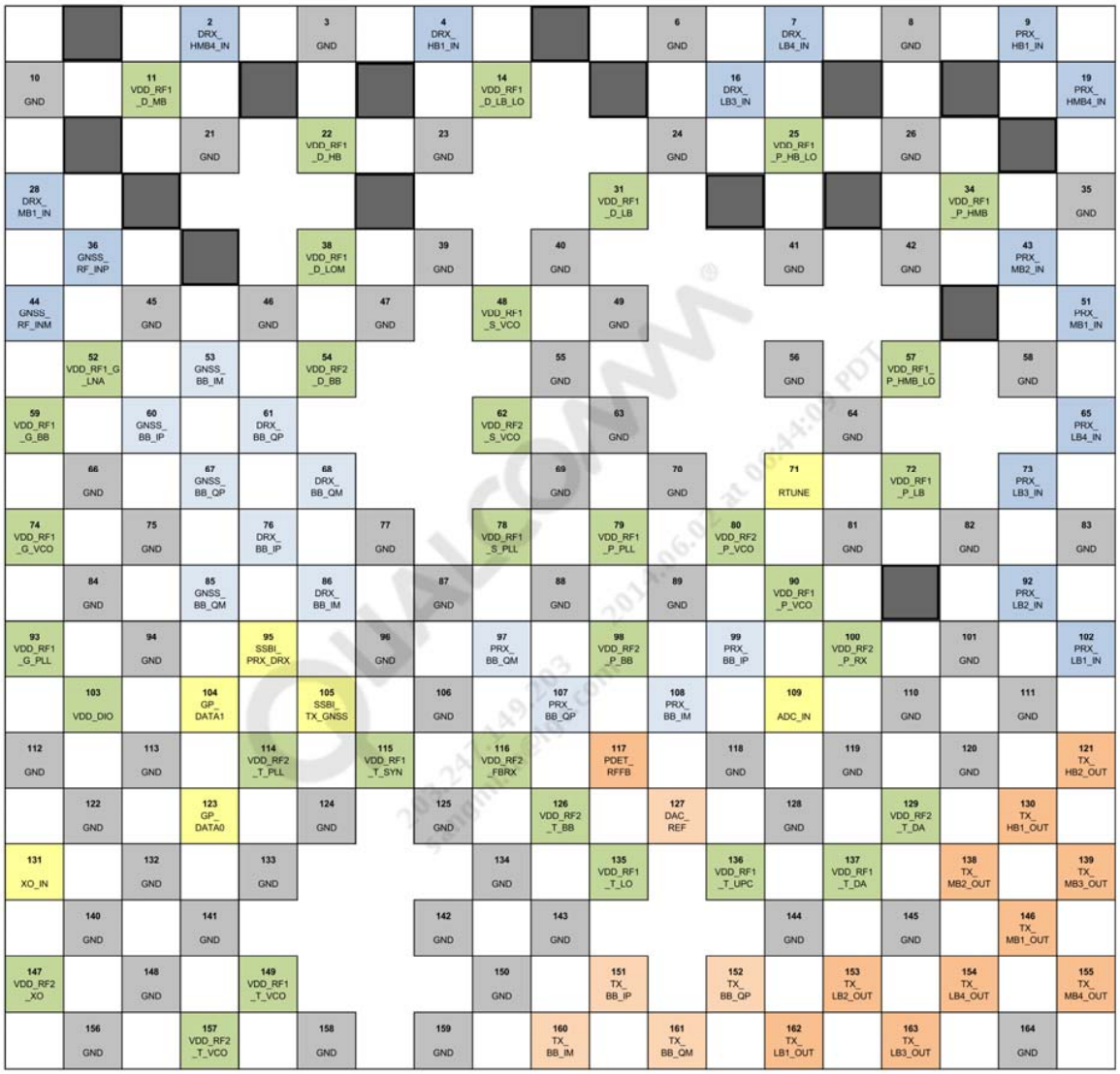
Not Used

U2100- MSM8974AC (TOP view)



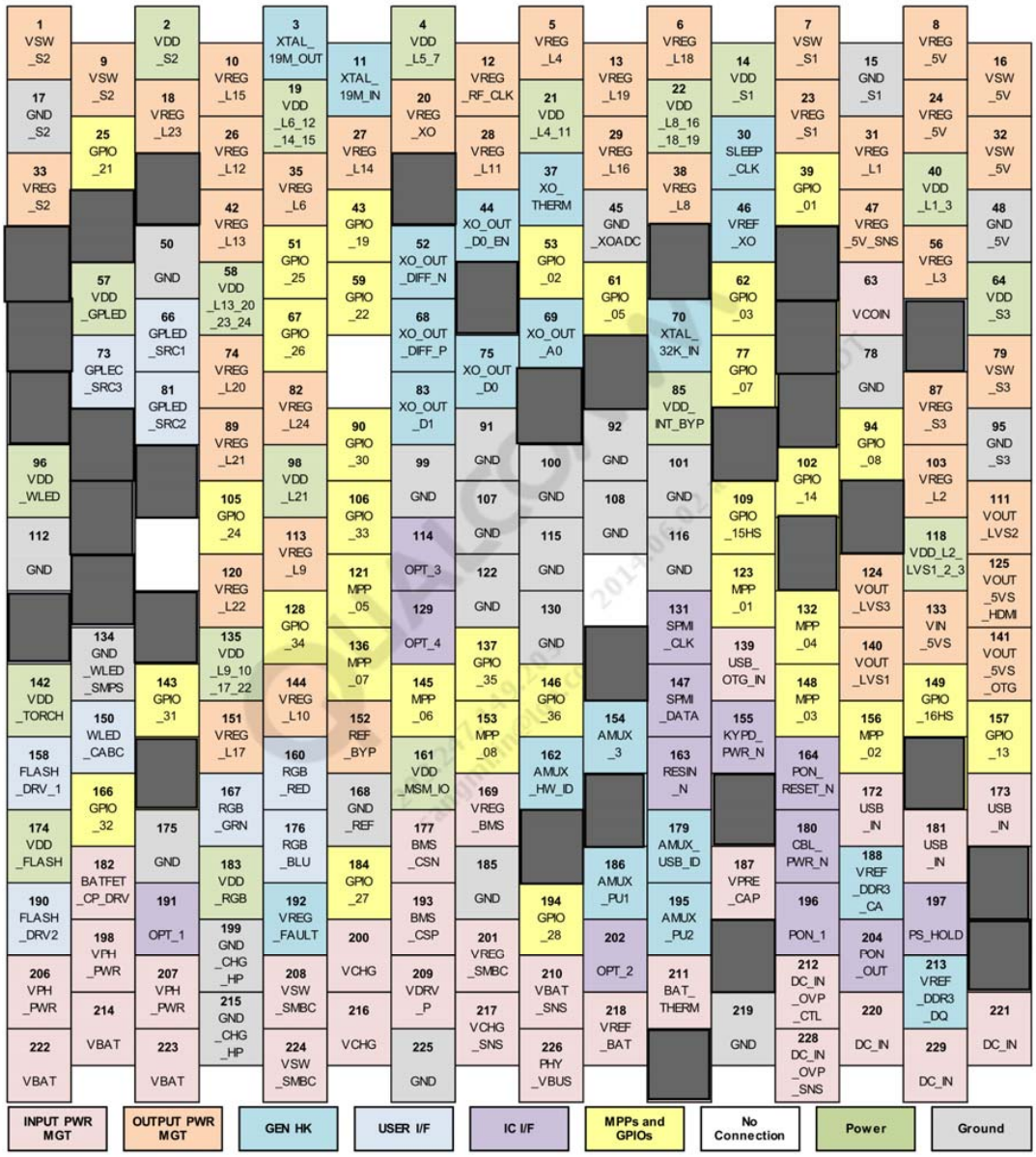
Not Used

U1301– WTR1625L (Top View)



Not Used

U4100-PM8941 (TOP VIEW)



Not Used

U4400-IC,DC-DC Converter

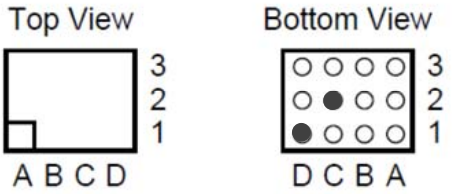


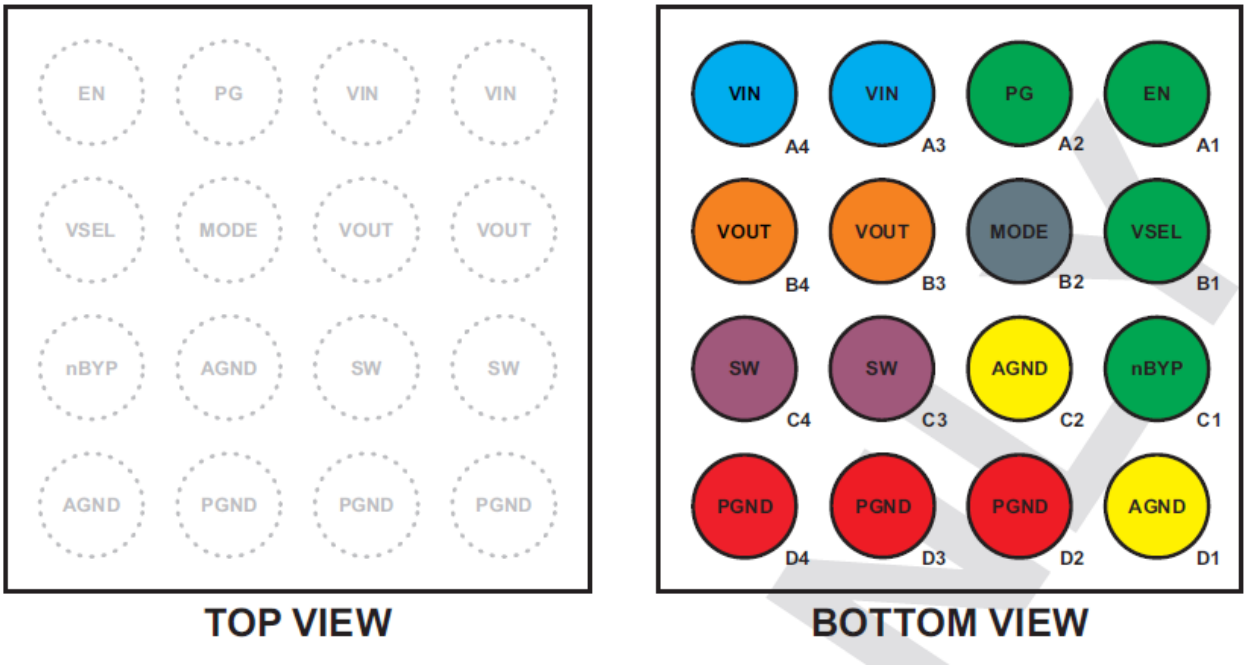
Figure 1. 12-Bump DSBGA Package YFQ0012CAA

Pin Descriptions/Functions

Pin	Name	Description
A1	PWM	PWM Brightness Control Input for CABC operation. PWM is a high-impedance input and cannot be left floating, if not used connect to GND.
A2	SDA	Serial Data Connection for I^2C-Compatible Interface.
A3	HWEN	Hardware enable input. Drive this pin high to enable the device. Drive this pin low to force the device into a low power shutdown. HWEN is a high-impedance input and cannot be left floating.
B1	HVLED1	Input Terminal to high-voltage Current Sink #1 (40V max). The boost converter regulates the minimum of HVLED1, HVLED2 and HVLED3 to V_{HR}.
B2	SCL	Serial Clock Connection for I^2C-Compatible Interface.
B3	IN	Input Voltage Connection. Bypass IN to GND with a minimum 2.2 µF ceramic capacitor.
C1	HVLED2	Input Terminal to high-voltage Current Sink #2 (40V max). The boost converter regulates the minimum of HVLED1, HVLED2 and HVLED3 to V_{HR}.
C2	GND	Ground
C3	GND	Ground
D1	HVLED3	Input Terminal to high-voltage Current Sink #3 (40V max). The boost converter regulates the minimum of HVLED1, HVLED2 and HVLED3 to V_{HR}.
D2	OVP	Over-Voltage Sense Input. Connect OVP to the positive terminal of the inductive boost's output capacitor (COUT).
D3	SW	Drain Connection for the internal NFET. Connect SW to the junction of the inductor and the Schottky diode anode.

Not Used

U4900_DC-DC Converter(TOP view)



All Used

U6200_IC,Speaker Amplifier(Top view)

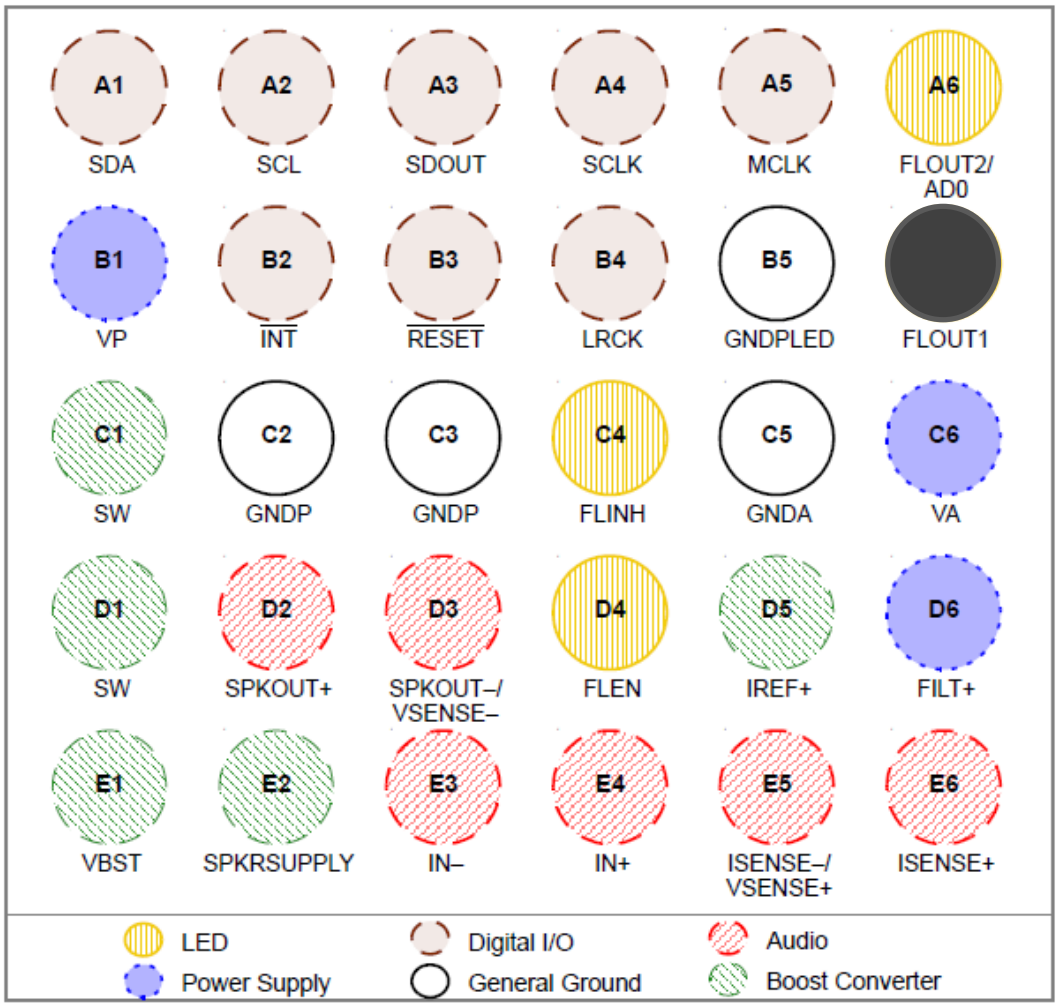
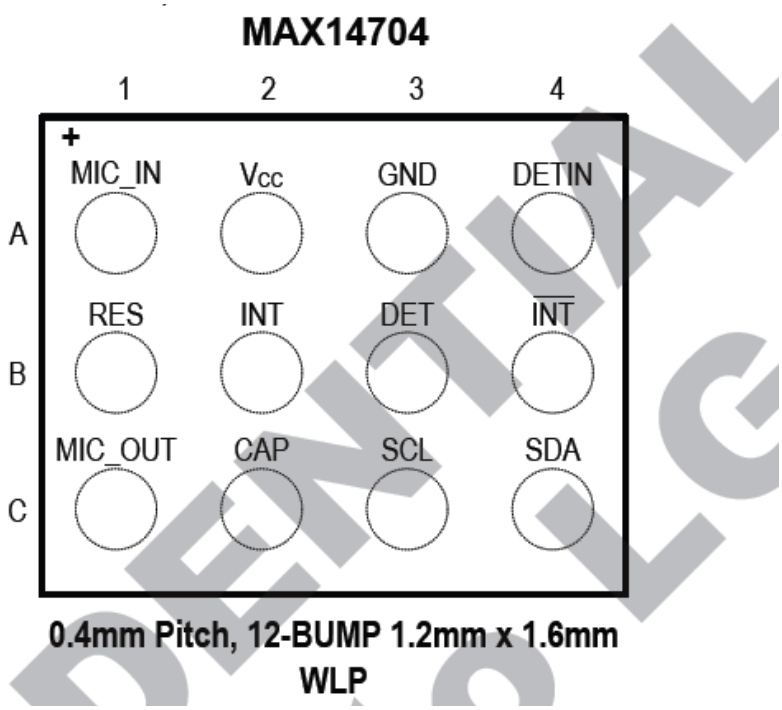


Figure 1-1. Top-Down (Through-Package) View—30-Ball WLCSP Package

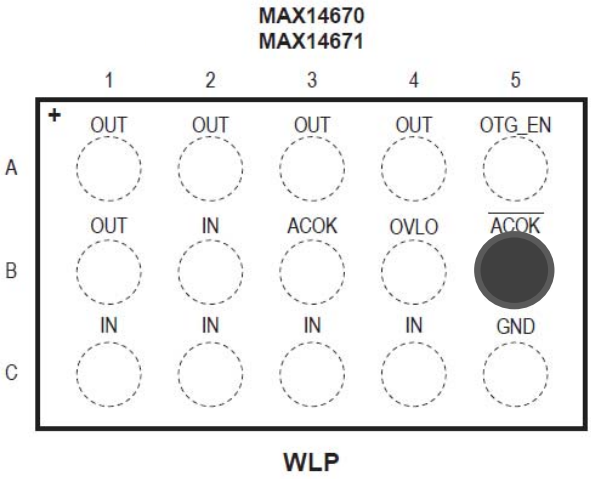
Not Used

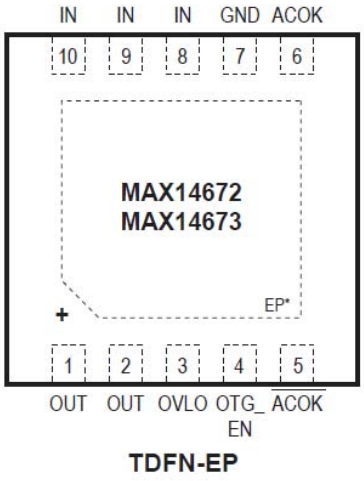
U6420_IC,Comparator(Top view)



ALL USED

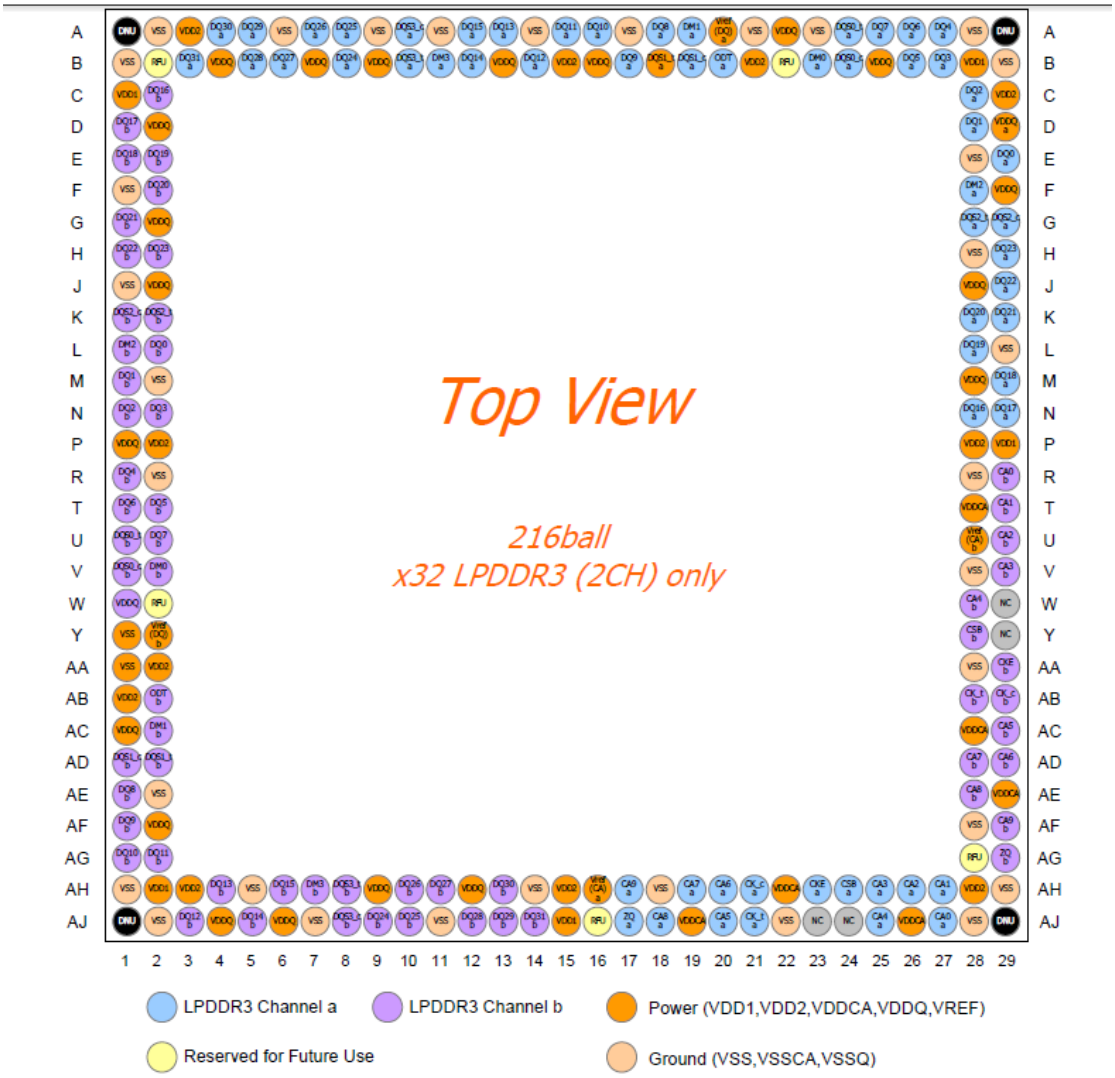
U4750,U4751_IC,over voltage protection(Top view)





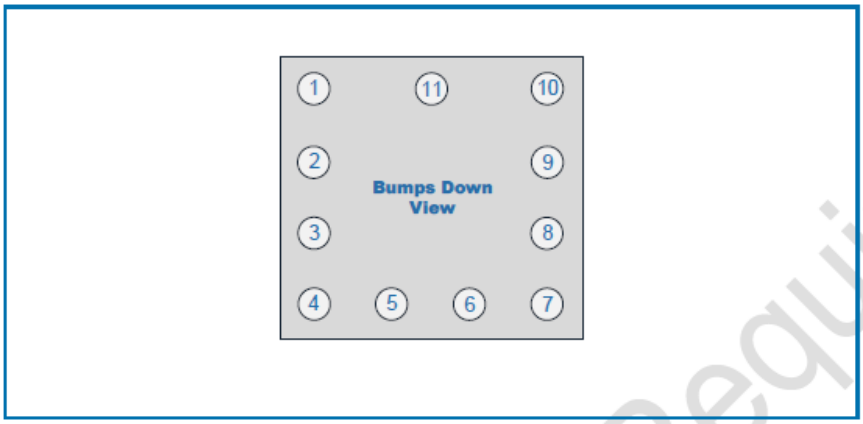
Not Used

U3100_LPDDR3_SDRAM(Top View)



FL1209,FL1211_Swtich_RF1149A (TOP view)

Pin Out



Pin Names and Descriptions

Pin	Name	Details
1	RF1	RF port 1.
2	RF2	RF port 2.
3	GND	Ground.
4	VDD	Voltage Supply.
5	CTL1	Control Voltage 1.
6	CTL2	Control Voltage 2.
7	EN	Enable.
8	GND	Ground.
9	RF4	RF port 4.
10	RF3	RF port 3.
11	RFC	Common RF port.

8. PCB LAYOUT

U8400 : Proximity/Ambient Sensor
- Can Not Use Proximity/Ambient Sensor Function

LD4602 : LED
- no Indicator on

FL1113 : Filter B4
- no Diversity

U1005 : SP4T B2, B4, B5, B12/17
- no Diversity

FL1114 : Filter B12
- no Diversity

FL1108 : Filter B2
- no Diversity

FL1102 : Diplexer B12/17, B4 TX
- B12/17 no-service, B4 TX

FL1103 : Duplexer B12/17
- B12/17 no-service

U1109 : MMPA
- no Power

FL1209 : Duplexer B5/BC0
- no-service

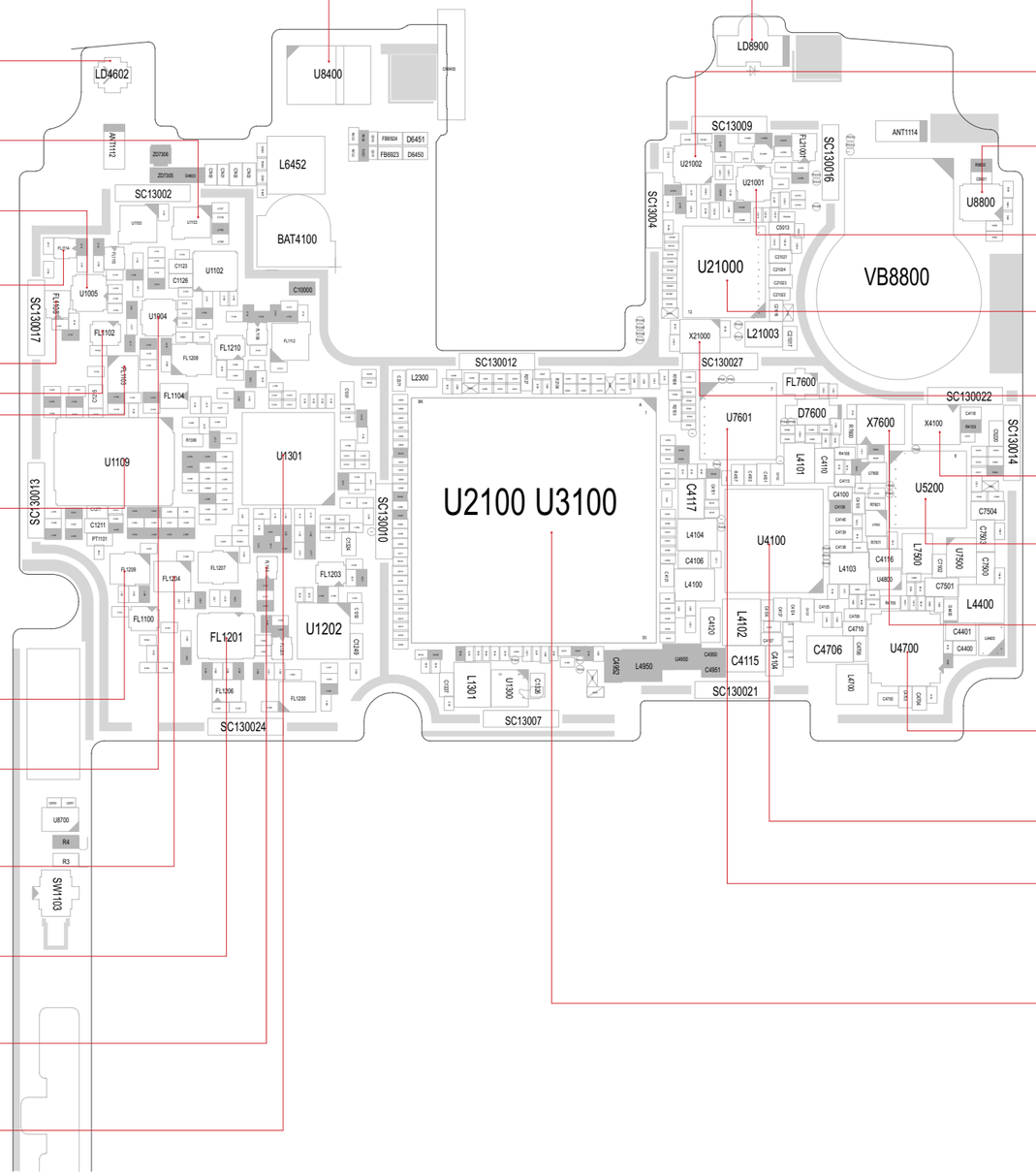
U1004 : SP4T B12/17, B4 TX
- B12/17 no-service, B4 TX

FL1204 : Duplexer B2/BC1
- no-service

FL1201 : ASM
- no-service

FL1115 : Filter B4
- B4 no-service

U1301 : WTR1625L
- no RF Service



LD8900 : IrRC LED
- no IrRC Function

U21002 : 5G SPDT
- Can Not Use 5G Wi-Fi

U8800 : Motor Driver
- no Vibrator On

U21001 : 2.4G SP3T
- Can Not Use 2.4G Wi-Fi

U21000 : BT/Wi-Fi Module
- Can Not Use Wi-Fi/BT

X21000 : Crystal
- Can Not Use Wi-Fi/BT

X4100 : Crystal
- no Power On

U5200 : NFC Module
- no NFC Function

X7600 : Crystal
- Can Not Connect HDMI, USB

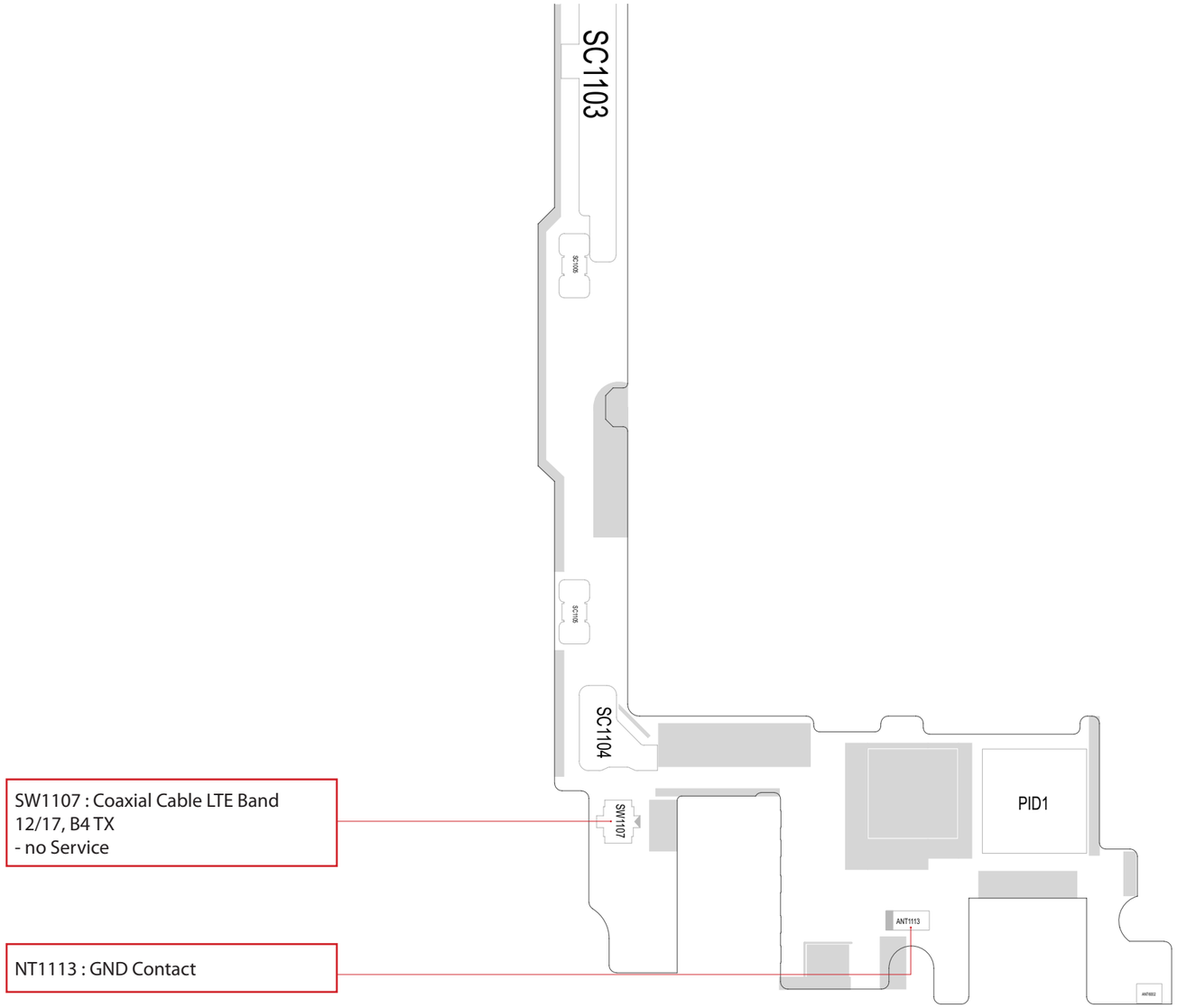
U4700 : Charger
- no Charging

U4100 : PM8941
- no Power On

U7601 : Slimport Bridge
- Can Not Connect HDMI, USB

U2100 : MSM8974AC_2.46G(AP)
- no Power On
U3100 : H9CKNNNBKTMRLR (PoP Memory)
- no Power On

LG-AS990-MAIN_EAX65632401_1.0_TOP-1



LG-AS990-MAIN_EAX65632401_1.0_TOP-3

ANT5100, ANT5103
- no BT/Wi-Fi function

MIC6923 : 2nd Mic
- no noise filtering

ANT1102, ANT1103
- no GPS

U8500 : Pressure Sensor
- no Pressure measure

U1106 : GPS LNA
- no GPS

U8900 : IRRC IC
- no Remote control function

CN5200, CN5202 : NFC Ant feed
- no NFC Function

ANT4700, ANT4701 : Wireless Charger feed
- no wireless charging

U18000 : Wireless Charger
- no wireless charging

U4200 : PM8841
- no Booting

U4751 : OVP
- no OVP Function

U4750 : OVP
- no OVP Function

U3200 : EMMC
- no Booting Reset

MIC6921 : 3rd Mic
- no Audio Zooming Recording

U8100 : Accel/Gyro Sensor
- no Accel/Gyro Sensor Function

ANT1104, ANT1105 : Div feed
- no Diversity Function

U8200 : Compass sensor
- no compass function

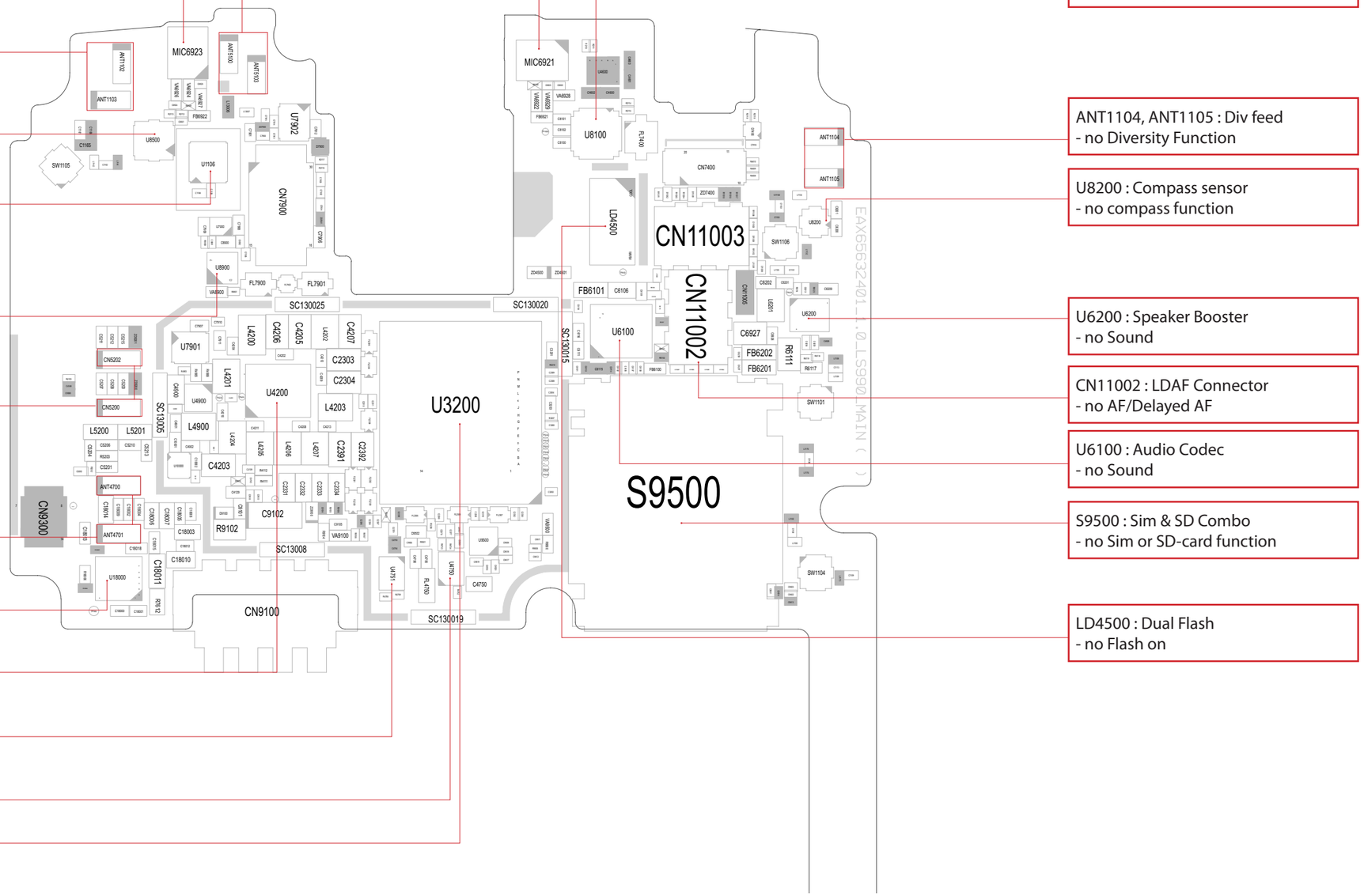
U6200 : Speaker Booster
- no Sound

CN11002 : LDAF Connector
- no AF/Delayed AF

U6100 : Audio Codec
- no Sound

S9500 : Sim & SD Combo
- no Sim or SD-card function

LD4500 : Dual Flash
- no Flash on



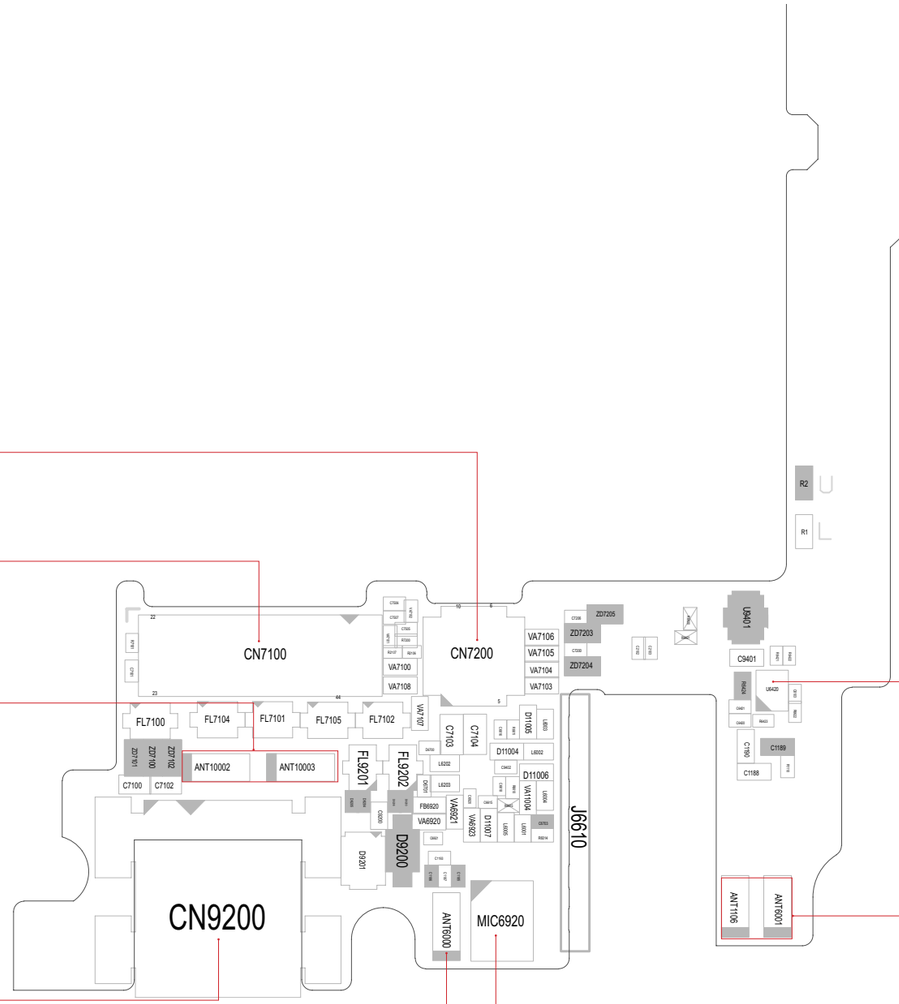
LG-AS990-MAIN_EAX65632401_1.0_BOT-1

CN7200 : Touch Connector
- no touch function

CN7100 : LCD Connector
- no display

ANT10002, ANT10003 : Speaker feed
- no sound

CN9200 : USB Connector
- no USB Connection
- no Charging



U6420 : Earjack Detector
- no Earjack detection

ANT1106, ANT6001 : Ant2 feed LTE Band41
- no Service
- no Power

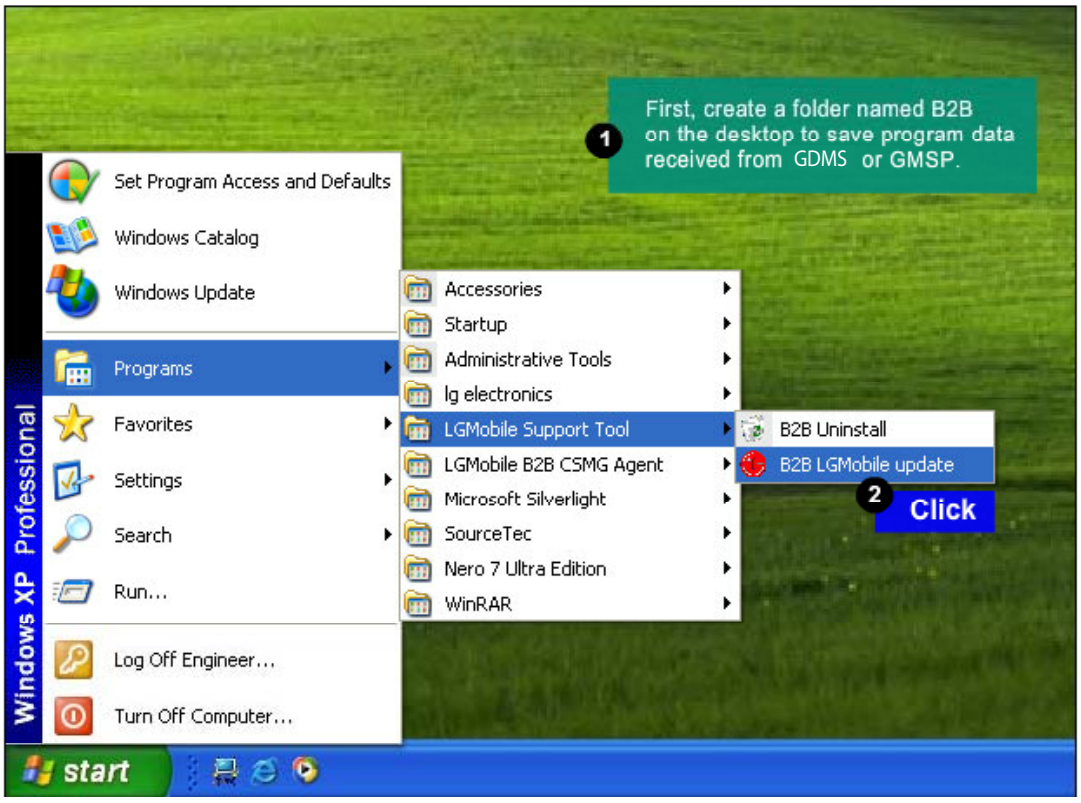
MIC6920 : Main Mic
- no Mic Function

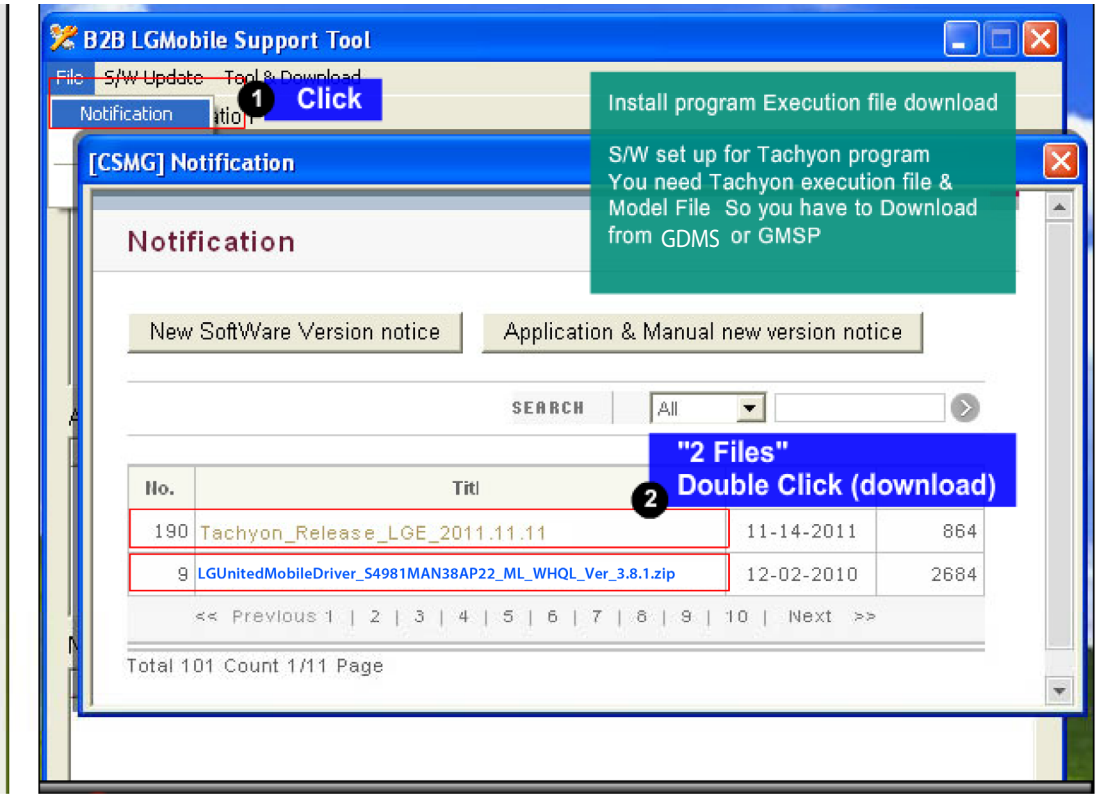
ANT6000 : Ant1 feed
LTE B2/5/4, BC0/1
- no Service
- no Power

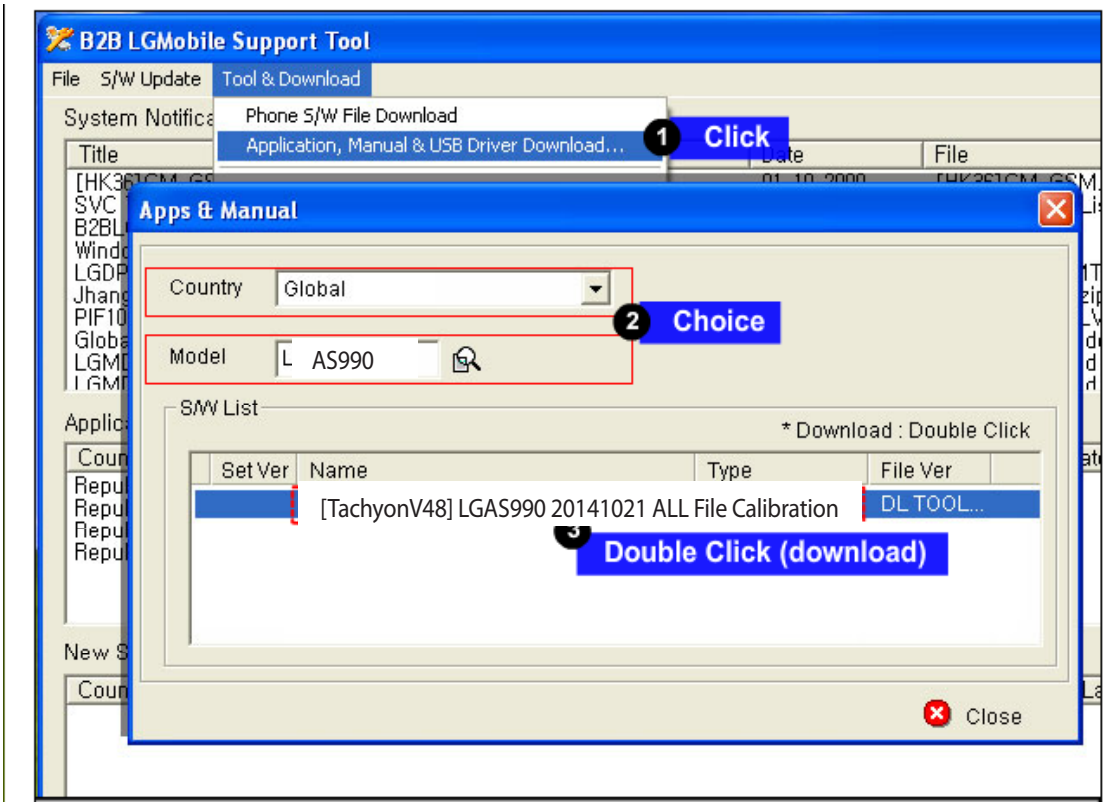
LG-AS990-MAIN_EAX65632401_1.0_BOT-2

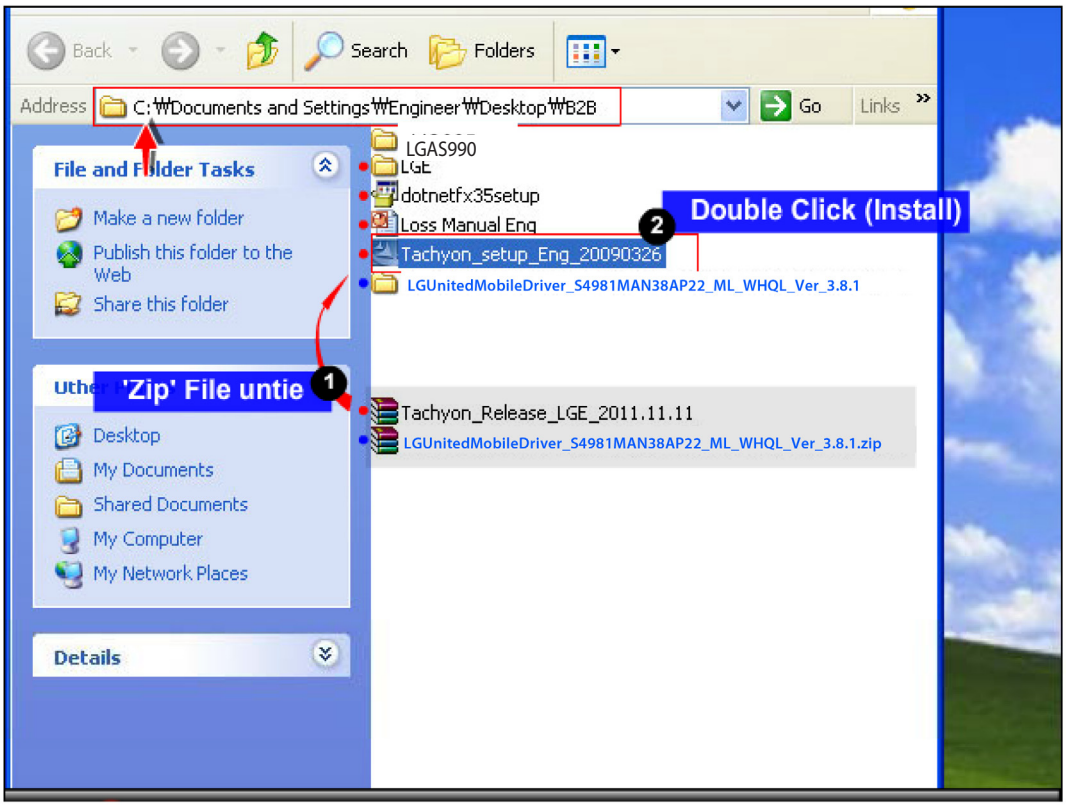
9. CALIBRATION

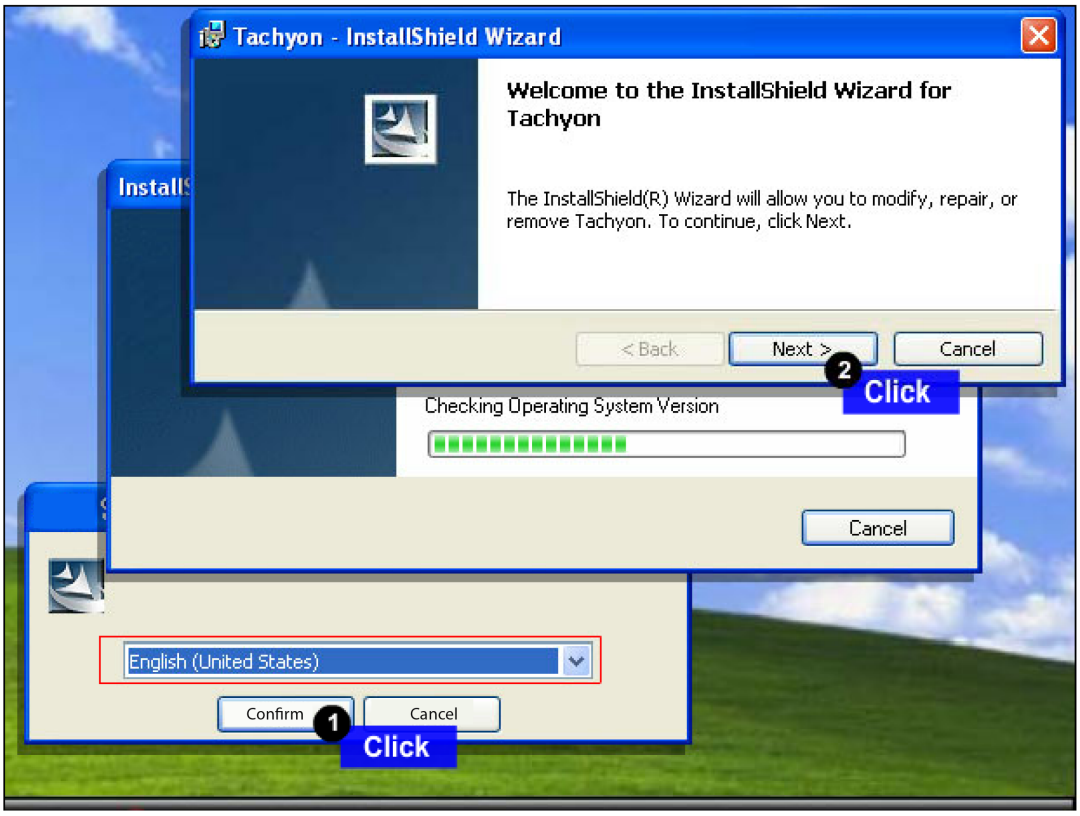
CAL INFORMATION		
S/W VERSION		
[TachyonV48] LGAS990 20141021 ALL File Calibration		
Please Check the Version to "B2B"		
H/W		
	Name	**Part No.**
PIF	PIF200(All Type)	BJAY0024021
USB Cable	USB Cable	RAD32247898
Power Cable	DC Power Cable	RAD32247878
I/O Cable	5P E-SATA_DC_Plug	RAD32167861
RF Cable_Main	MXFJK1WT4000C2	RAD32667826
Power Supply_PIF	Power Supply 5.3V	
RF Test Equipment	CMW500	
NOTICE	1. Use the dummy Battery (Refer to Attached image) 1) Phone states: Power off 2) If do not use the dummy battery, GSM TX fails. 2. Port Setting (Refer to Attached image) 1) Uart Port1 : Use the "LGE Mobile USB Serial Port"	
CMW500 RF Cable connection	Reference to Attached ppt ->How to connect between phone RF switch and RF 800A: It has to be connected as below ->How to connect between CMW500 and RF800A ; It has to connected as below - CMW500 [RF1COM] to RF-800A [left COM], - CMW500 [RF2COM] to RF-800A [Right COM]	

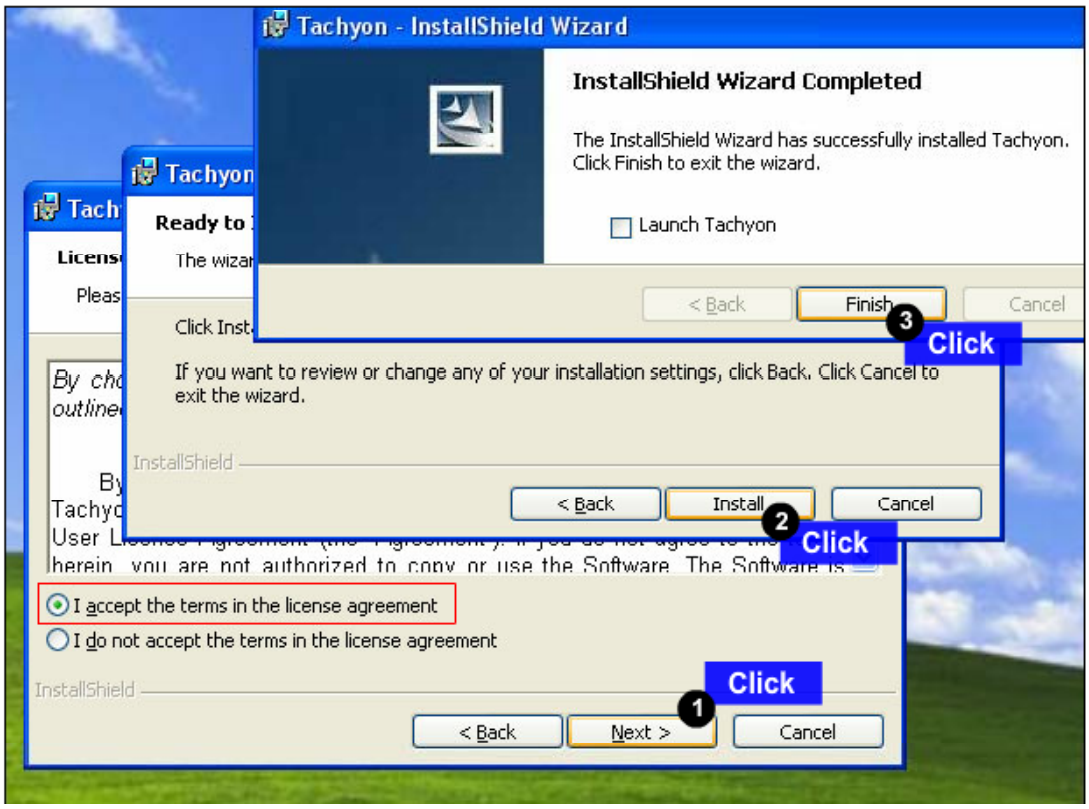


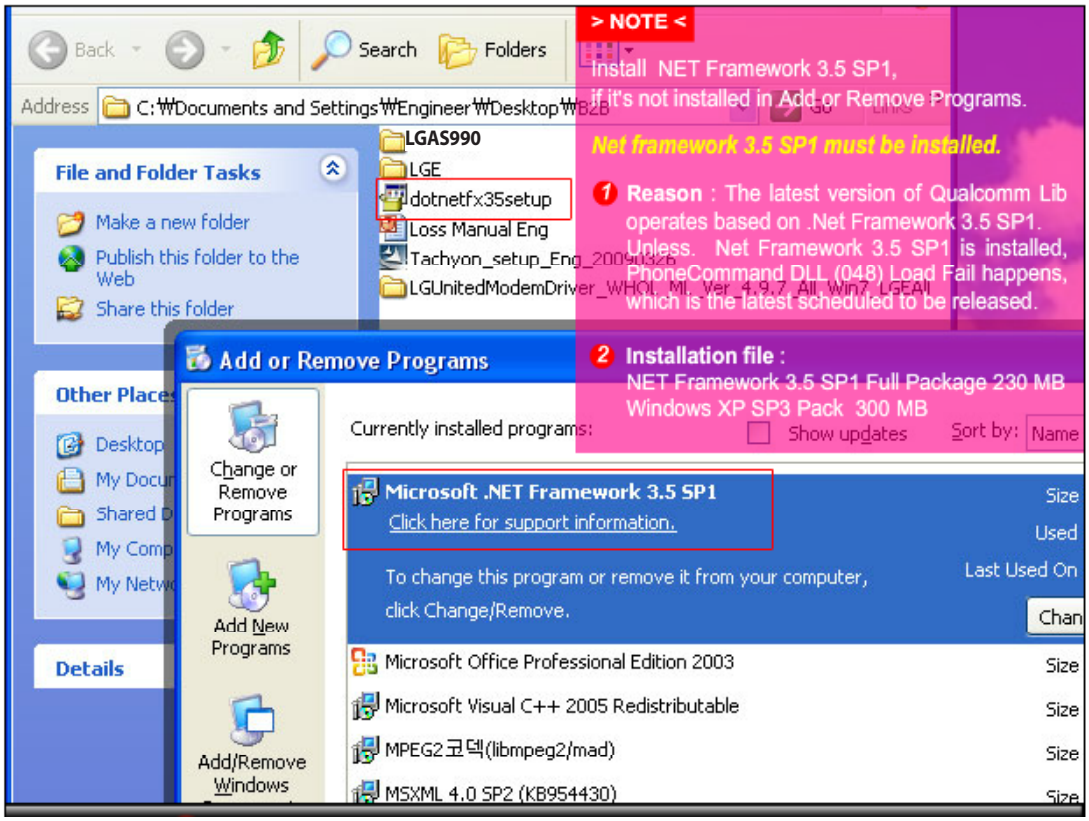


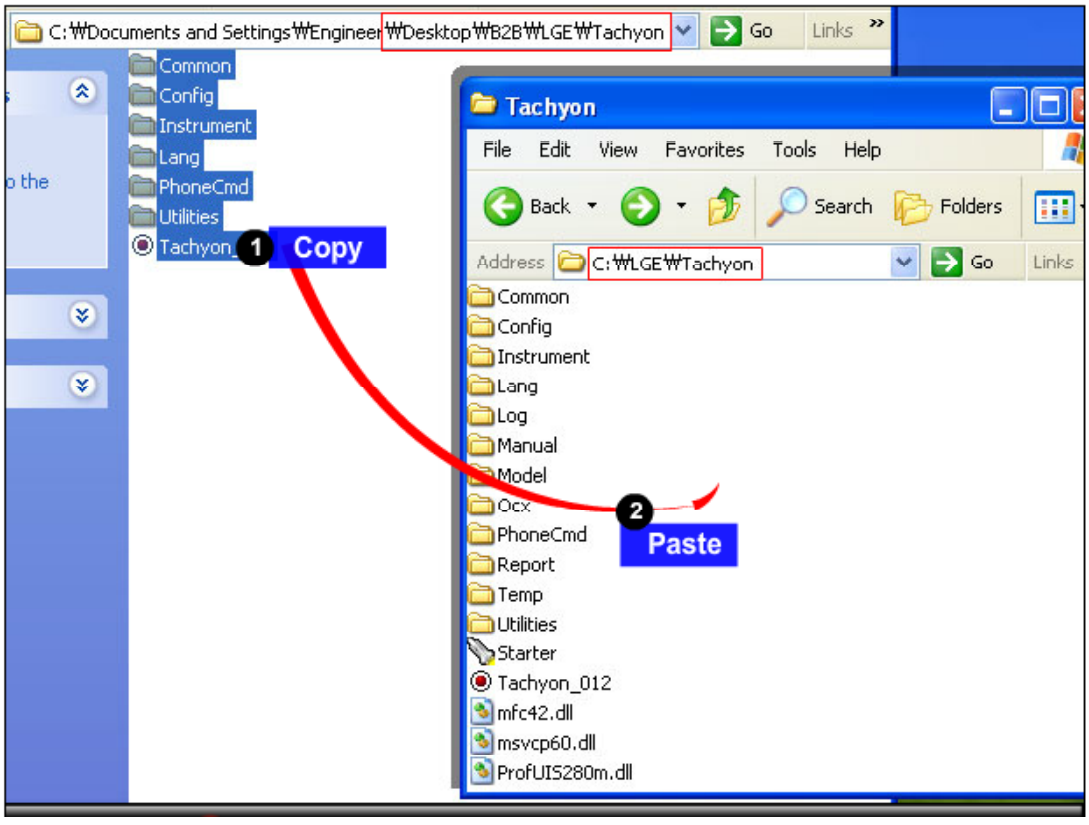


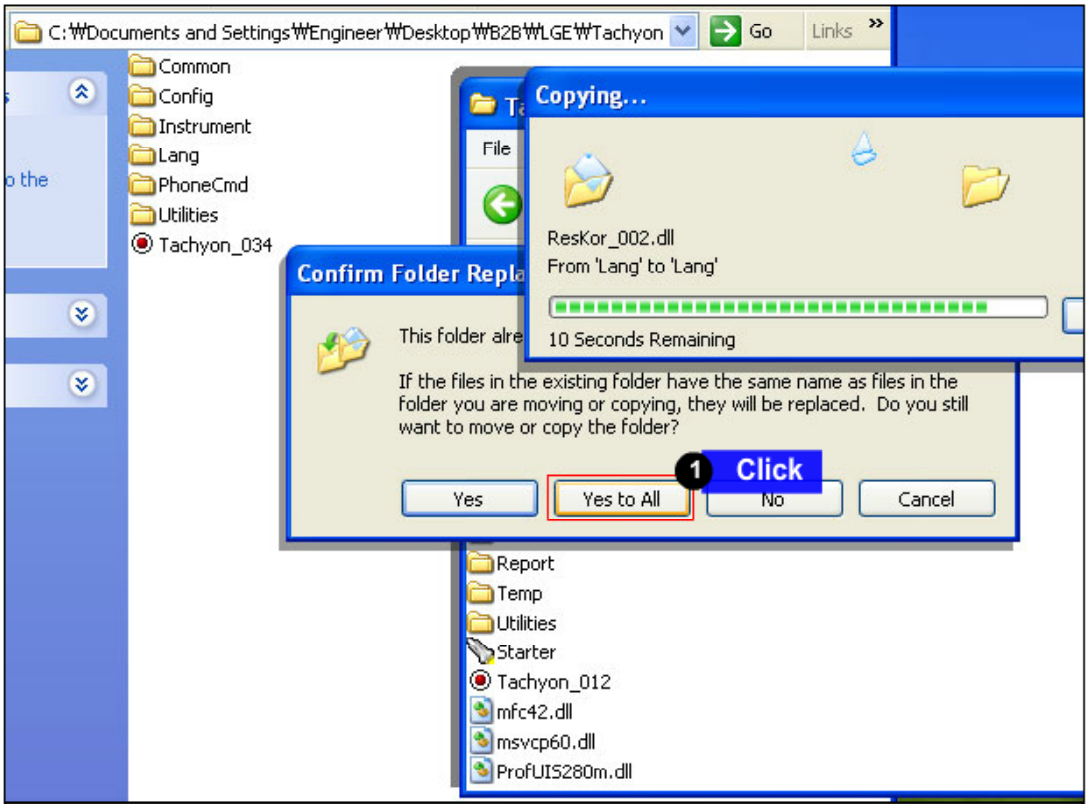


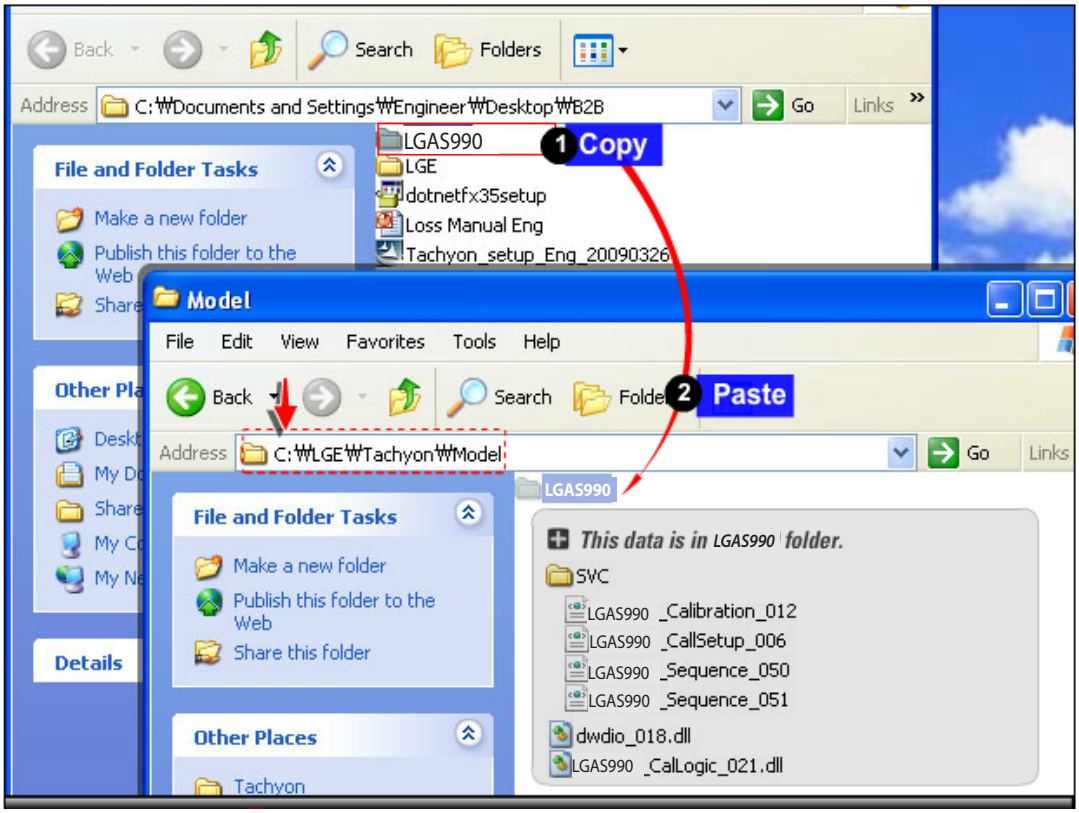


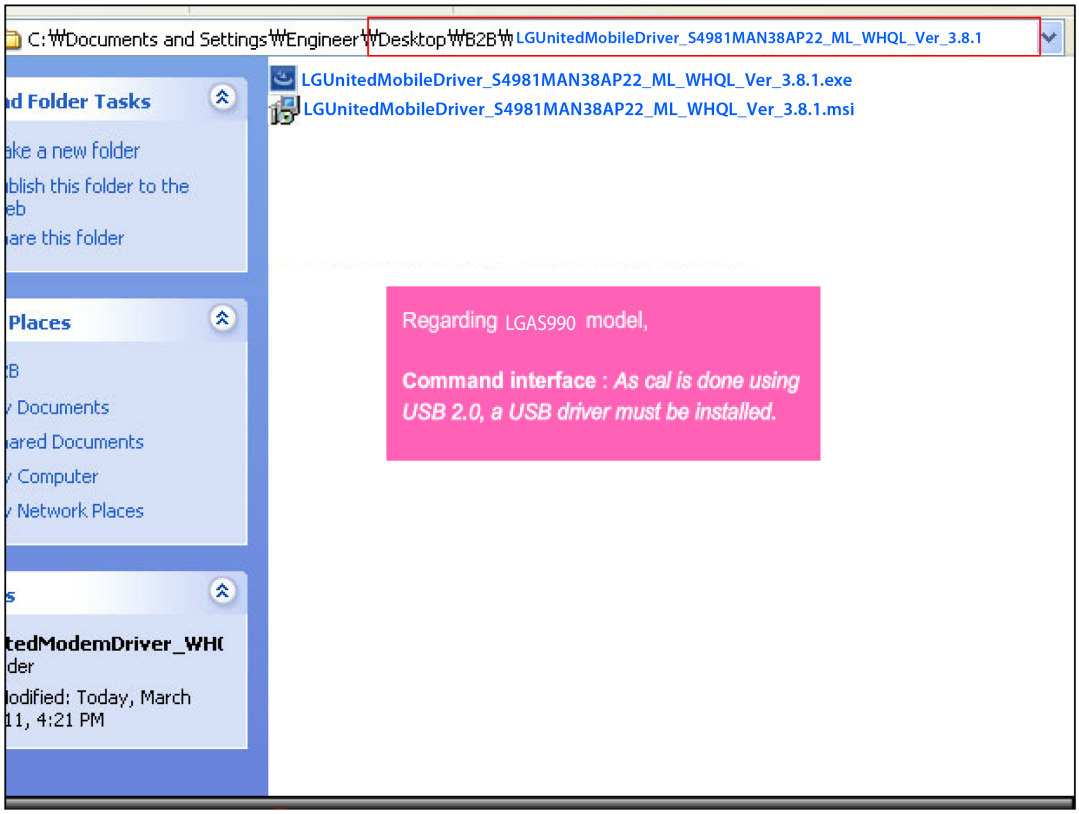


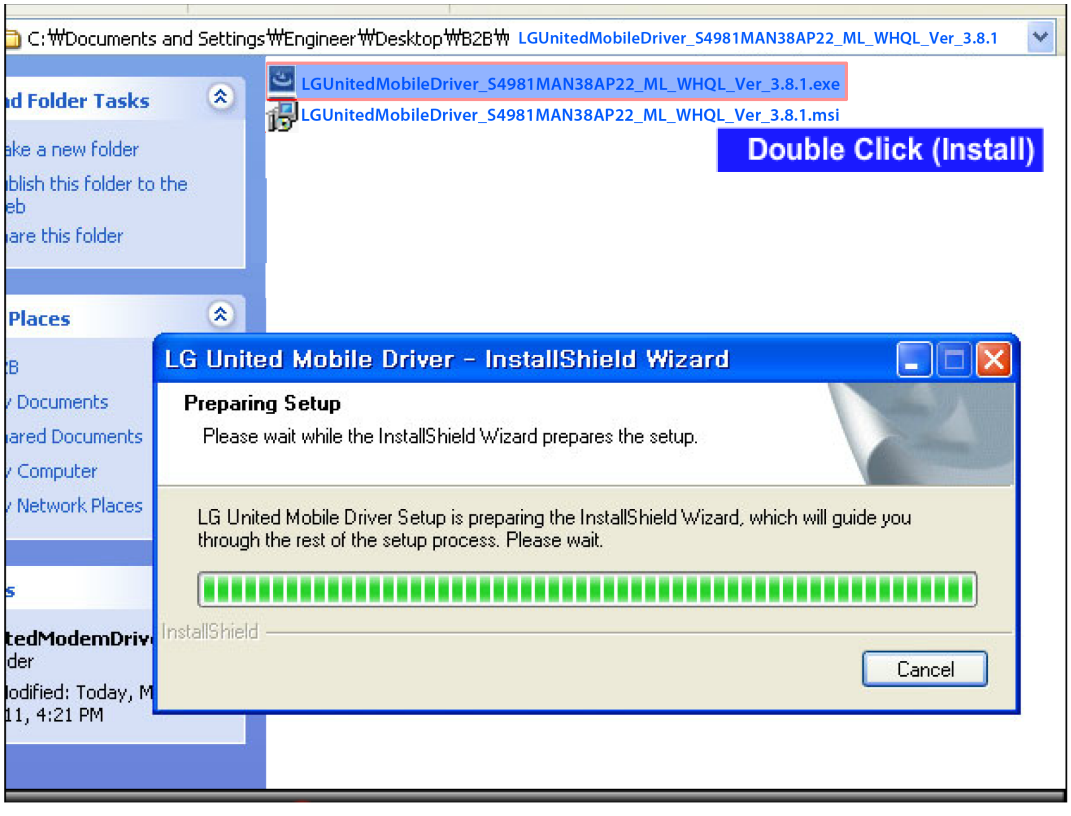


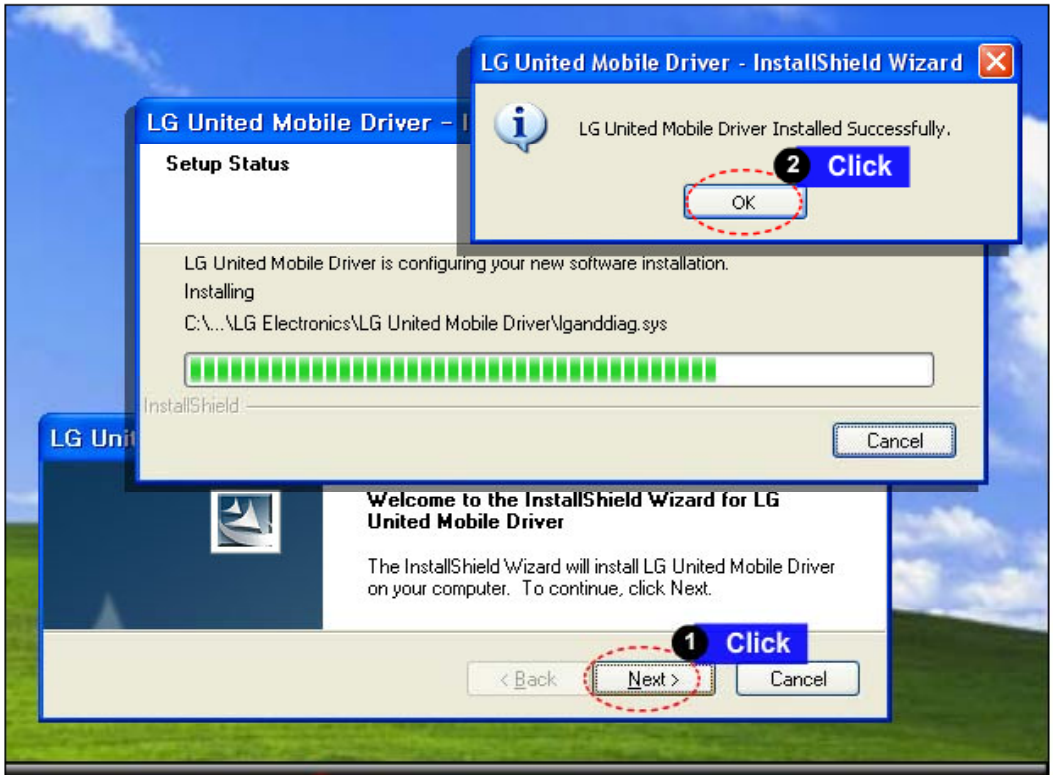


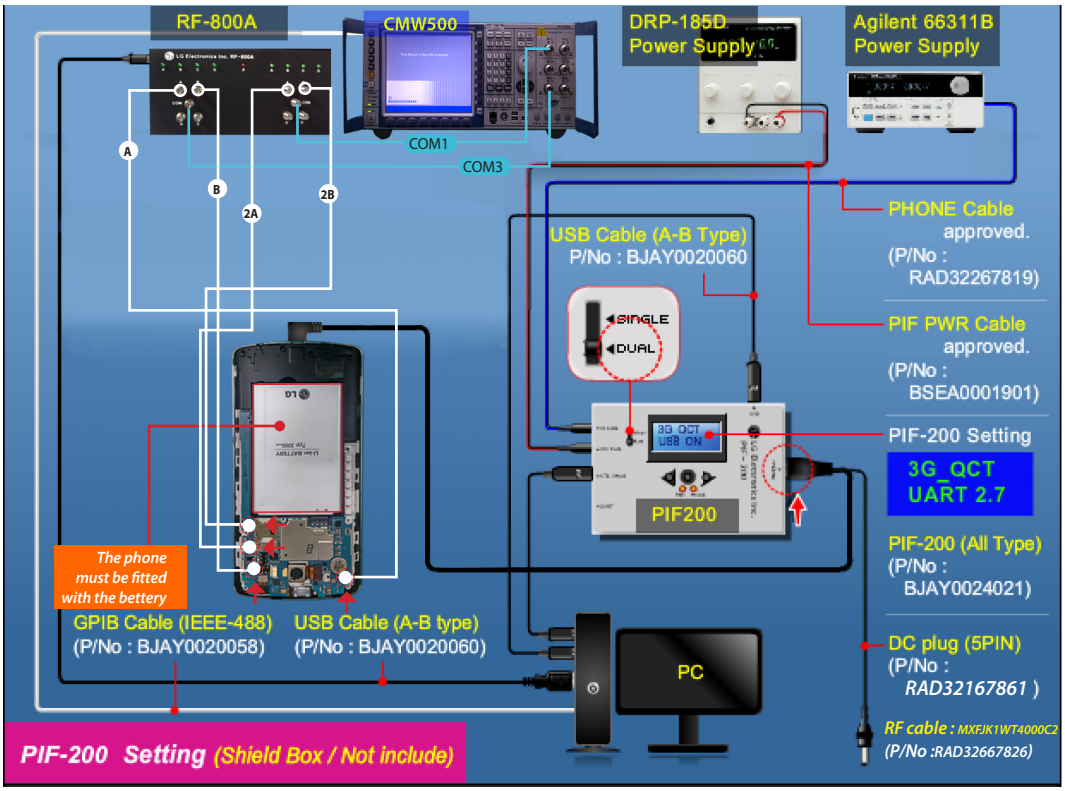




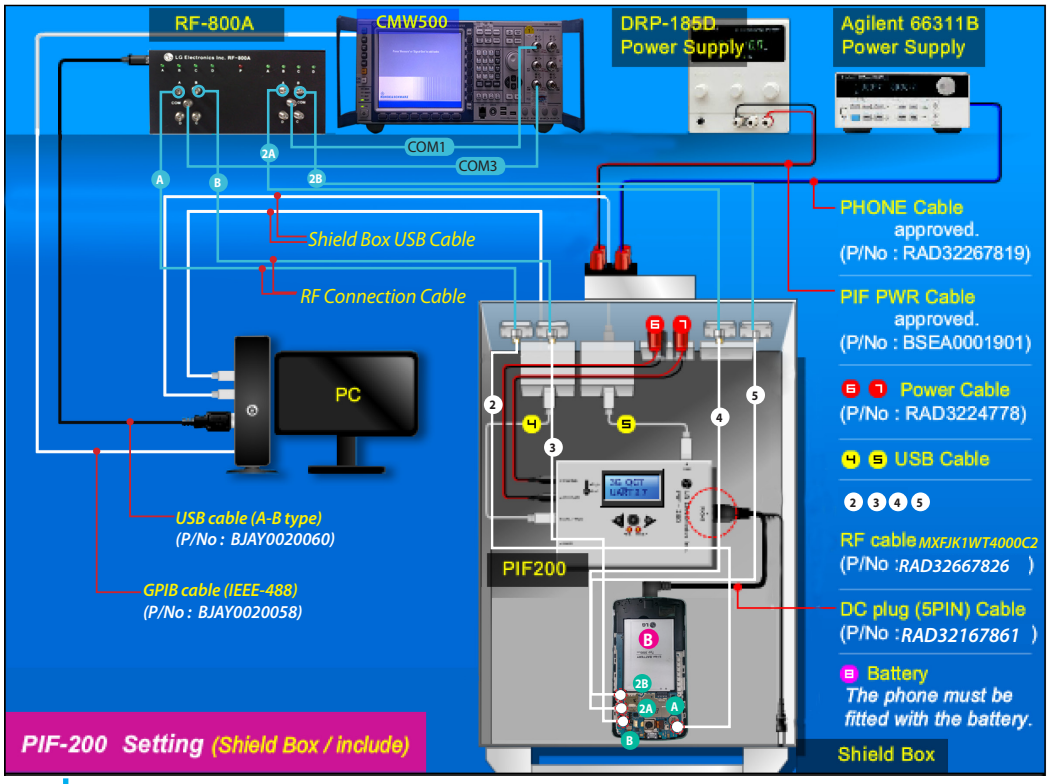




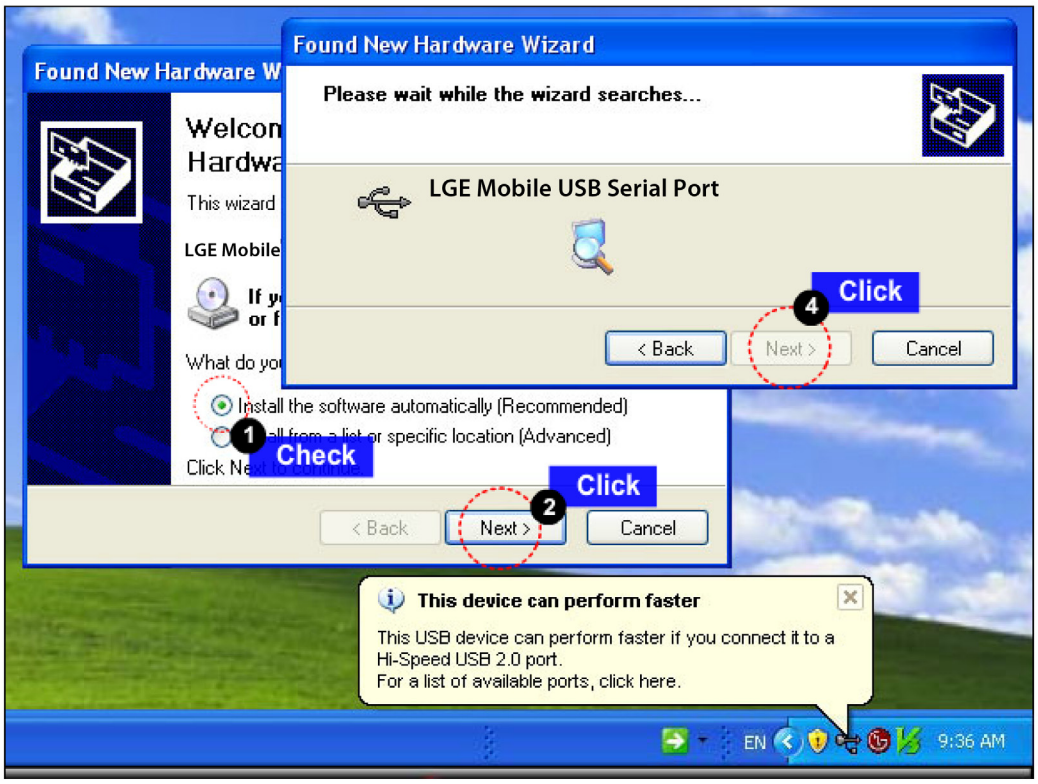


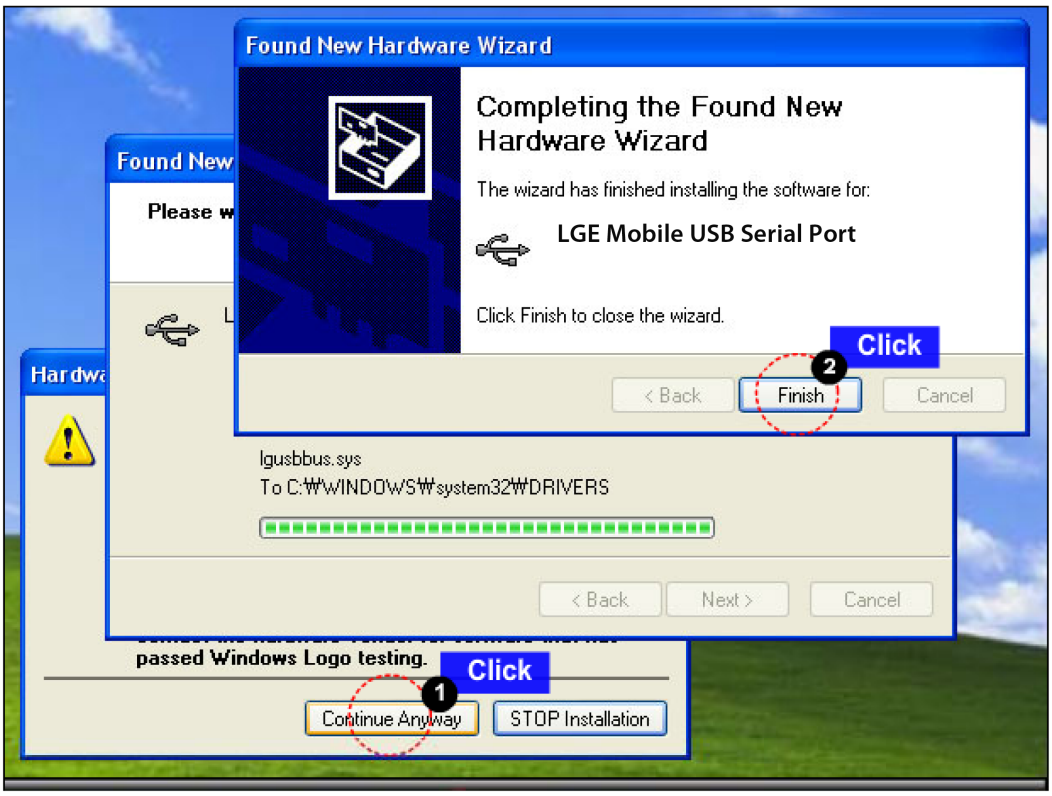


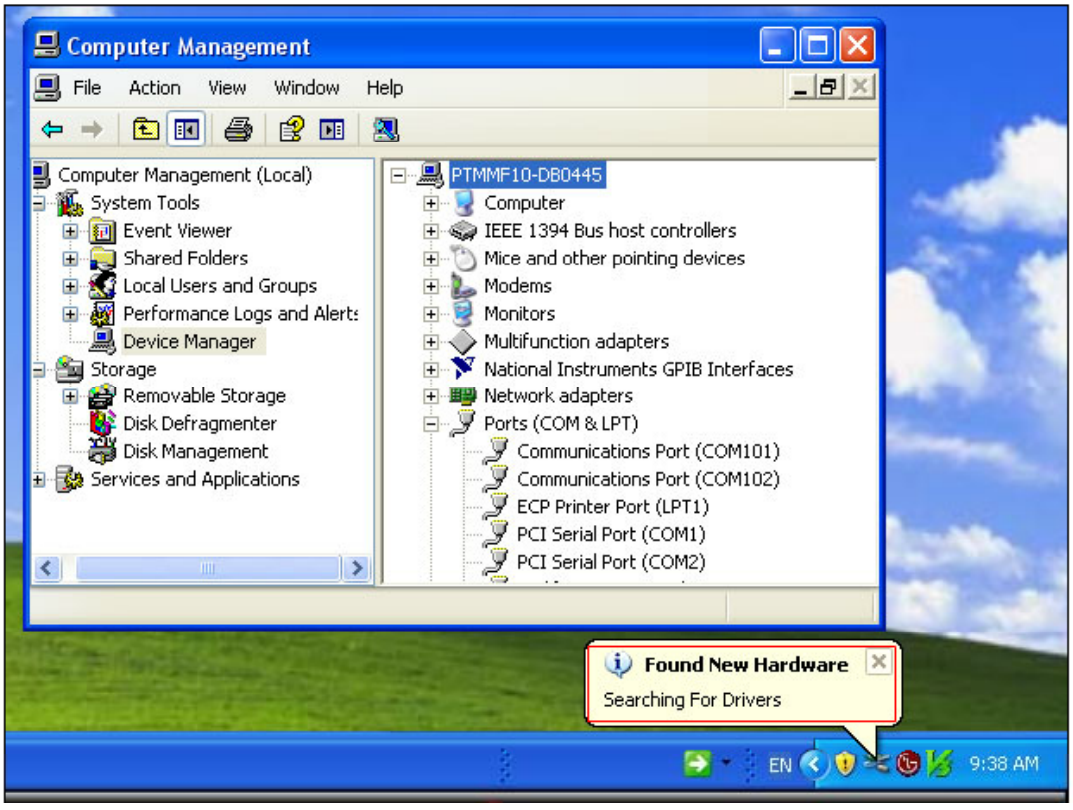
This is for example.
You can check "C:₩LGE₩Tachyon₩Model₩AS990₩Setting Guide"

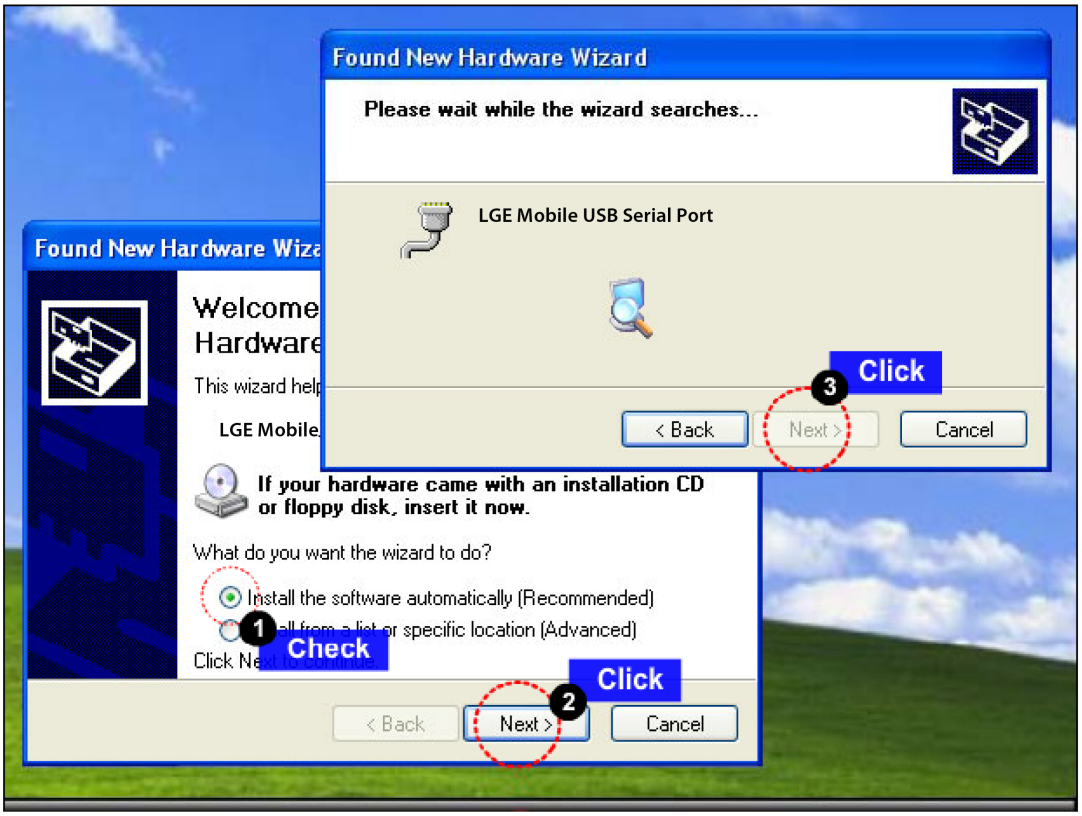


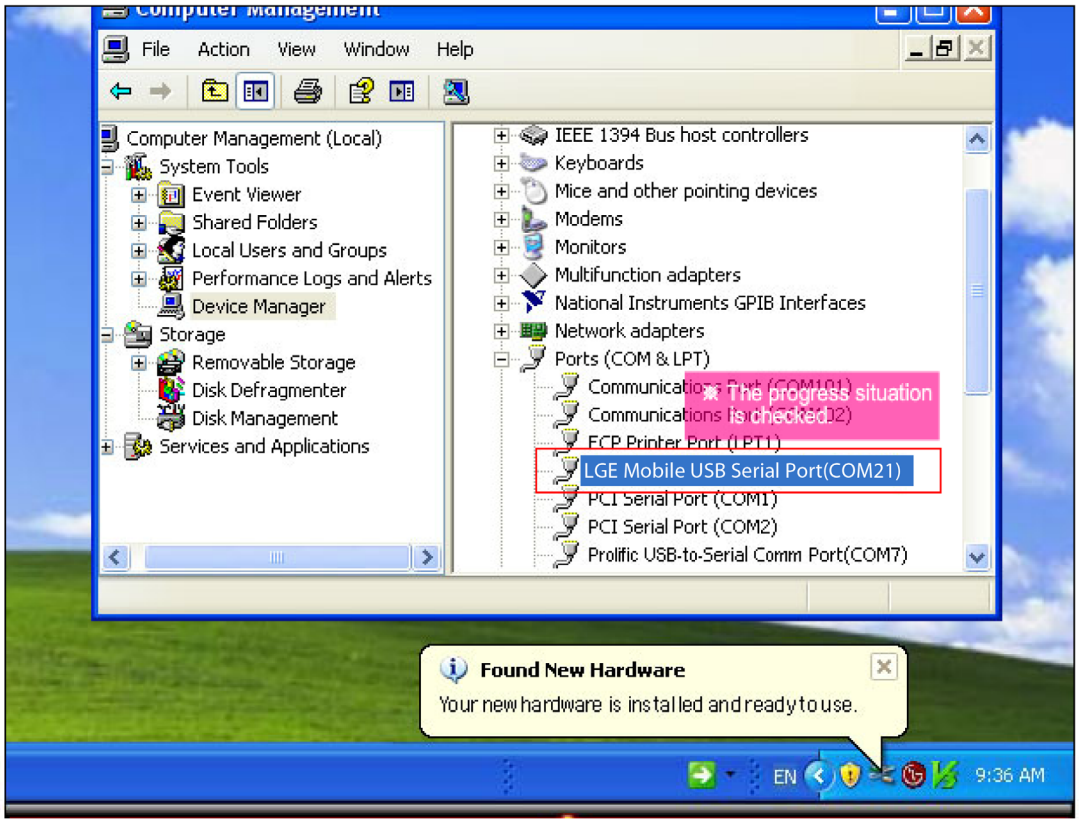
This is for example.
You can check "C:₩LGE₩Tachyon₩Model₩AS990₩Setting Guide"

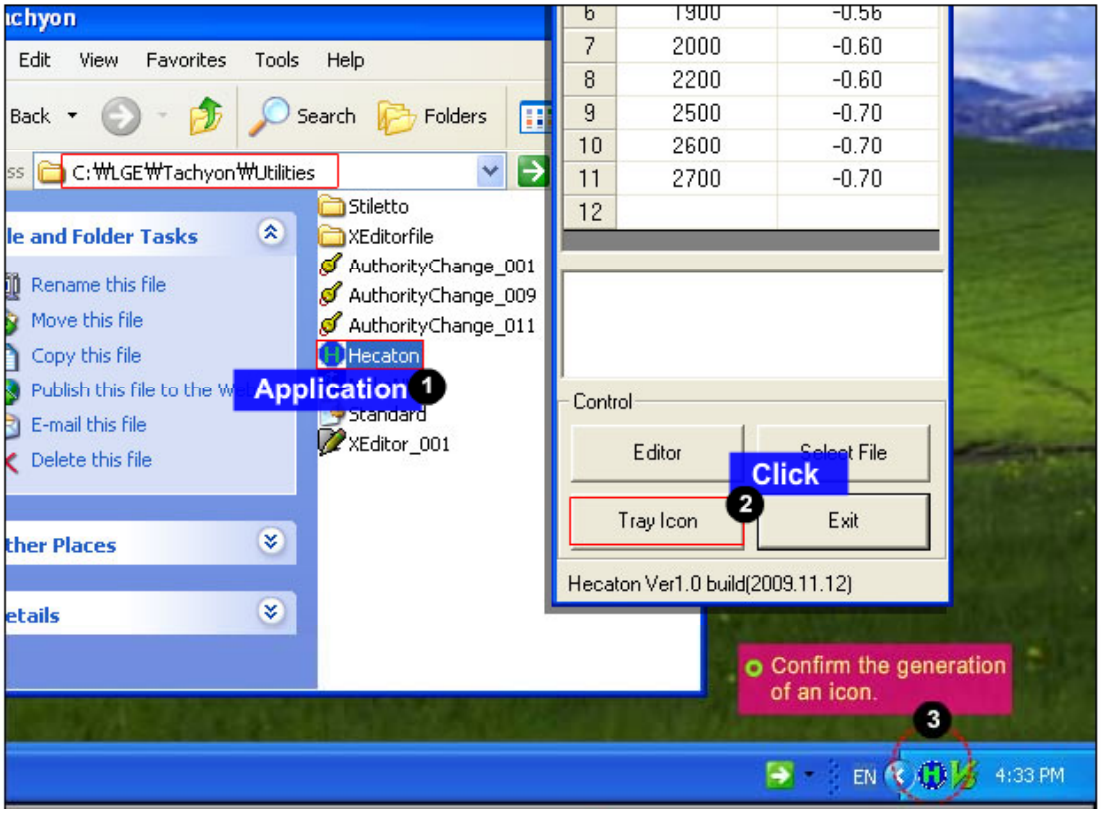


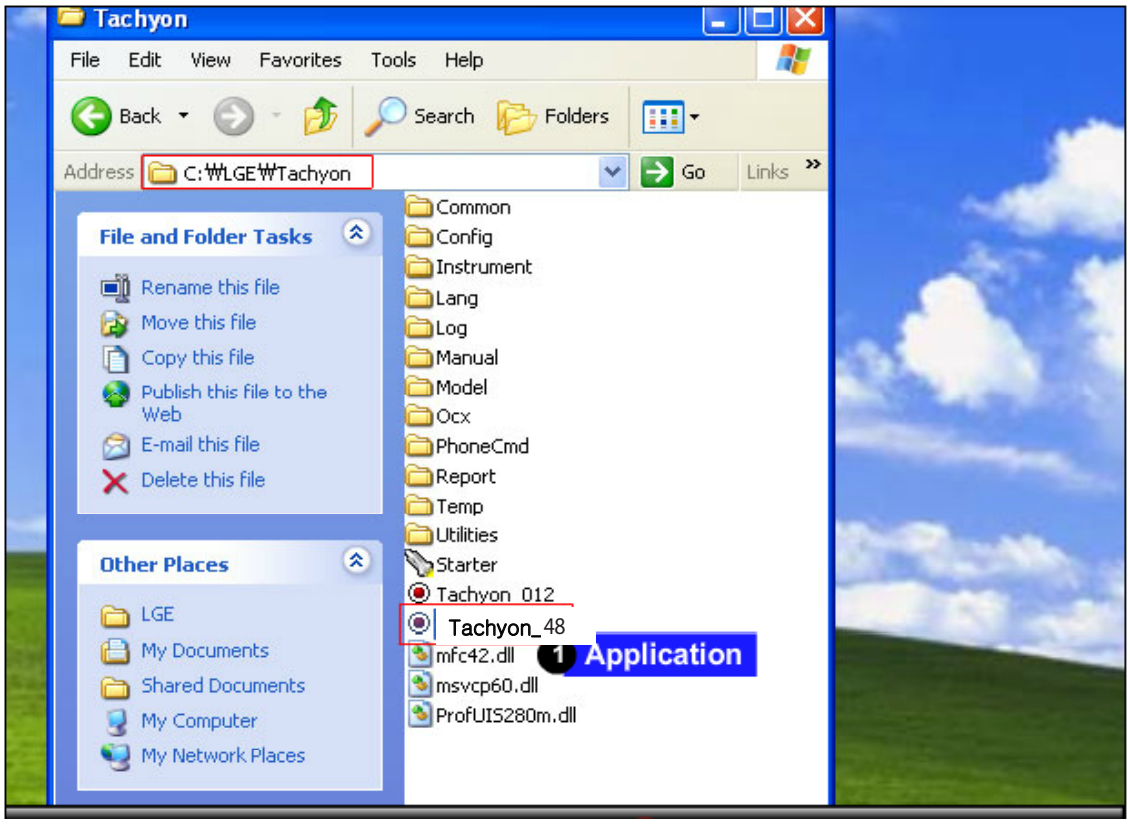


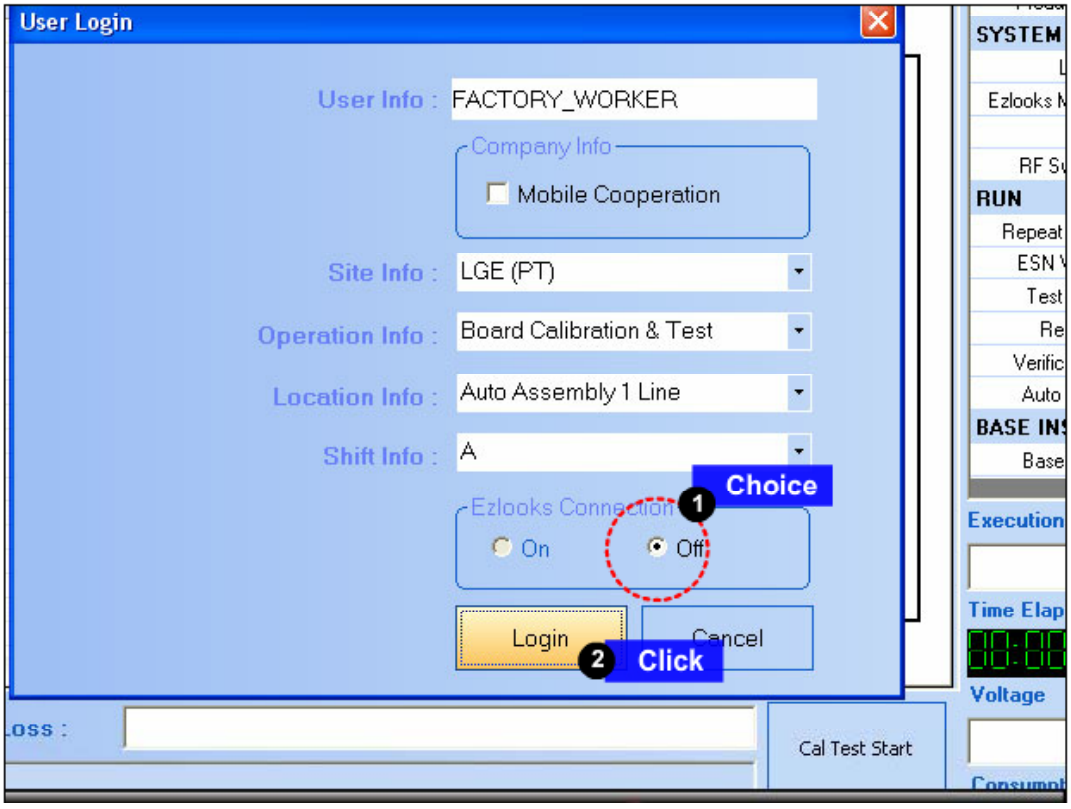


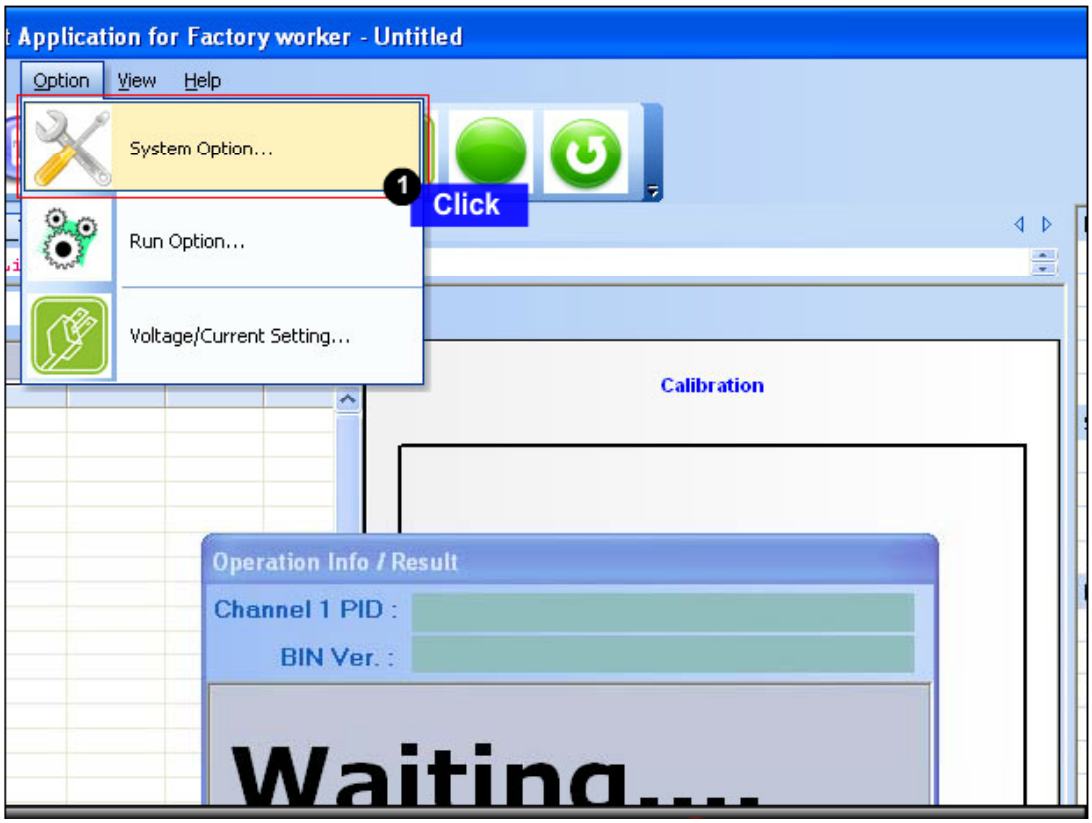


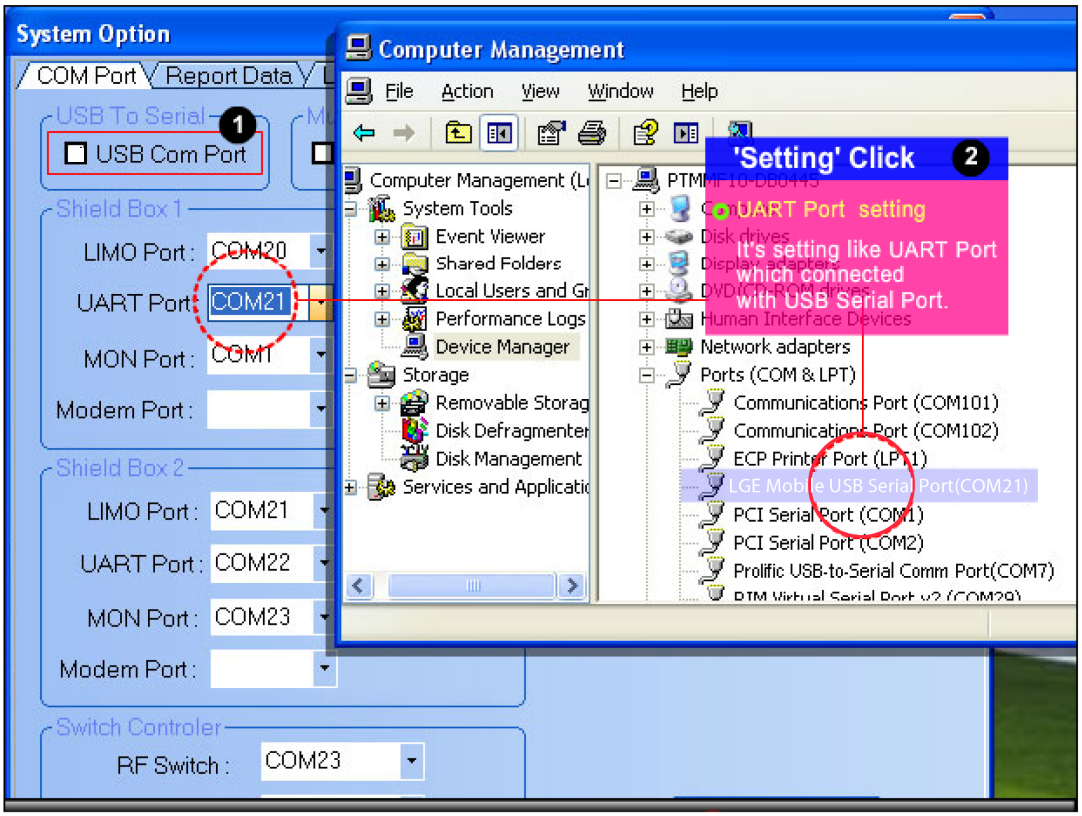


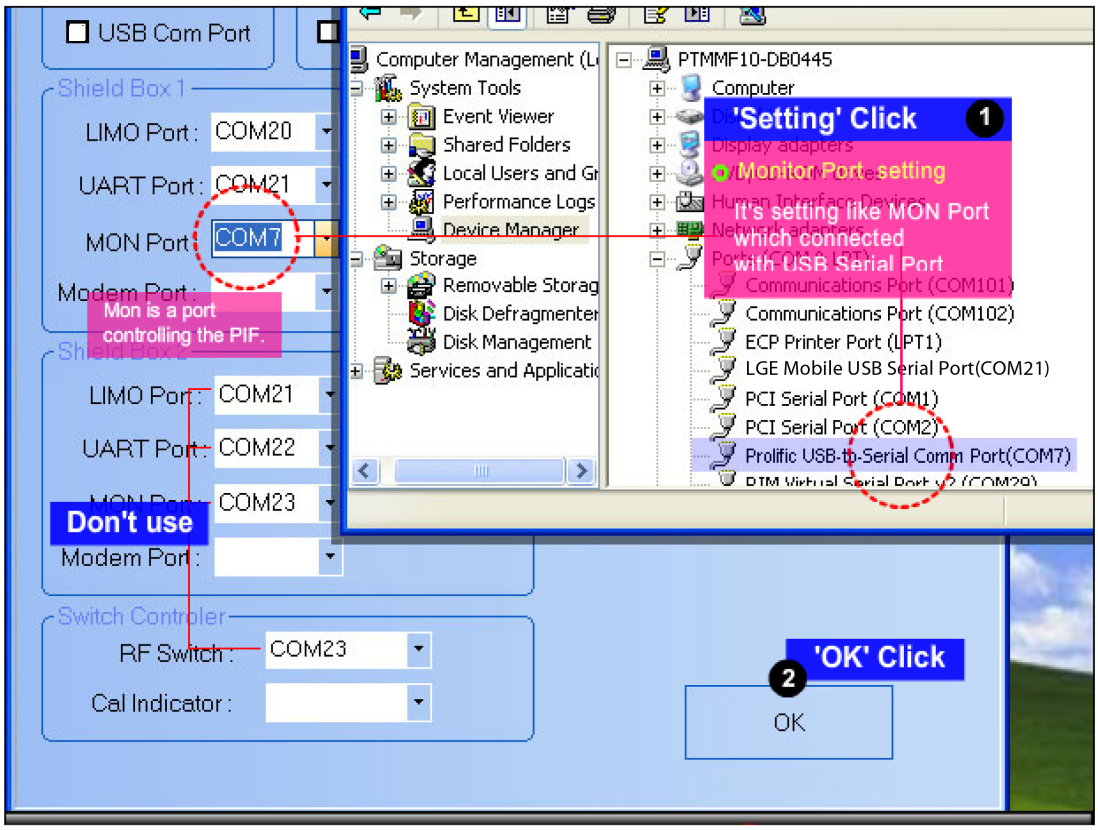


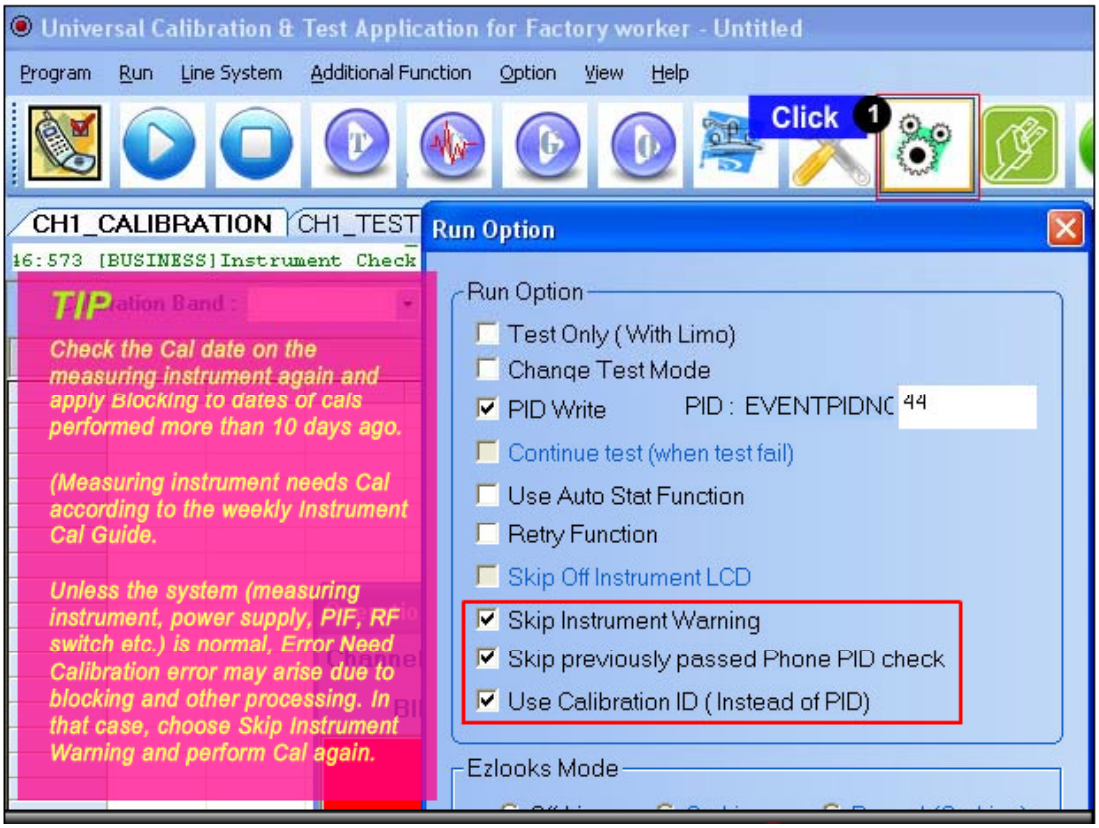


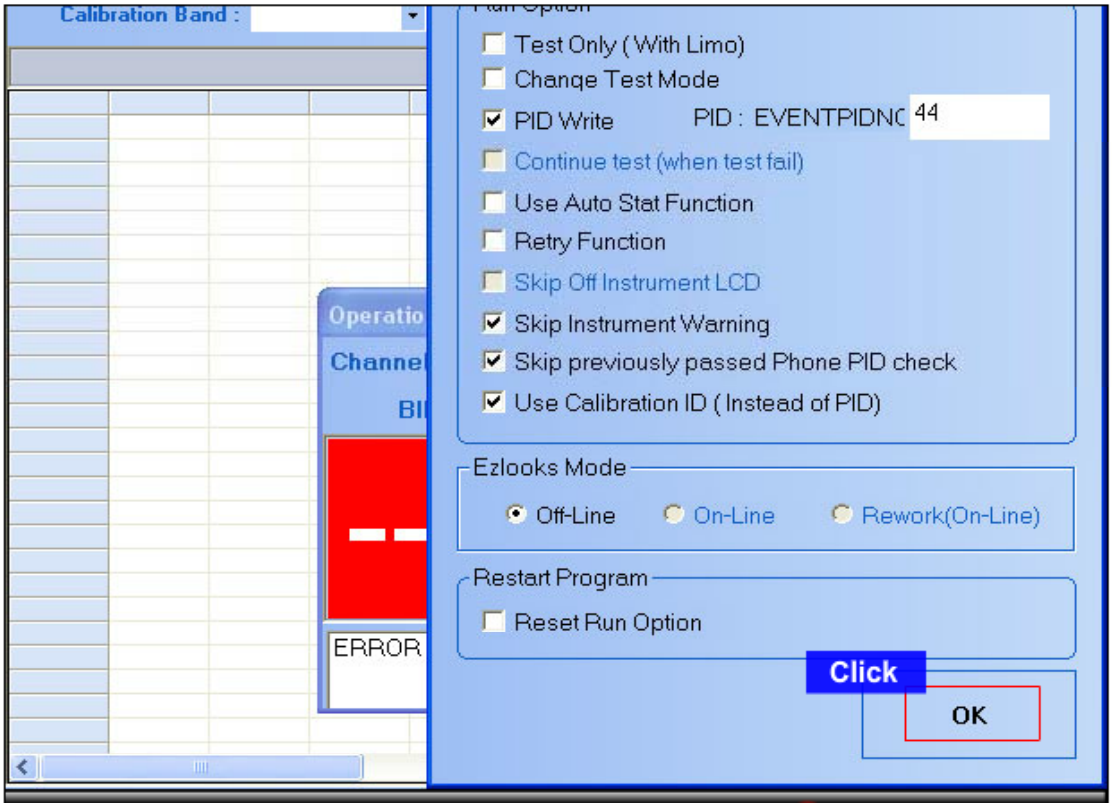


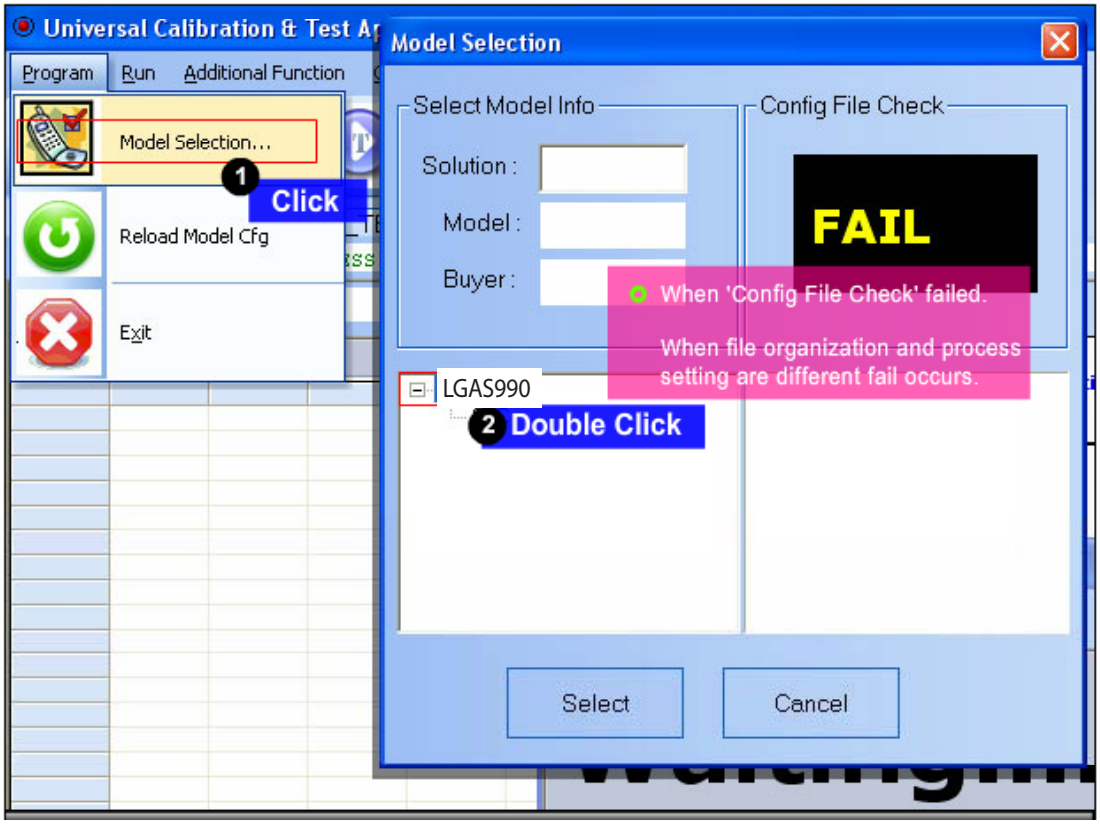


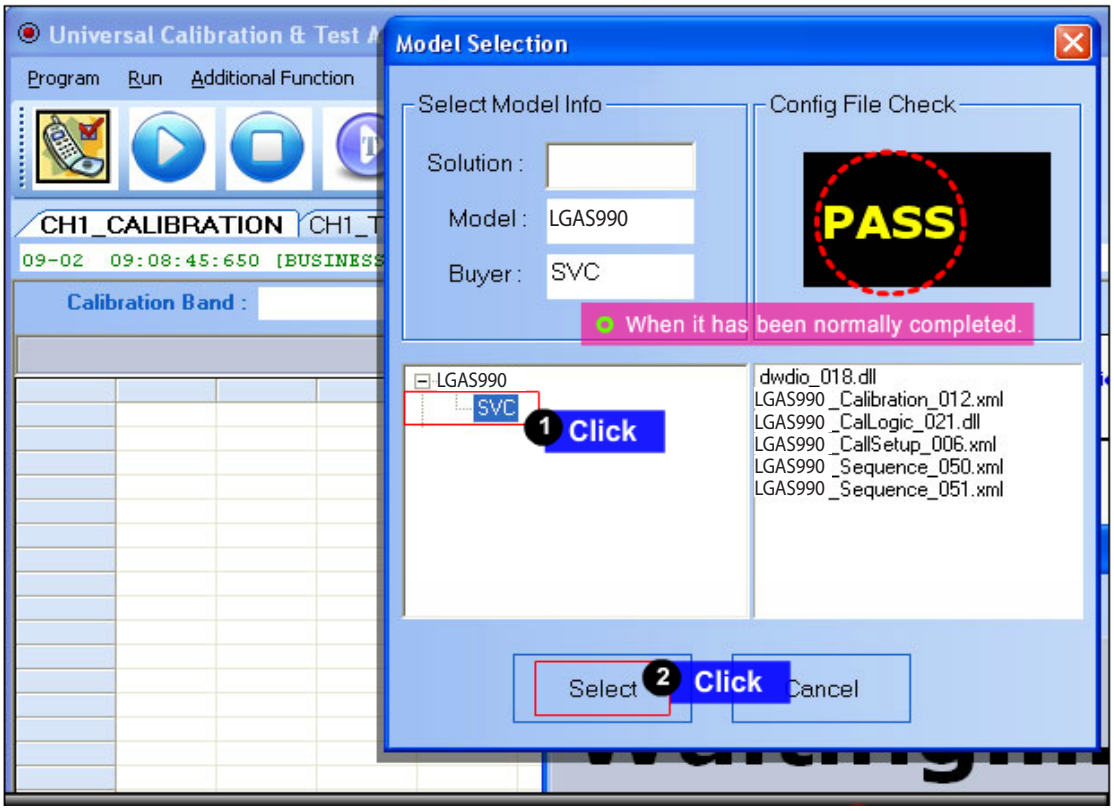


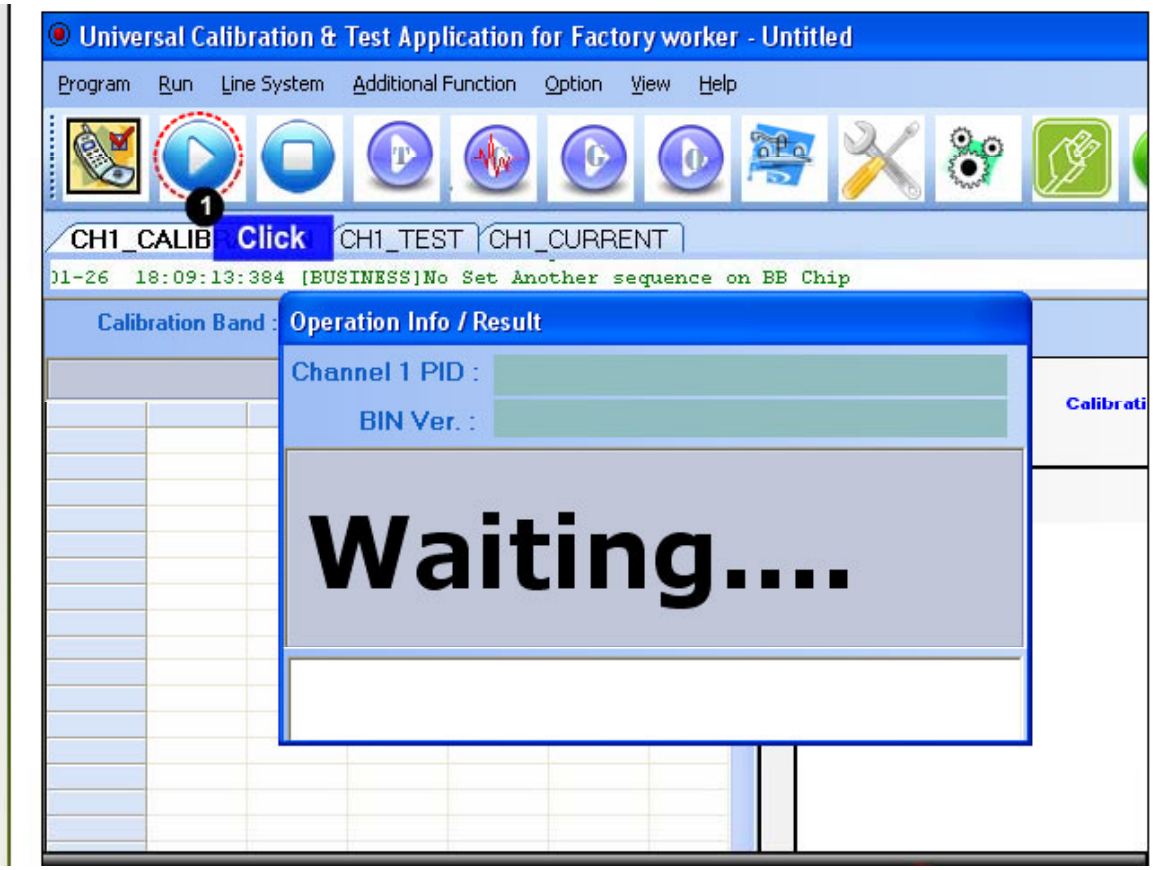


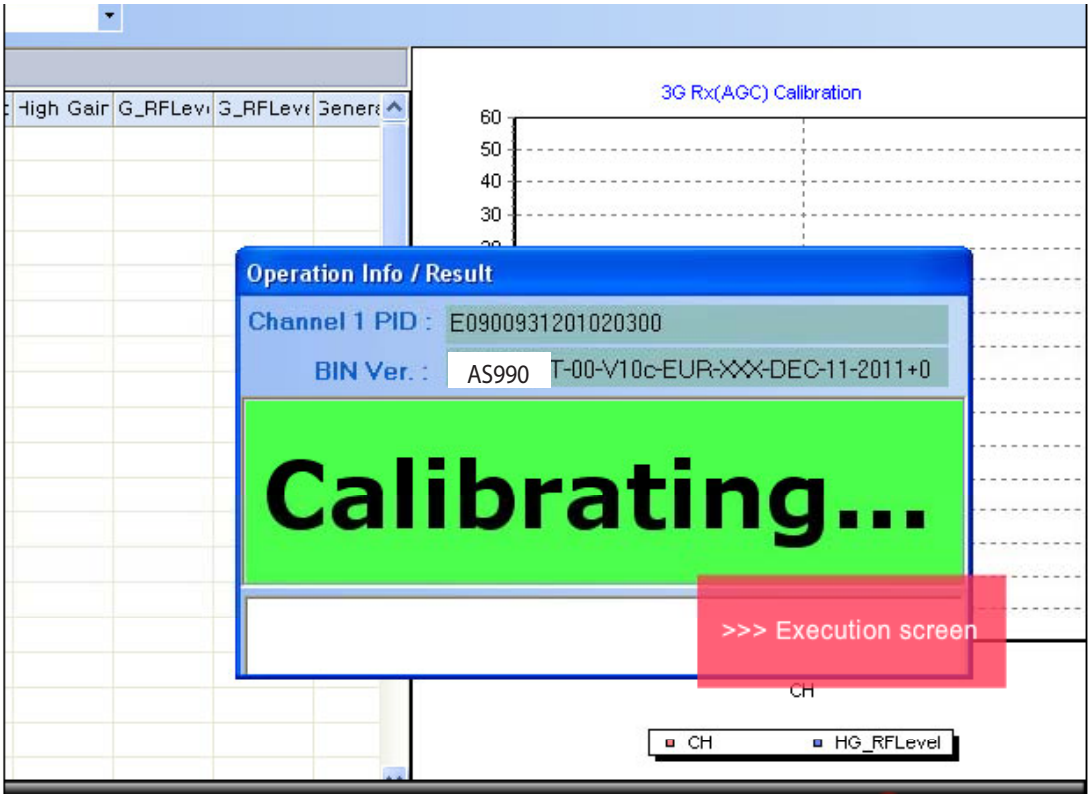


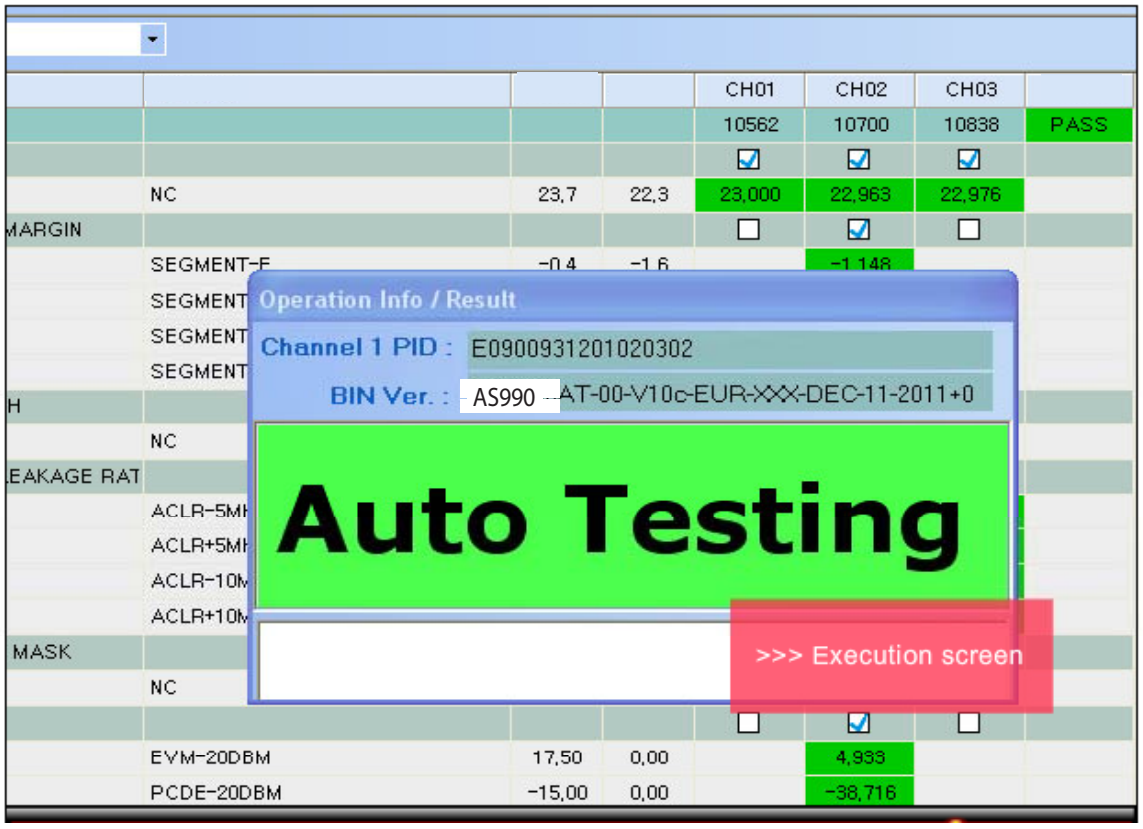


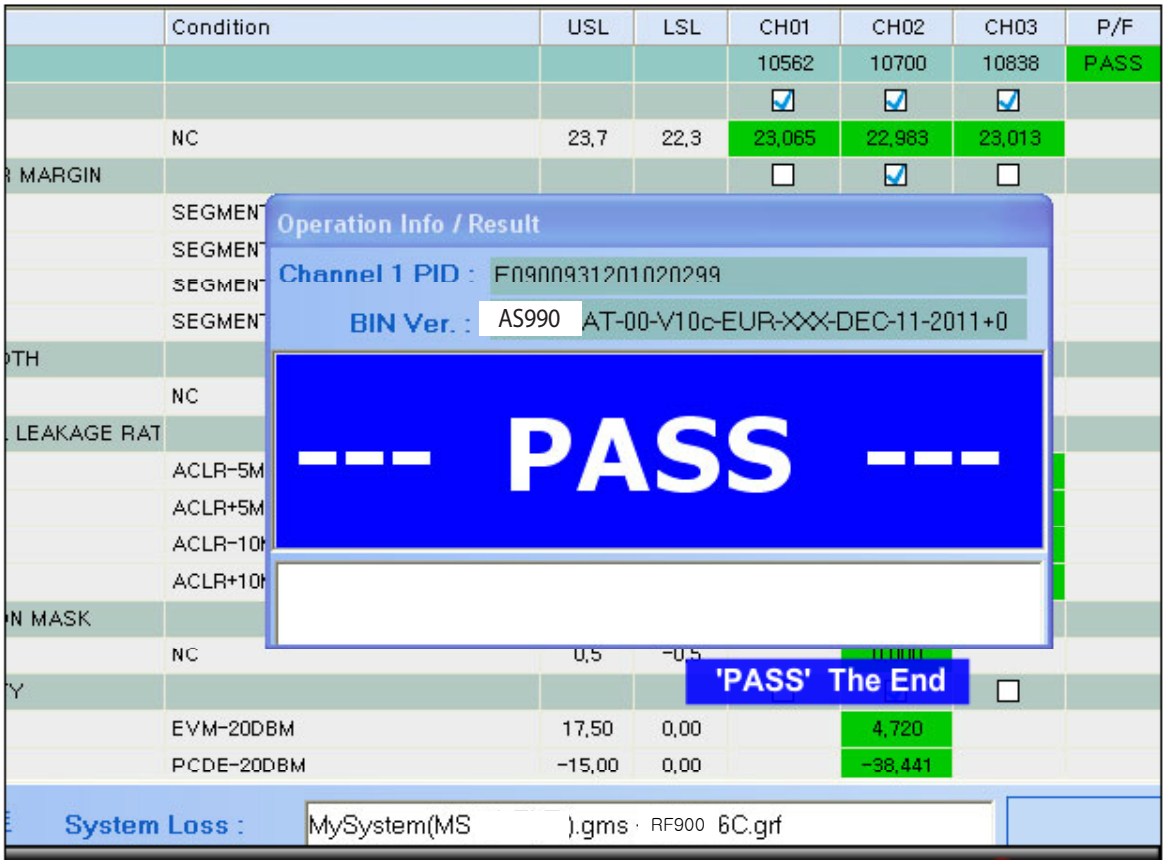




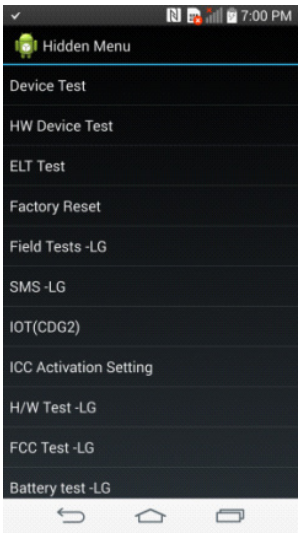








10. HIDDEN MENU

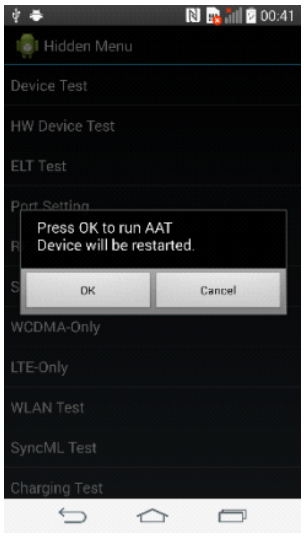


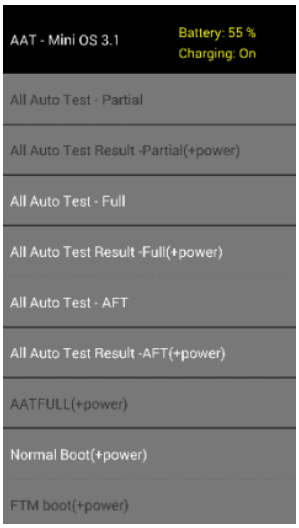
Hidden Menu Start

Start shortcut keys:3845#*990#

Hidden Menu List

Start the desired menu: Menu, touch





Device Test

List:

All Auto Test – Partial : AATSET needed

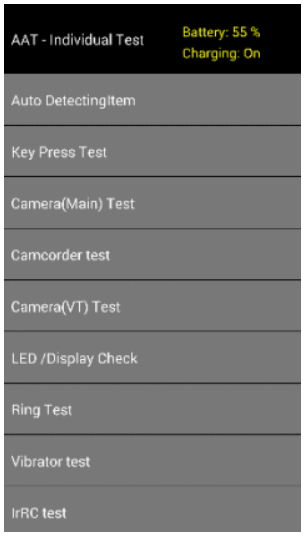
All Auto Test Result – Partial : AATSET needed

All Auto all Test: Device functionality testing

at the factory to use

Normal Boot(+power key)

FTM Boot(+power Key)

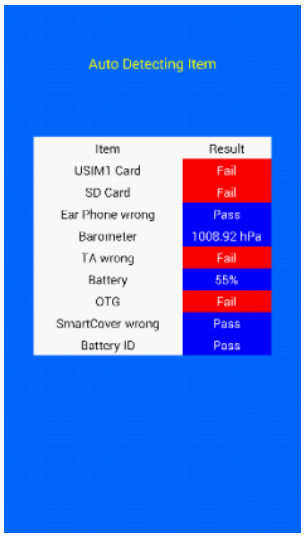


Device Test List

All Auto Test - Full:

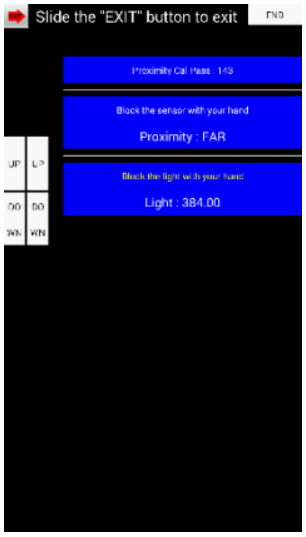
-> All Auto Test - Full menu click

-> Continuous information on the menu, giving you ability test



USIM, SD Card,

Ear Pone wrong, TA, Battery , OTG Test



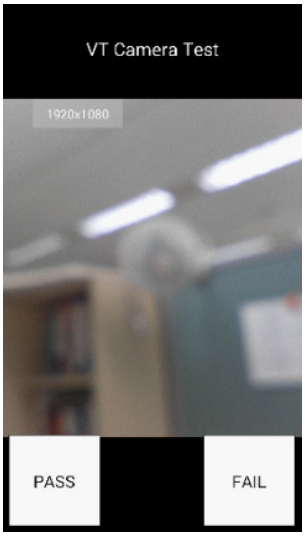
Key Press Test

- Check Key Press, Proximity sensor

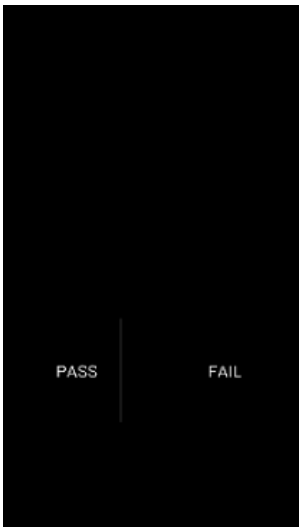
Camera(Main)Test

- Main Camera Test Preview and Result

Camcorder Test



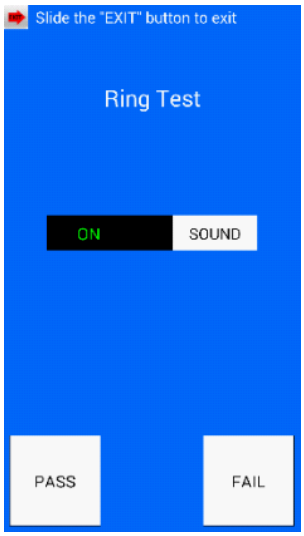
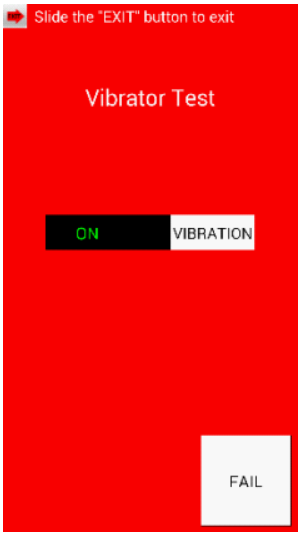
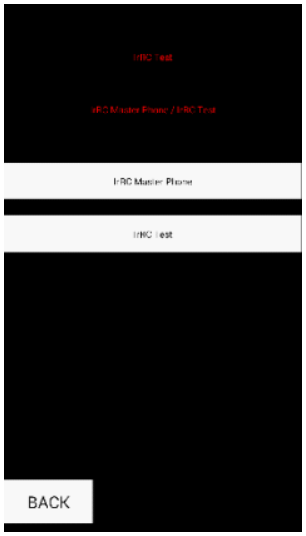
Camera(VT) Test

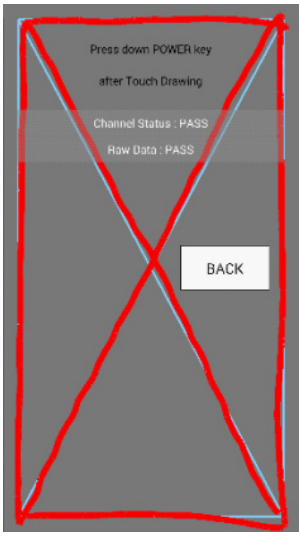
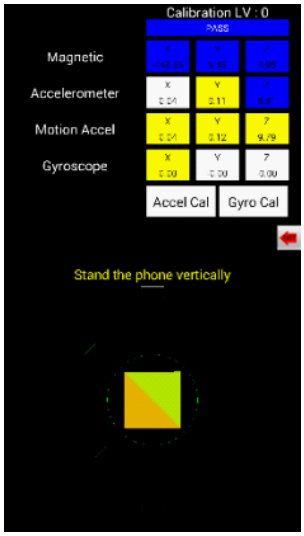
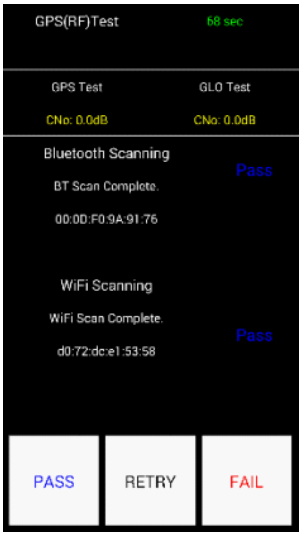


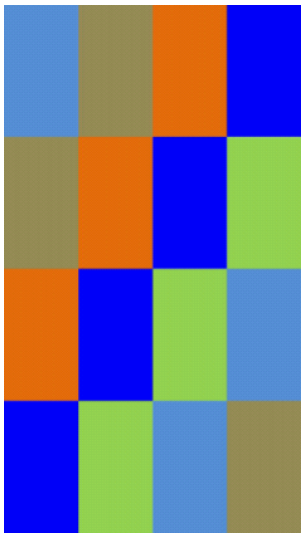
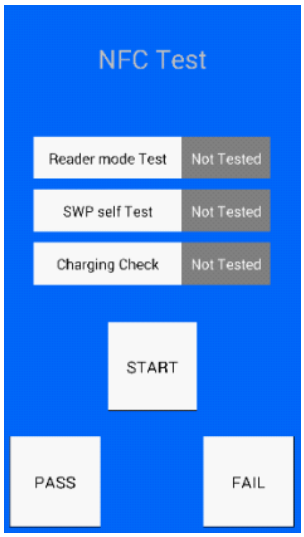
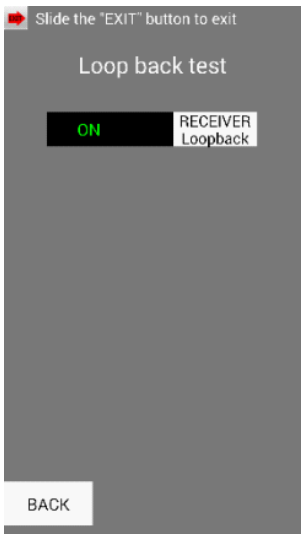
LED/Display Check Test

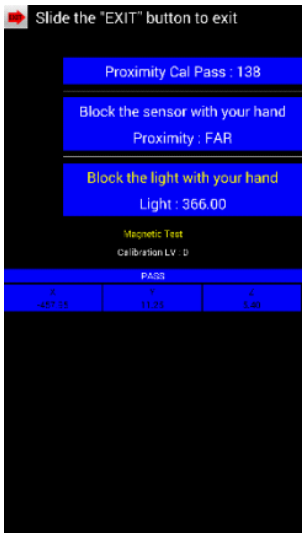
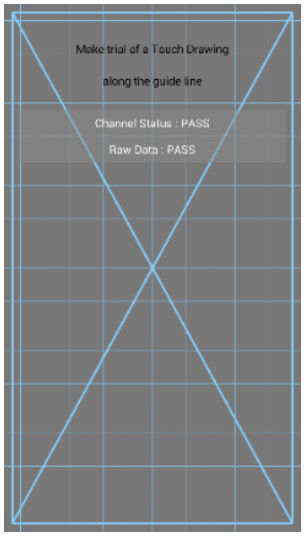
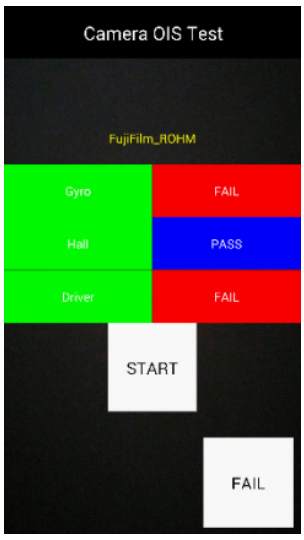
- Check Front-Bottom 3 LED
  (Left/Right menu & Home Button)

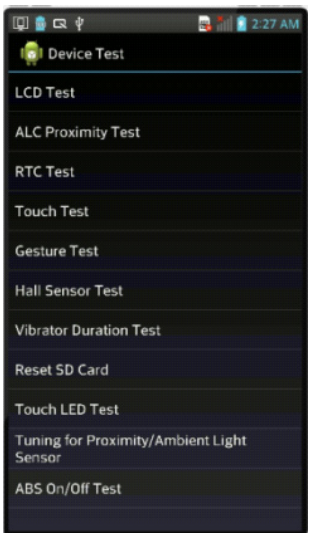
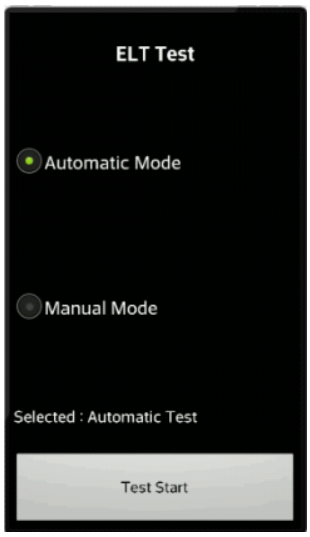
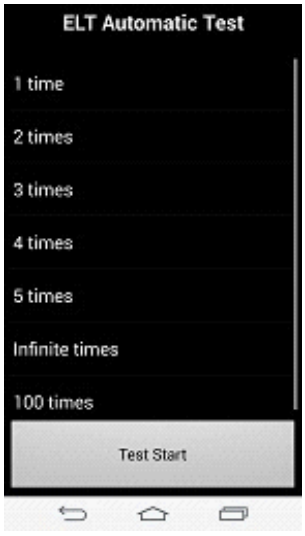
- Touch 'Pass'
-> Check Change the White color

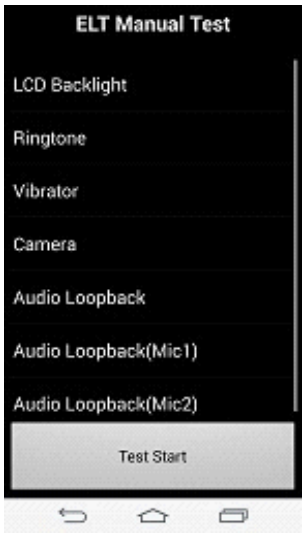
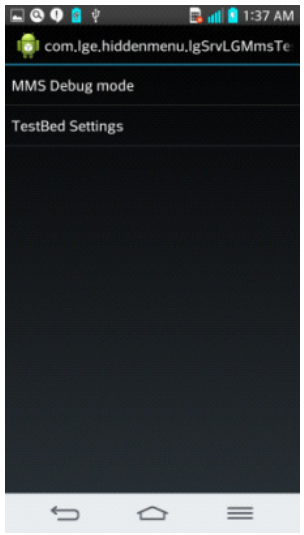
	**Ring test**
	**Vibrator test**
	**IrRC Master Phone** IrRC Test

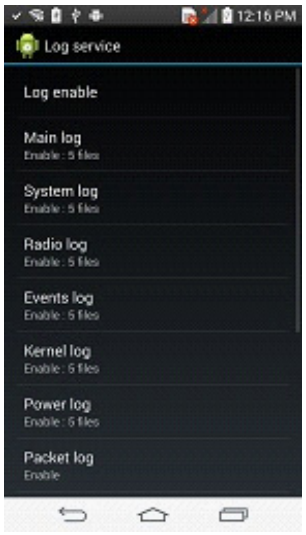
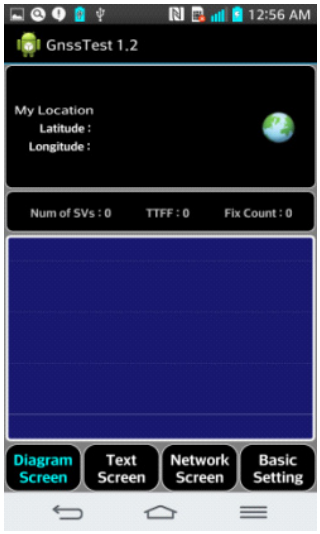
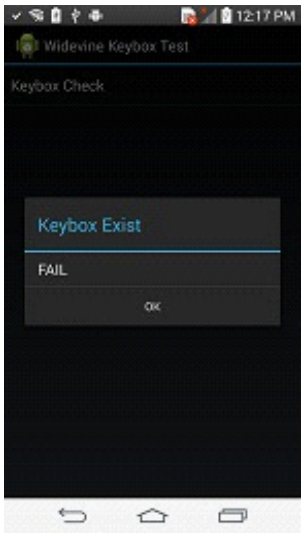
	**Touch window test** - Write with finger
	**Motion Sensor Test** - Check Magnetic, Accelerometer, Gyroscope Sensor
	**GPS BT WIFI Test**

	**HDMI Test** : Using HDMI output
	**NFC Test**
	**Loopback Test** : Audio

	**Sensor Test**
	**Touch Draw Auto**
	**Camera OIS Test**

	**HW Device Test** -LCD Test -ALC Proximity Test -RTC Test -Touch Test -Gesture Test -Hall Sensor Test -Vibrator Duration Test -Reset SD Card -Touch LED Test - ABS On/Off Test
	**ELT Test** Automatic Mode : Test Automatically Manual Mode : Test selectivity
	**ELT Automatic Test** 1 time 2 times 3 times 4 times 5 times Infinite times 100 times

	**ELT Manual Test** LCD Backlight Ringtone Vibrator Camera Audio Loopback Audio Loopback(Mic1) Audio Loopback(Mic2)
	**Factory Reset** Factory Reset Factory Reset (Power Off)
	**MMS – LG** - MMS Debug mode -MMS Debug mode ON -MMS Debug mode OFF - TestBed Setting => not used

	**Log Service** Log enable / Main log System log / Radio log Events log / Kernel log Power log / Packet log Crash Handler / Subsystem restart SSR Ramdump App QuickDump enable Copy Log files
	**GNSS Test** GPS Test
	**WVDRM Keybox** Keybox Check

11. DISASSEMBLE GUIDE

1. Disassemble Rear Cover, Main antenna

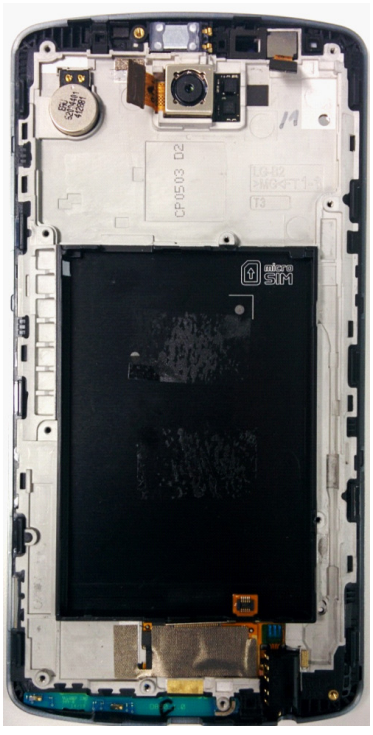
Disassemble screw (12ea)

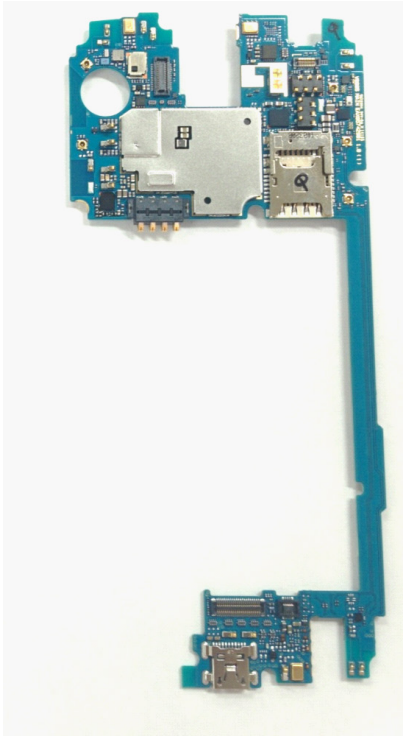
Disassemble Rear Cover

	Disassemble Main Antenna

2. Disassemble Main PCB

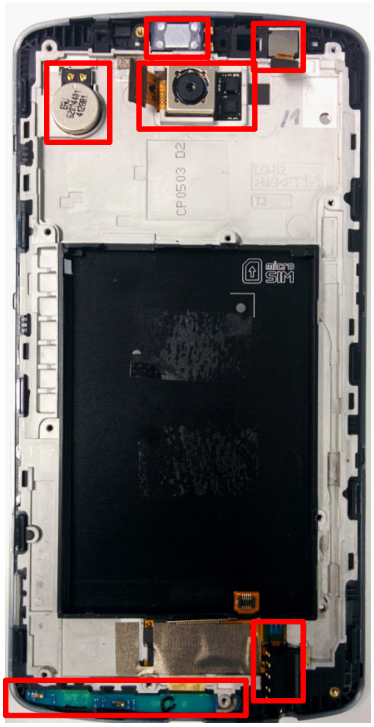
Disassemble connector





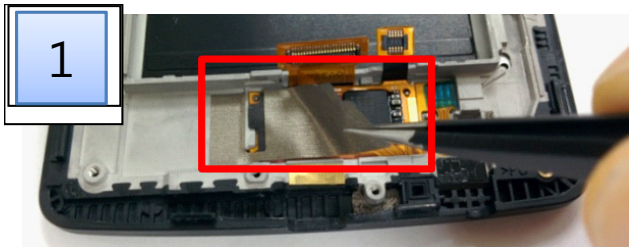
Disassemble Main PCB

3. Disassemble H/W parts

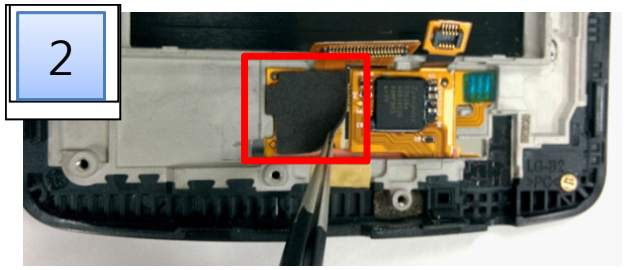


Disassemble H/W parts (6ea)

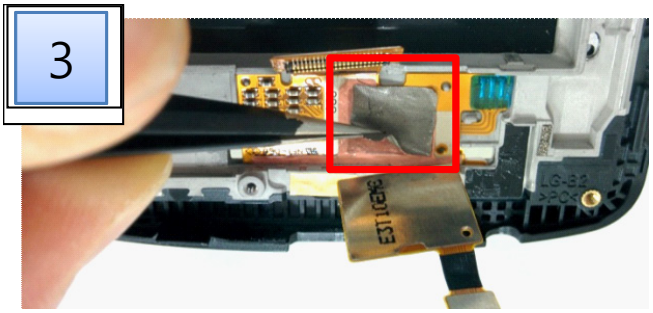
4. Disassemble Gasket, pad



Disassemble Gasket touch IC

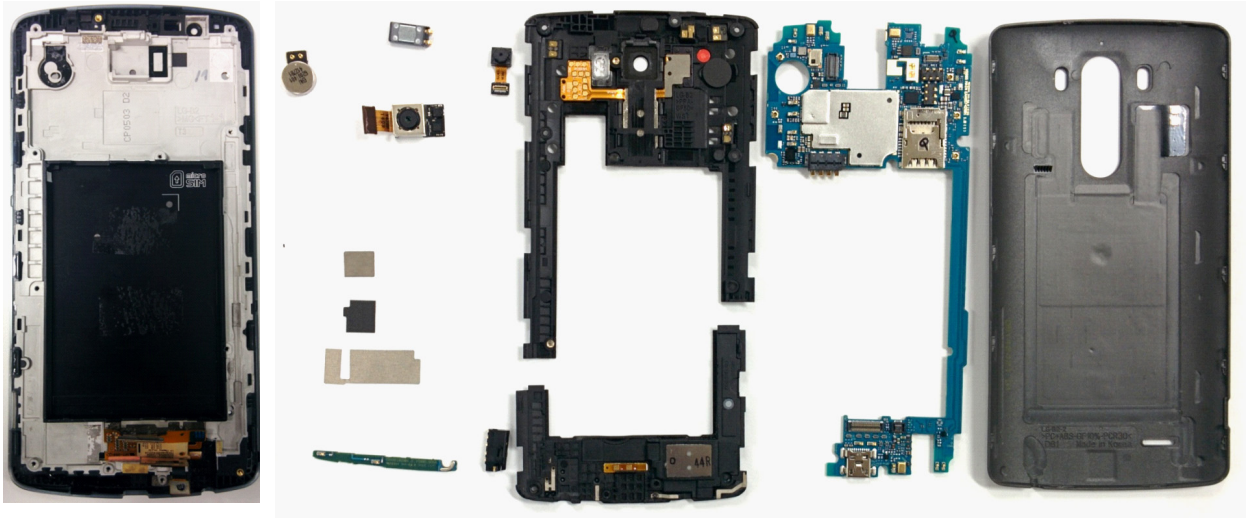


Disassemble Pad LCD FPCB



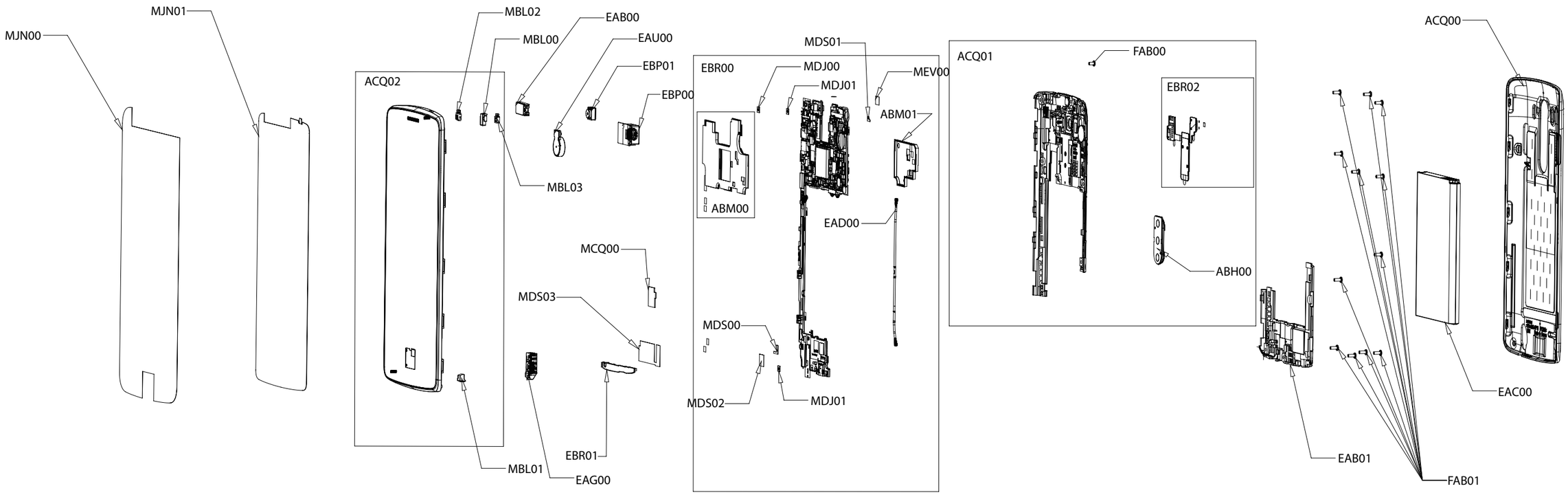
Disassemble Gasket LCD FPCB

5. Complete disassembling AS990



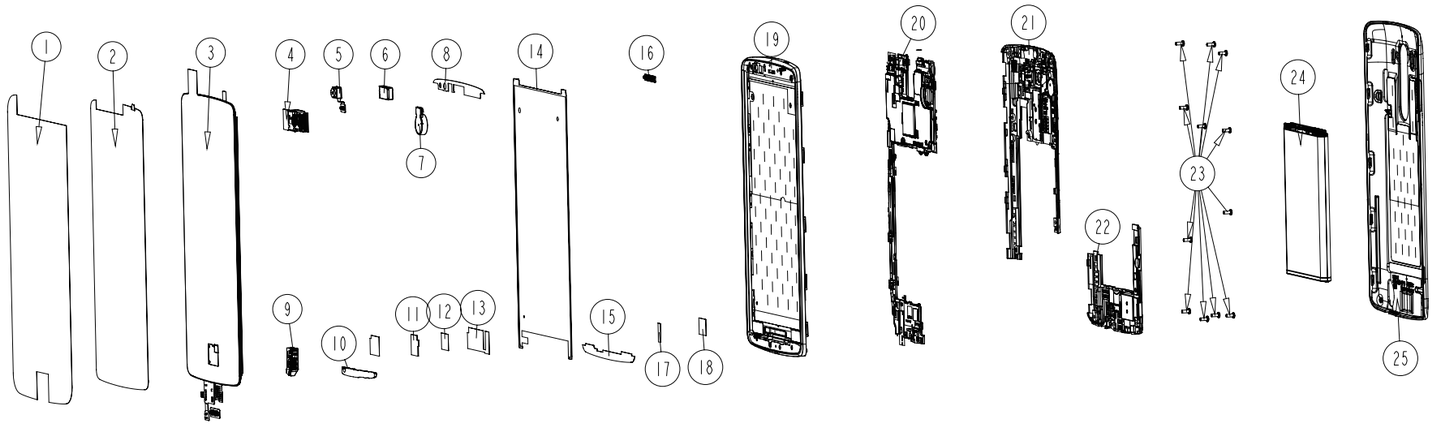
12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW(SBOM)



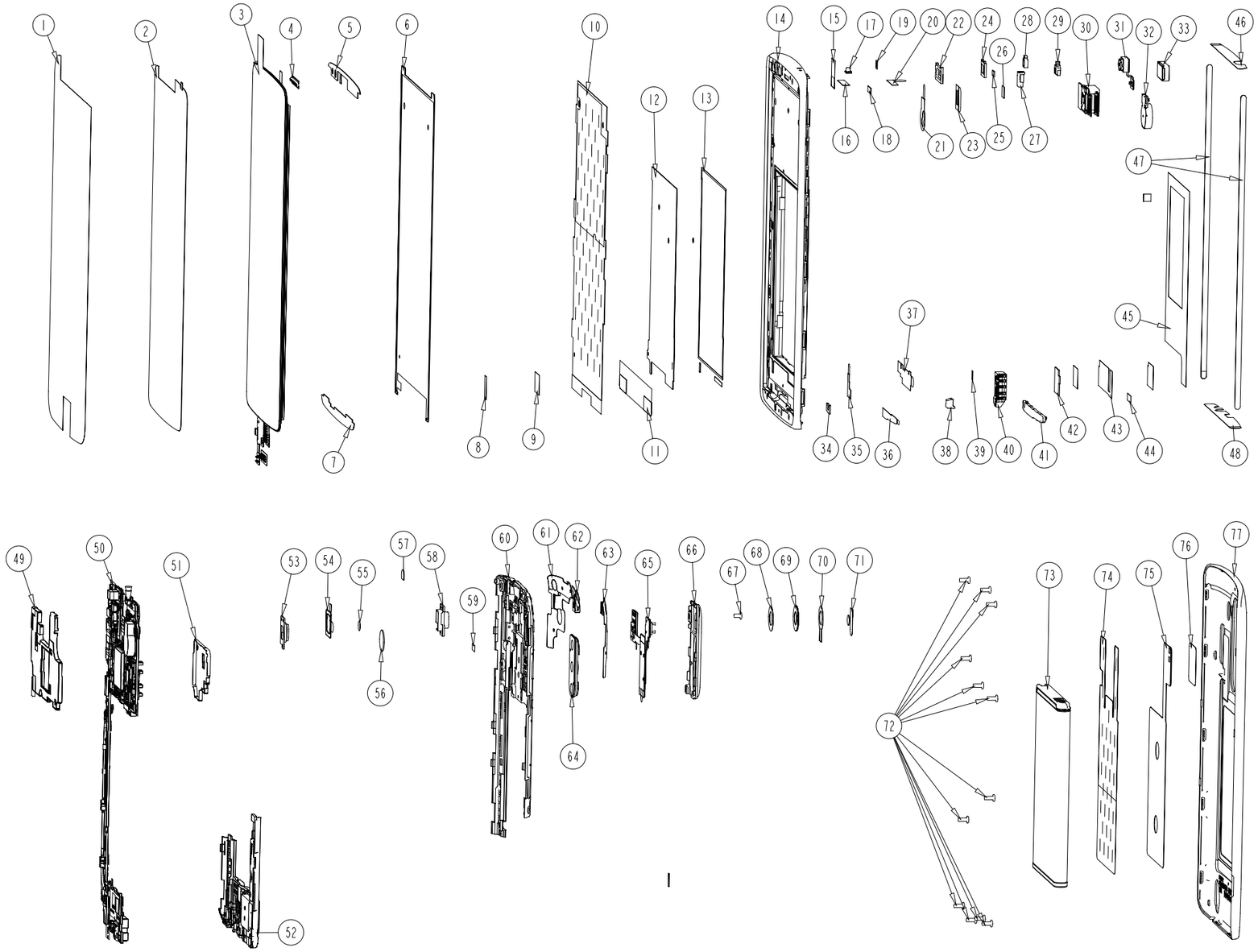
Location	Description	Location	Description	Location	Description
EBR00	PCB Assembly,Main	EBP00	Camera Module	MBL01	Cap
EAD00	Cable,Assembly	EBP01	Camera Module	MBL02	Cap
ABM00	Can Assembly,Shield	EAG00	Jack,Phone	MBL03	Cap
ABM01	Can Assembly,Shield	EAB00	Receiver	ACQ01	Cover Assembly,Rear
MDS00	Gasket	EBR01	PCB Assembly,Sub	FAB00	Screw,Machine
MEV00	Insulator	MCQ00	Damper	ABH00	Button Assembly
MDS01	Gasket	MDS03	Gasket	EBR02	PCB Assembly,Flexible
MDS02	Gasket	MJN01	Tape,USP Film	EAB01	Speaker Module
MDJ00	Filter	MJN00	Tape,Protect	FAB01	Screw,Machine
MDJ01	Filter	ACQ02	Cover Assembly,Bar(Sub)	EAC00	Rechargeable Battery,Lithium Ion
EAU00	Motor,DC	MBL00	Cap	ACQ00	Cover Assembly,Battery

EXPLODED VIEW(ASSY)



No	Part Name	Part Number	Q'ty	Remark
1	Tape Protection, Window	MJN69307901	1	
2	Tape Protection (USP)	MJN69307510	1	
3	Module, Hybrid Touch LCD	EAT62173801	1	
4	Camera, Main	EBP61801702	1	
5	Camera, VT	EBP62061901	1	
6	Receiver	EAB63268701	1	
7	Motor	EAU62004401	1	
8	Tape, Touch Window Top	MJN68868101	1	
9	Earjack	EAG63849801	1	
10	PCB Assembly (SOSA Ant)	EBR79009102	1	
11	Pad, LCD FPCB	MCQ67705201	1	
12	Gasket, LCD FPCB	MDS64610801	1	
13	Gasket, Touch IC	MDS64610901	1	
14	Tape, Touch Window Middle	MJN68868201	1	
15	Tape, Touch Window Bottom	MJN68847701	1	
16	Deco, Receiver	MCR65486502	1	
17	Insulator, led FPCB	MEV65014401	1	
18	Gasket, LCD FPCB	MDS64610801	1	
19	Cover Assy, Front	ACQ87172202	1	
20	PCB Assy, Main	EBR78601002	1	
21	Cover Assy, Rear	ACQ87172341	1	
22	Module, Ant_Spk	EAB63348201	1	
23	Screw, Machine	GMEY0009201	12	
24	Battery	EAC62378702	1	
25	Cover Assy, Battery	ACQ87133322	1	

EXPLODED VIEW(TOTAL)



No.	Q'ty	Part Number	Part Item	No.	Q'ty	Part Number	Part Item
1	1	MJN69307901	Tape Protection, Window	41	1	EBR79009102	PCB Assembly (SOSA Ant)
2	1	MJN69307551	Tape Protection (USP)	42	1	MCQ67705201	Pad, LCD FPCB
3	1	EAT62173801	Module, Hybrid Touch LCD	43	1	MDS64610901	Gasket, Touch IC
4	1	MCR65486502	Deco, Receiver	44	1	MDS64814301	GASKET(EX_FRONT_6)
5	1	MJN68868101	Tape, Touch Window Top	45	1	MJN69189701	Tape Protection Plate LCD_EX
6	1	MJN68868201	Tape, Touch Window Middle	46	1	MJN69169201	Tape Protection Front Top
7	1	MJN68847701	Tape, Touch Window Bottom	47	2	MJN68848101	Tape Protection Front side(x2)
8	1	MEV65014401	Insulator, led FPCB	48	1	MJN69130301	Tape Protection Front BTM
9	1	MDS64610801	Gasket, LCD FPCB	49	1	ABM74416811	Can Assy, TOP
10	1	MHK64386601	PU Sheet LCD	50	1	EBR78601002	PCB Assy, Main
11	1	MCQ67684901	Pad LCD BTM	51	1	ABM74416701	Can Assy, BTM
12	1	MGJ63993402	Sheet, AL	52	1	EAB63348201	Module, Ant_Spk
13	1	MJN68867701	Tape, AL Sheet	53	1	MFB63592901	Lens, LDAF
14	1	ACQ87132902	Cover Assy, Front (Sub)	54	1	MCQ67685101	Damper, Camera Main
15	1	MEV64496001	INSULATOR(VT CAMERA)	55	1	MLAB0001102	Label, A/S(Circle)
16	1	MGJ63766001	SPCC	56	1	MCQ67685201	Damper, Motor
17	1	MKC65178801	Window, IR LED	57	1	MCQ67705301	Damper, Receiver Rear
18	1	MDS64832801	GASKET(EX_FRONT_2)	58	1	MFB63432901	Lens, Flash
19	1	MHK64425401	Sheet, Diffuser	59	1	MDS64950101	Gasket, Rear
20	1	MJN68847601	TAPE SPCC	60	1	ACQ87133101	Cover Assy, Rear (Sub)
21	1	MJN68867801	Tape, Motor	61	1	EAA63424902	FPCB Ant LTE
22	1	MCQ67684801	Damper, Receiver	62	1	EAA63624501	FPCB Ant BT/Wifi
23	1	MJN68868001	Tape, Camera Main	63	1	EAA63405802	FPCB Ant GPS
24	1	MCQ67685001	Pad, Sensor	64	1	ABH74999602	Button Assembly, Rear Key
25	1	MCQ68006201	Pad IRRC	65	1	EBR78781801	FPCB Assembly (Rear key)
26	1	MCQ68125301	Pad, T_coil	66	1	ACW74417202	Deco, Assembly, Rear Key
27	1	MBL65877101	Cap, Mic Top 1	67	1	GMEY0012901	Screw, Machine
28	1	MBL66099701	Cap, LED	68	1	MJN68868301	Tape, Window Camera
29	1	MBL65916901	Cap, Mic Top 2	69	1	MKC64978811	Window, Camera
30	1	EBP61801702	Camera, Main	70	1	MJN68927001	Tape Protection, Window Camera
31	1	EBP62061901	Camera, VT	71	1	MEV65110801	Tape Protection, LDAF
32	1	EAU62004401	Motor	72	12	GMEY0009201	Screw, Machine
33	1	EAB63268701	Receiver	73	1	EAC62378706	Battery
34	1	MDS64610701	Gasket, SOSA Ant	74	1	MHK64425502	Sheet, Graphite Battery
35	1	MJN69267801	Tape, Earjack	75	1	EAA63445301	Antenna, NFC
36	1	MJN69147401	Tape, SOSA Ant	76	1	MCK68145206	Cover, Battery
37	1	MDS64570601	Gasket, LCD FPCB Front	77	1	ACQ87133322	Sheet, Graphite Battery_2
38	1	MBL65877201	Cap, Mic Btm				
39	1	MDS64814401	GASKET(EX_FRONT_9)				
40	1	EAG63849801	Earjack				

12.2 Replacement Parts <Mechanic component>

Note: This Chapterisused for reference,Part order is ordered by SBOM standard on GCSC

Level	Location no	Description	P/N	Specification	Remark
1	AGQ000000	Phone Assembly	AGQ87567111	LGAS990.ABPTTN TN:TITAN TITAN Phone Asse'y	
2	MEZ002100	Label,Approval	MEZ64749101	COMPLEX LGUS730.AUCLBK ZZ:Without Color -	
2	ACQ100400	Cover Assembly,EMS	ACQ87171111	LGAS990.ABPTTN TN:TITAN TITAN -	
6	SC1005 SC1105	Bracket	MAZ63332001	PRESS STS 0.2 LGSU540.ASKTBK ZZ:Without Color -	
6	SC130010 SC130012 SC130013 SC130014 SC130016 SC130017 SC13002 SC130021 SC130022 SC130024 SC130027 SC13004 SC13007 SC13009	Clip	MBV62321701	PRESS STS 301 0.15 LGLU6200.ALGTBK BK:Black -	
6	PID1	Label	MEZ65049701	COMPLEX LGLS720.ASPRTS ZZ:Without Color PID label	
6	SC1104	Plate	MGJ64064201	PRESS STS 304 0.3 LGF400L.ALGTWH ZY:Color Unfixed -	
6	SC1103	Plate	MGJ64064101	PRESS STS 304 0.3 LGF400L.ALGTWH ZY:Color Unfixed -	
6	SC1102	Can,Shield	MBK63852801	PRESS SUS 0.2 LGD855.ADEUWH ZZ:Without Color -	
6	SC1101	Can,Shield	MBK63852601	PRESS SUS 0.2 LGD855.ADEUWH ZZ:Without Color -	

Level	Location no	Description	P/N	Specification	Remark
6	SC130010 SC130012 SC130013 SC130014 SC130016 SC130017 SC13002 SC130021 SC130022 SC130024 SC130027 SC13004 SC13007 SC13009	Clip	MBV62321701	PRESS STS 301 0.15 LGLU6200.ALGTBK BK:Black -	
5	ABM00	Can Assembly,Shield	ABM74416811	LGUS990.AUCLTN ZY:Color Unfixed -	
6	MBK070301	Can,Shield	MBK64052901	PRESS STS 0.15 LGD855.ADEUWH ZY:Color Unfixed -	
6	MBK070302	Can,Shield	MBK63993301	PRESS STS 0.15 LGD855.ADEUWH ZY:Color Unfixed -	
6	MDS000000	Gasket	MDS64910901	COMPLEX LGD850.AATTTN ZY:Color Unfixed -	
6	MEV000000	Insulator	MEV64890801	COMPLEX LGD855.ADEUWH ZZ:Without Color -	
6	MEV000001	Insulator	MEV64890901	COMPLEX LGD855.ADEUWH ZZ:Without Color -	
6	MBK070300	Can,Shield	MBK63852701	PRESS SUS 0.15 LGD855.ADEUWH ZZ:Without Color -	
6	MDS000001	Gasket	MDS64832801	COMPLEX LGD855.ADEUWH ZY:Color Unfixed -	
5	ABM01	Can Assembly,Shield	ABM74416701	LGD855.ADEUWH ZY:Color Unfixed -	
6	MBK070300	Can,Shield	MBK63852501	PRESS SUS 0.15 LGD855.ADEUWH ZZ:Without Color -	
6	MEV000000	Insulator	MEV65071001	COMPLEX LGD855.ADEUWH ZY:Color Unfixed -	
5	MDS00	Gasket	MDS64970301	COMPLEX LGD855.A6D2TN ZY:Color Unfixed -	
5	MEV00	Insulator	MEV65112101	COMPLEX LGD855.A6D2TN ZZ:Without Color -	
5	MDS01	Gasket	MDS64930301	COMPLEX LGD851TN.ATMOTN ZY:Color Unfixed -	
5	MDS02	Gasket	MDS64814001	COMPLEX LGF400L.ALGTWH SV:SILVER SILVER -	
5	MDJ00	Filter	MDJ63984701	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
5	MDJ01	Filter	MDJ63984601	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
3	ACQ003400	Cover Assembly,Bar	ACQ87133432	LGUS990.AUCLTN TK:TITAN BLACK -	

Level	Location no	Description	P/N	Specification	Remark
7	SC100	Plate	MGJ64044601	PRESS SUS 0.8 LGF400L.ALGTWH ZZ:Without Color -	
4	MCQ00	Damper	MCQ67705201	COMPLEX LGF400L.ALGTWH BK:BLACK BLACK -	
4	MDS03	Gasket	MDS64610901	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
4	MJN01	Tape,USP Film	MJN69307501	COMPLEX LGD855.A6D2TN ZZ:Without Color -	
4	MJN00	Tape,Protect	MJN69307901	COMPLEX LGD855.A6D2TN ZZ:Without Color -	
4	MEZ000000	Label	MLAZ0038301	COMPLEX LG-VX6000 ZZ:Without Color PID Label 4 Array PRINTING,	
4	ACQ02	Cover Assembly, Bar(Sub)	ACQ87190302	LGD855.ADEUTN TL:Titanium Black -	
5	MJN089302	Tape,Window	MJN68868201	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
5	MJN089300	Tape,Window	MJN68868101	COMPLEX LGF400L.ALGTWH BK:BLACK BLACK -	
5	MJN089301	Tape,Window	MJN68847701	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
5	MEV000000	Insulator	MEV65014401	COMPLEX LGF400L.ALGTWH WH:WHITE WHITE -	
5	MDS000000	Gasket	MDS64610801	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
5	MCR000000	Decor	MCR65486502	PRESS STS 0.2 LGF400L.ALGTWH BK:BLACK BLACK -	
5	ACQ032700	Cover Assembly,Front	ACQ87172202	LGD855.ADEUTN TK:TITAN BLACK -	
6	ACQ033200	Cover Assembly, Front(Sub)	ACQ87132902	LGD855.ADEUTN TK:TITAN BLACK -	
7	MCK032700	Cover,Front	MCK68105302	MOLD PC LGD855.ADEUTN TK:TITAN BLACK -	
7	MCK032701	Cover,Front	MCK68126301	CASTING MG LGD855.ADEUWH ZZ:Without Color -	
7	MET099500	Insert,Nut	MICE0016907	COMPLEX MECH_COMMON ZZ:Without Color -	
6	MBL00	Cap	MBL65877101	MOLD Rubber LGF400L.ALGTWH ZY:Color Unfixed -	
6	MBL01	Cap	MBL65877201	MOLD Rubber LGF400L.ALGTWH ZY:Color Unfixed -	
6	MBL02	Cap	MBL65916901	MOLD Rubber LGF400L.ALGTWH ZY:Color Unfixed -	
6	MBL03	Cap	MBL66099701	MOLD ABS LGF400L.ALGTWH BK:BLACK BLACK -	
6	MCQ000000	Damper	MCQ67684801	COMPLEX LGF400L.ALGTWH BK:BLACK BLACK -	
6	MCQ043300	Damper,LCD	MCQ67684901	COMPLEX LGF400L.ALGTWH BK:BLACK BLACK -	
6	MCQ000001	Damper	MCQ67685001	COMPLEX LGF400L.ALGTWH BK:BLACK BLACK -	

Level	Location no	Description	P/N	Specification	Remark
6	MCQ000002	Damper	MCQ68006201	COMPLEX LGF400L.ALGTWH BK:BLACK BLACK -	
6	MDS000000	Gasket	MDS64570601	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MDS000001	Gasket	MDS64610701	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MDS000004	Gasket	MDS64814301	COMPLEX LGD855.ADEUWH ZY:Color Unfixed -	
6	MHK000002	Sheet	MHK64826901	COMPLEX LGD855.A6D2TN ZZ:Without Color -	
6	MDS000001	Gasket	MDS64832801	COMPLEX LGD855.ADEUWH ZY:Color Unfixed -	
6	MEV000000	Insulator	MEV64996001	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MGJ000000	Plate	MGJ63766001	PRESS STS 0.2 LGF350L.ALGTWH ZZ:Without Color -	
6	MGJ000001	Plate	MGJ63993402	PRESS STS 0.2 LGD855.ADEUWH ZY:Color Unfixed -	
6	MHK000000	Sheet	MHK64386601	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MHK000001	Sheet	MHK64425401	COMPLEX LGF400L.ALGTWH ZY:Color Unfixed -	
6	MJN000004	Tape	MJN68847601	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MJN061102	Tape,Protect	MJN68848101	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MJN061101	Tape,Protect	MJN69130301	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MJN000000	Tape	MJN68867701	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MJN000001	Tape	MJN68867801	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MJN000003	Tape	MJN68868001	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MJN000005	Tape	MJN69147401	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MJN061100	Tape,Protect	MJN69169201	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
6	MJN061104	Tape,Protect	MJN69189701	COMPLEX LGD855.ADEUWH ZY:Color Unfixed -	
6	MKC041800	Window,IRDA	MKC65178801	MOLD PC LGF400L.ALGTWH BK:BLACK BLACK -	
6	MJN000006	Tape	MJN69267801	COMPLEX LGD855.A6D2TN ZZ:Without Color -	
6	MCQ000003	Damper	MCQ68125301	COMPLEX LGVS985.AVRZTN ZY:Color Unfixed -	
6	MDS000005	Gasket	MDS64814401	COMPLEX LGD855.ADEUWH ZY:Color Unfixed -	
3	ACQ01	Cover Assembly,Rear	ACQ87172332	LGUS990.AUCLTN TN:TITAN TITAN -	
4	ACQ105800	Cover Assembly, Rear(SVC)	ACQ87133532	LGUS990.AUCLTN TN:TITAN TITAN -	
5	MFB029601	Lens,Flash	MFB63592901	MOLD PC LGF400L.ALGTWH BK:BLACK BLACK -	
5	MFB029600	Lens,Flash	MFB63432901	MOLD PC LGF400L.ALGTWH ZZ:Without Color -	

Level	Location no	Description	P/N	Specification	Remark
5	MJN061100	Tape,Protect	MJN68927001	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
5	MKC009400	Window,Camera	MKC64978812	CUTTING GLASS LGD855.ADEUTN ZY:Color Unfixed -	
5	MEZ000900	Label,After Service	MLAB0001102	COMPLEX C2000 CGRSV WA:White C2000 USASV DIA 4.0 PRINTING,	
5	MEV000000	Insulator	MEV65110801	COMPLEX LGF400L.ALGTWH WH:WHITE WHITE -	
5	MDS000000	Gasket	MDS64950101	COMPLEX LGF400L.ALGTWH WH:WHITE WHITE -	
5	MCQ000001	Damper	MCQ67705301	COMPLEX LGF400L.ALGTWH BK:BLACK BLACK -	
5	MCQ000000	Damper	MCQ67685201	COMPLEX LGF400L.ALGTWH BK:BLACK BLACK -	
5	MCQ009400	Damper,Camera	MCQ67685101	COMPLEX LGF400L.ALGTWH BK:BLACK BLACK -	
5	FAB00	Screw,Machine	GMEY0012902	GMEY0012902 FH + 1.4mM 2.5mM MSWR ZN N - LG ELECTRONICS INC.	
5	ACW000000	Decor Assembly	ACW74417202	LGF400L.ALGTTN BK:BLACK BLACK -	
6	MBF000000	Bush	MBF63223801	COMPLEX LGF350L.ALGTWH ZZ:Without Color -	
6	MCR000000	Decor	MCR65447202	MOLD PC LGF400L.ALGTTN BK:BLACK BLACK -	
5	ACQ063401	Cover Assembly, Rear(Sub)	ACQ87133102	LGD855.ADEUTN TK:TITAN BLACK -	
6	MBF000000	Bush	MBF63223801	COMPLEX LGF350L.ALGTWH ZZ:Without Color -	
6	MCK063300	Cover,Rear	MCK68105502	MOLD PC LGD850.AATTZY TK:TITAN BLACK -	
6	MET099500	Insert,Nut	MICE0016903	COMPLEX MECH_COMMON ZZ:Without Color -	
5	ABH00	Button Assembly	ABH74999612	LGD855.A6D2TN BK:BLACK BLACK D855_Button_Assy_Rear_Key	
6	MJN061100	Tape,Protect	MJN69187411	COMPLEX LGD855.A6D2TN ZZ:Without Color -	
6	MBL000000	Cap	MBL66117701	MOLD RUBBER SILICON LGF400L.ALGTWH ZZ:Without Color -	
6	MBG000000	Button	MBG65303202	MOLD PC LGF400L.ALGTTN BK:BLACK BLACK -	
6	MBG000001	Button	MBG65323002	CUTTING AL LGF400L.ALGTTN BK:BLACK BLACK -	
7	MEV000000	Insulator	MEV65014701	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
7	MJN000003	Tape	MJN68907001	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
7	MJN000000	Tape	MJN68946901	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
7	MJN000001	Tape	MJN68947001	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
7	ADB048600	Dome Assembly,Metal	ADB74258101	LGF400L.ALGTWH WH:WHITE WHITE -	

Level	Location no	Description	P/N	Specification	Remark
5	MJN089300	Tape,Window	MJN68868301	COMPLEX LGF400L.ALGTWH ZZ:Without Color -	
3	FAB020000	Screw,Tapping	FAB32258701	BH + 1 2.7M 3.5M NI PLT ZN	
3	FAB01	Screw,Machine	GMEY0009201	GMEY0009201 BH + 2.7mM 3.5mM MSWR3 FZB N N LG ELECTRONICS INC.	
1	AAD000000	Addition Assembly	AAD86985311	LGAS990.ABPTTN TN:TITAN TITAN -	
2	ACQ00	Cover Assembly,Battery	ACQ87133322	LGLS990.ASPRTN TN:TITAN TITAN -	
3	MJN061100	Tape,Protect	MJN68927101	COMPLEX LGF400L.ALGTWH ZY:Color Unfixed -	
3	MHK000001	Sheet	MHK64688201	COMPLEX LGVS985.AVRZTN ZZ:Without Color -	
3	MHK000002	Sheet	MHK64425502	COMPLEX LGF400L.ALGTTN BK:BLACK BLACK -	
3	MCK004100	Cover,Battery	MCK68145222	MOLD PC+ABS LGLS990.ASPRTN TN:TITAN TITAN -	
1	AGF000000	Package Assembly	AGF77760701	LGAS990.ABPTWH ZZ:Without Color AS990 Package(800)	
2	MCQ007000	Damper,Box	MCQ68106201	COMPLEX LGVS985.AVRZTN ZZ:Without Color G3 ACC Pad	
2	AGJ000000	Pallet Assembly	AGJ74058501	LGAS990.ABPTWH ZZ:Without Color AS990 Palletizing(800)	
3	MGA000000	Pallet	MPCY0005202	COMPLEX LG-TM520 ZZ:Without Color -	
3	MEZ000000	Label	MLAZ0050901	COMPLEX KU990.AGBRBK ZZ:Without Color Battery Warning Label (Lithium ion Battery Label)	
3	MCQ007002	Damper,Box	MCQ68145802	COMPLEX LGUS990.AUCLWH ZZ:Without Color US990 Pallet Sleeve_1/800	
3	MCQ007000	Damper,Box	MCQ68106301	COMPLEX LGVS985.AVRZTN ZZ:Without Color VS985 Pallet Angle_4/800	
3	MBL007000	Cap,Box	MBL66277202	COMPLEX LGUS990.AUCLWH ZZ:Without Color US990 Pallet CAP 2/800	
3	MEZ047200	Label,Master Box	MLAJ0004201	PRINTING LG-VX6100 SV ZZ:Without Color New_TDR_Shipping Label GSM,CDMA_pallet label	
2	MEZ084100	Label,Unit Box	MLAQ0017704	PRINTING LGVS980.AVRZBK ZZ:Without Color Unit Box barcode label (76*40)	
2	MAY047100	Box,Master	MAY66810302	COMPLEX LGUS990.AUCLWH ZZ:Without Color US990 Master Box_1/10	
2	MAY084001	Box,Unit	MAY66834801	COMPLEX LGAS990.ABPTWH ZZ:Without Color AS990 Upper Box	
2	MAY084000	Box,Unit	MAY66834802	COMPLEX LGAS990.ABPTWH ZZ:Without Color AS990 Lower Box	

Level	Location no	Description	P/N	Specification	Remark
2	MEZ047200	Label,Master Box	MLAJ0004402	PRINTING CG300 CGR DG ZZ:Without Color LABEL MASTER BOX(for CGR TDR 2VER. mbox_label) GSM standard_master box label	

12.2 Replacement Parts <Main component>

Note: This Chapterisused for reference, Part order is ordered by SBOM standard on GCSC

Level	Location no	Description	P/N	Specification	Remark
3	EBR00	PCB Assembly,Main	EBR78601011	LGAS990.ABPTTN 1.0 Main	
4	EBR071800	PCB Assembly, Main,SMT	EBR78646011	LGAS990.ABPTTN 1.0 Main	
5	EBR071700	PCB Assembly, Main,SMT Top	EBR78601111	LGAS990.ABPTTN 1.0 Main	
6	FL21001	Filter,Saw	EAM62670701	B8312 2446.5MHz 1.4*1.1*0.41 SMD R/TP 5P EPCOS PTE LTD.	
6	C1326 C1337	Capacitor,Ceramic, Chip	EAE63143201	CL05A106MP8NUB8 10uF -20TO20% 10V X5R -55TO+85C 1005 R/TP L:1.0+-0.2, W:0.5+-0.2, T:0.8+-0.1 Max 0.9T, SEMCO Acoustic Noise MLCC THMC SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	L1166	Capacitor(High Frequency),Ceramic,Chip	EAE63043401	RMTMK063CG1R2BT-F_H 1.2pF 0.1PF 25V C0G -55TO+125C 0603 R/TP 0.3+-0.03 L:0.6+-0.03, W:0.3+-0.03, T:0.3+-0.03 KOREA TAIYO YUDEN.CO., LTD.	
6	C21018	Capacitor(High Frequency),Ceramic,Chip	EAE62946401	GRM0335C1E3R3C_H 3.3pF 0.25PF 25V C0G -55TO+125C 0603 R/TP 0.3+-0.03 L:0.6+-0.03 W:0.3+-0.03 T:0.3+-0.03 MURATA MANUFACTURING CO.,LTD.	
6	R1103	Resistor,Chip	ERHY0009509	MCR006YZPJ150 15OHM 5% 1/20W 0603 R/TP - ROHM.	
6	L1167 L21006 L21007	Inductor,Multilayer, Chip	EAP62246001	LG HK 0603 3N3S-T 3.3NH 0.3NH - 320mA - - 0.23OHM 6.7GHZ 5 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	BAT4100	Capacitor Assembly	SMZY0023501	PAS311HR-VG1 Coin 0.03F 3.8 x 3.8 1.5 KOREA TAIYO YUDEN.CO., LTD.	
6	C1146	Inductor,Multilayer, Chip	EAP62226301	LQP03TG5N6J02D 5.6NH 5% - 250mA - - 0.88OHM 6GHZ 12 SHIELD - 0.6X0.3X0.3MM R/TP MURATA MANUFACTURING CO.,LTD.	
6	L21004 L21013	Inductor,Multilayer, Chip	EAP62227001	LG HK 0603 1N2S-T 1.2NH 0.3NH - 450mA - - 0.12OHM 10GHZ 4 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	EAX010000	PCB,Main	EAX65632401	LGLS990.ASPRTN 1.0 FR-4 Any Layer 10Layer 0.8T Main	
6	R1104 R1105	Resistor,Chip	ERHY0009521	MCR006YZPJ331 330OHM 5% 1/20W 0603 R/TP - ROHM.	

Level	Location no	Description	P/N	Specification	Remark
6	C21035	Capacitor,Ceramic, Chip	ECCH0009520	MCH032A150JK 15pF 5% 25V X7R -55TO+125C 0603 R/TP - ROHM.	
6	R2123 R2124 R2125 R2126	Resistor,Chip	EBC61856201	RC0201FR-07240RL 240OHM 1% 1/20W 0603 R/TP - YAGEO CORPORATION	
6	PT1101	Thermistor,NTC	EBG61306601	NTCG104EF104FT 100KOHM 1% 35V 35A 4.25MK SMD R/TP - TDK CORPORATION	
6	C1101 C1105 C1127 C1128 C1145 C1154 C1182 C1202 C1203 C1220 C1228 C1282 C1283 C1302 C1317 C21032	Capacitor,Ceramic, Chip	ECCH0009103	C0603C0G1H101JT00NN 100pF 5% 50V C0G - 55TO+125C 0603 R/TP - - TDK CORPORATION	
6	C1300 C2300 C2301 C2302 C2313 C2314 C2315 C2316 C2317 C2318 C2319 C2320 C2321 C2322 C2323 C2324 C2325 C2326	Capacitor,Ceramic, Chip	ECCH0017301	CL03A105MQ3CSNH 0.000001F 20% 6.3V X5R - 45TO+85C 0603 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	C2327 C2328 C2329 C2330 C2336 C2337 C2338 C2339 C2340 C2341 C2342 C2343 C2344 C2345 C2346 C2347 C2349	Capacitor,Ceramic, Chip	ECCH0017301	CL03A105MQ3CSNH 0.000001F 20% 6.3V X5R - 45TO+85C 0603 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C2351 C2353 C2354 C2355 C2356 C2357 C2358 C2359 C2361 C2362 C2363 C2364 C2365 C2366 C2367 C2368 C2369 C2370 C2372 C2374 C2375 C2376 C2380	Capacitor,Ceramic, Chip	ECCH0017301	CL03A105MQ3CSNH 0.000001F 20% 6.3V X5R - 45TO+85C 0603 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	C2381 C2382 C2383 C2384 C2385 C2386 C2387 C2388 C2389 C2390 C2398 C4122 C4123 C4125 C4126 C4128 C4130 C4131 C4132 C4134 C4142 C4145 C4146 C7606 C7608 C8400 C8401	Capacitor,Ceramic, Chip	ECCH0017301	CL03A105MQ3CSNH 0.000001F 20% 6.3V X5R - 45TO+85C 0603 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	U4100	IC,PMIC	EAN62667101	PM8941 to 5.5V adj 0W CSP R/TP 229P - QUALCOMM INCORPORATED.	
6	R21012 R21013 R2300 R2309 R5201 R7201	Wire Pad,Short	SAFP0000401	AX3100 ATL SV_SHIPBACK,MAIN,A	
6	R1102 R21014 R2143 R2144 R5205 R6121 R6124	Resistor,Chip	ERHY0009501	MCR006YZPJ000 0OHM 5% 1/20W 0603 R/TP - ROHM.	
6	L1241	Inductor,Multilayer, Chip	EAP62227601	LG HK 0603 6N8J-T 6.8NH 5% - 250mA - - 0.39OHM 3.9GHZ 5 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	

Level	Location no	Description	P/N	Specification	Remark
6	C1336 C21003 C21004 C21005 C21026 C21040 C2110 C2111 C2360 C2373 C4144 C5205 C5217 C7601 C7603 C7605 C7607 C7609 C8700 C8701	Capacitor,Ceramic, Chip	ECCH0009101	C0603X5R0J104KT00NN 0.1uF 10% 6.3V X5R - 55TO+85C 0603 R/TP - TDK CORPORATION	
6	U4400	IC,DC,DC Converter	EAN62930601	LM3697YFQR 2.7V to 5.5V up to 40V 0W DSBGA R/TP 12P 2048 Dimming, 1.30x1.65x0.6 mm, 3 series LED strings, NO USE of Negative Power TEXAS INSTRUMENTS KOREA LTD, HONGKONG BRANCH.	
6	L1262	Capacitor(High Frequency),Ceramic,Chip	EAE63043501	RMTMK063CG1R8CT-F_H 1.8pF 0.25PF 25V C0G - 55TO+125C 0603 R/TP 0.3+-0.03 L:0.6+-0.03, W:0.3+-0.03, T:0.3+-0.03 KOREA TAIYO YUDEN.CO., LTD.	
6	R4102 R4700 R4701 R4702 R4703 R4704 R4707 R7610 R8401 R8801 R8802	Resistor,Chip	ERHY0009505	MCR006YZPJ103 10KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	C1260	Inductor,Multilayer, Chip	EAP62246101	LG HK 0603 4N7S-T 4.7NH 0.3NH - 280mA - - 0.3OHM 5.3GHZ 5 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	U4700	IC,Charger	EAN63049301	BQ24296RGER up to 4.35V adj 0W CSP R/TP 24P - TEXAS INSTRUMENTS KOREA LTD, HONGKONG BRANCH.	
6	R21001 R21002 R4800	Resistor,Chip	ERHY0017901	RC0201JR-07330KL 330KOHM 5% 1/20W 0603 R/TP - YAGEO CORPORATION	

Level	Location no	Description	P/N	Specification	Remark
6	C1137 C1140 C1141 C1164 C1172 C1192 C1194 C4402 C6117 C6118 C8802 C8803	Capacitor,Ceramic, Chip	ECCH0009104	C0603C0G1H330JT00NN 33pF 5% 50V C0G - 55TO+125C 0603 R/TP - - TDK CORPORATION	
6	C7501 C7504	Capacitor,Ceramic, Chip	EAE63162401	GRM188R61E106M 10uF -20TO20% 25V X5R - 55TO+85C 1608 R/TP Max 1.0T L:1.6+-0.2 W:0.8+-0.2 T:0.8+-0.2 MURATA MANUFACTURING CO.,LTD.	
6	C13008 C21001 C21002 C21011 C21012 C21013 C21014 C21015 C21033	Capacitor(High Frequency),Ceramic,Chip	EAE62947001	GRM0335C1E100J_H 10pF 5% 25V C0G - 55TO+125C 0603 R/TP 0.3+-0.03 :0.6+-0.03 W:0.3+-0.03 T:0.3+-0.03 MURATA MANUFACTURING CO.,LTD.	
6	U8400	IC,Proximity	EAN62568201	APDS-9930-200 High T Proximity and Ambient Light Sensor 3.36X4.94X3.45 COB R/TP 8P High T Proximity and Ambient Light Sensor AVAGO TECHNOLOGIES INTERNATIONAL SALES PTE. LIMITED	
6	C4705	Capacitor,Ceramic, Chip	ECCH0002002	C1005X7R1A473KT000F 47nF 10% 10V X7R - 55TO+125C 1005 R/TP 0.5+-0.05 - TDK CORPORATION	
6	FL1208	Filter,Duplexer	EAM62673201	LJ37C 2132.5 MHz 2112.4 to 2152.6 MHz 1732.5 MHz 1712.4 to 1752.6 MHz 1.9dB typ / 2.4dB max 1.3dB typ / 2.0dB max 2.0x1.6x0.47t DUAL SMD R/TP 9P EPCOS PTE LTD.	
6	C21022 C21024 C2371 C4135 C4136 C7400 C7401	Capacitor,Ceramic, Chip	ECCH0000198	CL05A225MQ5NSNC 2.2uF 20% 6.3V X5R - 55TO+85C 1005 R/TP . SAMSUNG ELECTRO-MECHANICS CO., LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	C1117 C1142 C1180 C1181 C1227 C1270 L1135 L21009 L21010 L21011	Inductor,Multilayer, Chip	EAP62226901	LG HK 0603 1N0S-T 1NH 0.3NH - 470mA - - 0.11OHM 10GHZ 4 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	FB21000 FB21001 FB4400 FB4401	Filter,Bead	EAM62070901	BLM03AX601SN1D 600 ohm 0.6X0.3X0.3 25% 0.85 ohm 0.25A SMD R/TP 2P 0 MURATA MANUFACTURING CO.,LTD.	
6	C1324 C21017 C4100 C4400 C4704 C4710 C5220 C7502	Capacitor,Ceramic, Chip	EAE62502901	CL05A106MP5NUNC 10uF 20% 10V X5R -55TO+85C 1005 R/TP 0.55T max. SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	ANT1113	C-Clip	EAG63910001	1201-01A 1P ANT TERMINAL STRAIGHT SMD REEL AU 2.6X1.0X0.9(LXWXH) SERVEONE CO., LTD.	
6	FL1204	Filter,Duplexer	EAM62930201	ACMD-6125 1962.50MHz 1930.25to1994.75MHz 1882.50MHz 1850.25to1914.75MHz 3.5/3.8dB 3.0/4.0dB 2.0x1.6x0.9t DUAL SMD R/TP 9P AVAGO TECHNOLOGIES INTERNATIONAL SALES PTE. LIMITED	
6	C4116	Capacitor,Ceramic, Chip	EAE62927201	ADK107BBJ476MA 47uF -20TO20% 4V X5R -55TO+85C 1608 R/TP 0.8T +0.2 L:1.6+0.2 W:0.8+0.2 T:0.8+0.2 KOREA TAIYO YUDEN.CO., LTD.	
6	C1205 C1208 C1274 C1328	Capacitor,Ceramic, Chip	ECZH0025916	GRM0335C1E330J 33pF 5% 25V NP0 -55TO+125C 0603 R/TP - - MURATA MANUFACTURING CO.,LTD.	
6	C1215 C1277 C4105	Capacitor,Ceramic, Chip	EAE62962301	GRM155R61A225KE95 2.2uF -10TO+10% 10V X5R -55TO+85C 1005 R/TP 0.5 L:1.0+-0.05 W:0.5+-0.05 T:0.5+-0.05 MURATA MANUFACTURING CO.,LTD.	
6	FL1108	Filter,Saw	EAM62870701	ACPF-8025 1962.50MHz 1.4x1.1x0.8t SMD R/TP 5P AVAGO TECHNOLOGIES INTERNATIONAL SALES PTE. LIMITED	
6	D4400	Diode,Schottky	EAH61992801	PMEG4002EL 600mV 40V 200mA 0SEC 20pF 0W SOD-882 R/TP 2P 1 NXP Semiconductors	

Level	Location no	Description	P/N	Specification	Remark
6	U5200	IC,NFC	EAN62678401	PN65OEV1/3010BC726L VFBGA 4.5x4.5x0.9 VFBGA R/TP 64P NXP Semiconductors	
6	C1212 C1304 C1305 C1306 C1307 C1308 C1311 C1312 C1313 C1314 C1315 C1316 C1318 C1319 C1320 C1321 C1322 C1323 C4111 C4112 C4800	Capacitor,Ceramic, Chip	EAE62286801	CL03A104KP3NNNC 0.0000001F 10% 10V X5R - 55TO+85C 0603 R/TP 0.3 - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C1301 C21021 C21023 C4121 C4124 C4133 C4137 C4138 C4139 C4140 C7402 C7403	Capacitor,Ceramic, Chip	ECCH0017601	CL05A475MQ5NRNC 4.7uF 20% 6.3V X5R - 55TO+85C 1005 R/TP 0.5MM - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	U8800	IC,Motor Driver	EUSY0200803	SM100 2.4 3.6 0.05 1W MICRO LEAD FRAME R/TP 8P 1 - Crucialchips Co., Ltd.	
6	L7500	Inductor,Wire Wound,Chip	EAP62588001	MAKK2016T4R7M 4.7UH 20% - 1A 1 1.05 0.38OHM - - SHIELD 2.0X1.25X1.0 MM - R/TP TAIYO YUDEN CO.,LTD	
6	C1133 C1147 C1156 C1176 C1178 C1221	Capacitor,Ceramic, Chip	ECZH0025917	GRM0335C1E470J 47pF 5% 25V NP0 -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	D6450 D6451	Varistor	SEVY0005402	ICVS0505500FR 5.6V 0% 50F 1.0*0.5*0.55 - SMD R/TP INNOCHIPS TECHNOLOGY	

Level	Location no	Description	P/N	Specification	Remark
6	C4103 C4708 C4709	Capacitor,Ceramic, Chip	ECCH0000182	GRM155R61A104K 0.1uF 10% 10V X5R - 55TO+85C 1005 R/TP - - MURATA MANUFACTURING CO.,LTD.	
6	FL21000	Filter,Separator	EAM63050301	DPX105950DT-6012A3 0.50dB / 0.80dB 28dB typ. 30dB max. LPF@2.4G / BPF@5.0G TDK CORPORATION	
6	R21005 R21006 R21007 R21008 R21009 R4118	Resistor,Chip	ERHY0009527	MCR006YZPJ473 47KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	R7601 R7611	Resistor,Chip	ERHZ0000438	MCR01MZP5J203 20KOHM 5% 1/16W 1005 R/TP - ROHM.	
6	FB6923 FB6924	Inductor,Multilayer, Chip	ELCH0001444	0402AF-101XJEW 100NH 5% - 900mA - - 0.16OHM 1.4GHZ 8 NON SHIELD NONE 1.12X0.66X0.66MM R/TP COILCRAFT SINGAPORE PTE LTD.	
6	C21028	Capacitor,Ceramic, Chip	ECCH0009216	GRM0335C1E220J 22pF 5% 25V X7R -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	FL1104	Filter,Saw	EAM62250901	SAFEA707MAM0F00 707MHz 1.4*1.1*0.5 SMD R/TP 5P MURATA MANUFACTURING CO.,LTD.	
6	R4801 R7604 R7605 R7606	Resistor,Chip	ERHY0009526	MCR006YZPJ472 4.7KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	LD4602	LED,Chip	EAV62251901	CL-503S-TCC-SD-T RED/GREEN/BLUE R(1.85~2.4) G(2.7~3.1) B(2.75~3.1) at 5mA R(30) G(20) B(20) mA R(19~33) G(90~220) B(20~65) mcd at 5mA R(618) G(530) B(470) nm at 5mA R(78) G(80) B(75) mW 1513 R/TP 4P - CITIZEN ELECTRONICS CO.,LTD.	
6	C1135	Capacitor,Ceramic, Chip	ECCH0009217	GRM0335C1E560J 56pF 5% 25V X7R -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	L1155 L1171	Inductor,Multilayer, Chip	EAP62108701	LQP03TN27NJ02D 27NH 5% - 140mA - - 2.3OHM 2GHZ 12 SHIELD - 0.6X0.3X0.3MM R/TP MURATA MANUFACTURING CO.,LTD.	
6	R4400	Resistor,Chip	ERHY0009506	MCR006YZPJ104 100KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	L4100 L4103 L4104 L4700	Inductor,Wire Wound,Chip	EAP62526601	TFM201610GHM-2R2MTAA 2.2UH 20% - 1.9A 2.4 1.9 0.152OHM - - SHIELD 2.0X1.6X1.0MM - R/TP TDK KOREA COOPERATION	

Level	Location no	Description	P/N	Specification	Remark
6	C1232 C1271	Inductor,Multilayer, Chip	EAP62227101	LG HK 0603 1N5S-T 1.5H 0.3NH - 430mA - - 0.13OHM 10GHZ 4 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	C21006 C21020 C21039 C2335 C2348 C4114 C4141 C4702 C4801 C5203 C5209 C5214 C5216 C5218 C7604 C7610 C7614 C8800	Capacitor,Ceramic, Chip	EAE62762301	CL03A105MP3NSNC 1uF 20% 10V X5R - 55TO+85C 0603 R/TP 0.33 MM - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	L1149	Inductor,Multilayer, Chip	EAP62227801	LG HK 0603 12NJ-T 12NH 5% - 190mA - - 0.68OHM 2.7GHZ 5 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	C1272 C21010 C7611 C7612	Capacitor,Ceramic, Chip	ECCH0009504	MCH032A180JK 18pF 5% 25V NP0 -55TO+125C 0603 R/TP - ROHM.	
6	U4800	IC,Fuel Gauge	EAN62421601	MAX17048X+T10 2.5 to 4.5V adj 0W CSP R/TP 8P - MAXIM INTEGRATED PRODUCTS INC.	
6	R7608	Resistor,Chip	ERHZ0000350	MCR01MZP5F6203 620KOHM 1% 1/16W 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C1209 C1275 C1284 L1138 L1250	Inductor,Multilayer, Chip	EAP62227301	LG HK 0603 2N2S-T 2.2NH 0.3NH - 360mA - - 0.19OHM 8.8GHZ 4 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	C21016 C4101 C4102 C4703	Capacitor,Ceramic, Chip	EAE62506501	CL05A475MP5NRNC 4.7uF 20% 10V X5R - 55TO+85C 1005 R/TP - - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C4151	Capacitor,Ceramic, Chip	EAE62685301	CL05A105KA5NQNC 1uF 10% 25V X5R -55TO+85C 1005 R/TP 0.6T max. Samsung(1.0+-0.1 0.5+-0.1 0.5+-0.1) Murata (1.0+-0.05 0.5+-0.05 0.5+-0.05) SAMSUNG ELECTRO-MECHANICS CO., LTD.	

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6	C4113	Capacitor,Ceramic, Chip	ECZH0001210	C1005Y5V1A474ZT000F 470nF -20TO+80% 10V Y5V -30TO+85C 1005 R/TP - TDK KOREA COOPERATION	
6	R2103 R2104	Resistor,Chip	ERHZ0000235	MCR01MZP5F2000 200OHM 1% 1/16W 1005 R/TP - ROHM.	
6	U1300	IC,DC,DC Converter	EAN62788501	LM3263 2.7V to 5.5V 0.4V to 3.6V 0W MICRO SMD R/TP 16P MIPI RFFE, 2G/3G/4G, 2.5A Max.(PWM), 2.7 MHz (typ.), 16-bump micro SMD TEXAS INSTRUMENTS KOREA LTD, HONGKONG BRANCH.	
6	L21008	Inductor,Multilayer, Chip	EAP61767801	LQP03TN2N4B02D 2.4NH 0.1NH - 500mA - - 0.2OHM 6GHZ 14 SHIELD NONE 0.6X0.3X0.3MM R/TP MURATA MANUFACTURING CO.,LTD.	
6	U2100	IC,Digital Baseband Processor,4G	EAN63106201	MSM8974AC Quad Krait 2.45GHz,28nm HPM,15x15 Bare Die PoP,2x933 LPDDR3, eMMC5.0, LTE CAT4, CA, HSPA+42Mbps, TD-SCDMA, DOrA/B, 1080@120fps,Adreno330,550MHz NSP R/TP 990P QUALCOMM INCORPORATED.	
6	L1144 L1303	Inductor,Multilayer, Chip	EAP62227701	LG HK 0603 8N2J-T 8.2NH 5% - 230mA - - 0.45OHM 3.4GHZ 5 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	U7600	IC,LDO Voltage Regulator	EAN62768701	RP114K331D-TRB 1.4 to 5.25 3.3 0W DFN R/TP 4P - RICOH COMPANY, LTD.	
6	FL1113 FL1115	Filter,Saw	EAM62771001	B9876 2140.0MHz 1.1x0.9x0.45t SMD R/TP 5P EPCOS PTE LTD.	
6	C7500 C7503	Capacitor,Ceramic, Chip	EAE63067401	GRM188R61C475KAAJ 4.7uF -10TO+10% 16V X5R -55TO+85C 1608 R/TP Max 0.95T L:1.6+-0.15 W:0.8+-0.15 T:0.8+-0.15 MURATA MANUFACTURING CO.,LTD.	
6	R4105	Resistor,Chip	ERHY0009537	MCR006YZPF1503 150KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	C1263	Capacitor(High Frequency),Ceramic,Chip	EAE62946801	GRM0335C1E6R8B_H 6.8pF 0.1PF 25V C0G -55TO+125C 0603 R/TP 0.3+-0.03 L:0.6+-0.03 W:0.3+-0.03 T:0.3+-0.03 MURATA MANUFACTURING CO.,LTD.	
6	R21003 R4708	Resistor,Chip	ERHY0009303	MCR006YZPF1002 10KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	L6452	Inductor,Wire Wound,Chip	EAP62368801	LQH3NMN122M03E 1.2mH 20% - 80mA - - 46.8OHM - - SHIELD 3.0X3.0X1.5MM - R/TP MURATA MANUFACTURING CO.,LTD.	
6	R2121	Resistor,Chip	EBC62581901	RC0201FR-0733RL 33OHM 1% 1/20W 0603 R/TP - YAGEO CORPORATION	

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6	C4115 C4117	Capacitor,Ceramic, Chip	EAE62767801	JDK212BBJ476MD 47uF -20TO20% 6.3V X5R -55TO+85C 2012 R/TP 0.85T - TAIYO YUDEN CO.,LTD	
6	ANT1114	C-Clip	EAG63652301	2108610-5 1P ANT TERMINAL STRAIGHT SMD T/REEL AU 2.9X1.0X1.4(L X W X H) SERVEONE CO., LTD.	
6	R4114 R7607	Resistor,Chip	ERHY0009536	MCR006YZPF1003 100KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	C1217 C1333 C1338 C5219	Capacitor,Ceramic, Chip	ECZH0025920	GRM033R71C102K 1nF 10% 16V X7R -55TO+125C 0603 R/TP - - MURATA MANUFACTURING CO.,LTD.	
6	U7500	IC,DC,DC Converter	EAN62731801	TPS65132 2.5V to 5.5V +4.0V to +6.0V, -4.0V to -6.0V 0W WCSP R/TP 15P Dual Output LCD Bias, Output Current: 80mA Max., 15-Ball CSP Package TEXAS INSTRUMENTS KOREA LTD, HONGKONG BRANCH.	
6	L1125	Capacitor,Ceramic, Chip	ECCH0009208	GRM0335C1ER50C 0.5pF 0.25PF 25V X7R -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	C4706	Capacitor,Ceramic, Chip	EAE62542701	CL21A226MPCLRNC 22uF 20% 10V X5R -55TO+85C 2012 R/TP 0.95T max. - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	R2108 R2109	Resistor,Chip	ERHY0009516	MCR006YZPJ222 2.2KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	L1253	Inductor,Multilayer, Chip	EAP61925901	LQP03TN6N2J02D 6.2NH 5% - 300mA - - 0.6OHM 4GHZ 14 SHIELD 0 0.6X0.3X0.3MM R/TP MURATA MANUFACTURING CO.,LTD.	
6	L4101	Inductor,Wire Wound,Chip	EAP62187401	MAKK2016T1R0M 1UH 20% - 2.2A 2.2 2.45 0.075OHM - - SHIELD 2.0X1.6X1.0MM - R/TP TAIYO YUDEN CO.,LTD	
6	C1139	Inductor,Multilayer, Chip	EAP61767701	LQP03TN3N0B02D 3NH 0.1NH - 450mA - - 0.25OHM 6GHZ 14 SHIELD NONE 0.6X0.3X0.3MM R/TP MURATA MANUFACTURING CO.,LTD.	
6	R7600	Resistor,Chip	ERHZ0000205	MCR01MZP5F1004 1MOHM 1% 1/16W 1005 R/TP - ROHM.	
6	C4110 C4120	Capacitor,Ceramic, Chip	EAE62522101	CL10A226MP8NUNE 22uF 20% 10V X5R -55TO+85C 1608 R/TP 1.05T max. - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	FL1103	Filter,Duplexer	EAM62930301	SAYFH707MBA0F0A 737.50MHz 729.0to746.0MHz 707.50MHz 699.0to716.0MHz 1.6/2.5dB 1.9/3.0dB 2.0x1.6x0.6t DUAL SMD R/TP 9P MURATA MANUFACTURING CO.,LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	C1191	Inductor,Multilayer, Chip	EAP62227201	LG HK 0603 1N8S-T 1.8NH 0.3NH - 380mA - - 0.16OHM 10GHZ 4 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	U1109	IC,Power Amplifier	EAN63066401	SKY77631 3.0V to 4.5V 0 0 0W 0W 0 6 SMD R/TP 42P 7x5size, MMPA, MIPI, APT, B1,2,3,4,5(26),17 SKYWORKS SOLUTIONS INC.	
6	U21000	IC,WiFi	EAN62698301	BCM4339HKUBG WiFi(11a/b/g/n/ac)+BT4.0+FM Rx, 4.87x5.413x0.55, 145 ball WLBGA R/TP 145P Broadcom International Distribution Company	
6	U7601	IC,Signal Bridge	EAN63125901	ANX7812BH-AB-R slimport, HDMI to MyDP Tx, 4.5x4.5 VFBGA R/TP 49P ANALOGIX SEMICONDUCTOR	
6	FL7600	Filter,LCR	EAM62451101	ICMEF112P350MFR COMMON MODE NOISE FILTER 0HZ 0F 0H SMD R/TP Common mode Impedance at 100MHz : 35ohm+-30%, DC Resistance Max :3.0ohm INNOCHIPS TECHNOLOGY	
6	C7600 C7602	Capacitor,Ceramic, Chip	EAE62726601	CL03A225MQ3CRNC 2.2uF -20TO20% 6.3V X5R - 55TO+85C 0603 R/TP 0.3T - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	L21003	Inductor,Multilayer, Chip	EAP62307701	LQM21PN2R2NGCD 2.2UH 30% - 510mA 0.510 1 0.23OHM 40MHZ - SHIELD - 2.0X1.25X1.0 MM R/TP MURATA MANUFACTURING CO.,LTD.	
6	U1301	IC,RF Transceiver,4G	EAN62697301	WTR1625L WTR1625L 2G/3G/4G GSM/GPRS/EDGE,1X, 1xEV-DO ,WCDMA , TD-SCDMA , HSPA+/DC-HSPA+ , LTE (FDD) ,TD-LTE, 164pin CSP R/TP 164P QUALCOMM INCORPORATED.	
6	X21000	Crystal	EAW61645401	Q22FA1280013000 37.4MHZ 10PPM 12F , SMD R/TP EPSON TOYOCOM CORP	
6	U8700	IC,Hall Effect Switch	EAN62682901	BU52061NVX Hall IC 1.2X1.6 SSON R/TP 4P - ROHM Semiconductor KOREA CORPORATION	
6	L1209 L1210	Capacitor(High Frequency),Ceramic,Chip	EAE63043301	RMTMK063CG010CT-F_H 1pF 0.25PF 25V C0G - 55TO+125C 0603 R/TP 0.3+-0.03 L:0.6+-0.03, W:0.3+-0.03, T:0.3+-0.03 KOREA TAIYO YUDEN.CO., LTD.	
6	C21030	Capacitor,Ceramic, Chip	ECCH0009502	GRM0335C1E1R5CD01D+A02 1.5pF 0.25PF 25V NP0 -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	C4104 C4106	Capacitor,Ceramic, Chip	ECCH0005603	GRM188R61A225K 2.2uF 10% 10V X5R - 55TO+85C 1608 R/TP - MURATA MANUFACTURING CO.,LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	L4400	Inductor,Wire Wound,Chip	EAP62367801	VLS252010HBT-100M-LR 10UH 20% - 750mA 0.78 0.75 0.516OHM - - SHIELD 2.5X2.0X1.0 MM - R/TP TDK KOREA COOPERATION	
6	L1218	Inductor,Multilayer, Chip	EAP62227401	LG HK 0603 3N9S-T 3.9NH 0.3NH - 300mA - - 0.27OHM 6GHZ 5 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	FL1114	Filter,Saw	EAM62930401	SFH737AA002 737.0MHz 1.1x0.9x0.55t SMD R/TP 5P WISOL.CO.,LTD	
6	R4709	Resistor,Chip	EBC62596701	RC0201FR-0715KL_ 15KOHM 1% 1/20W 0603 R/TP - YAGEO CORPORATION	
6	C21034	Capacitor,Ceramic, Chip	ECZH0025911	GRM0335C1E120J 12pF 5% 25V C0G -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	X4100	Crystal	EAW61883401	X1E0002910001 19.2MHZ 10PPM 7F - SMD R/TP EPSON TOYOCOM CORP	
6	L1302	Inductor,Multilayer, Chip	EAP62246401	LG HK 0603 22NJ-T 22NH 5% - 150mA - - 1OHM 1.8GHZ 5 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	C21009	Capacitor,Ceramic, Chip	EAE62762401	CL03A224KP3NNNC 220nF 10% 10V X5R - 55TO+85C 0603 R/TP 0.33 MM - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C14009 C21027 L1252	Capacitor(High Frequency),Ceramic,Chip	EAE62945801	GRM0335C1E1R0C_H 1pF 0.25PF 25V C0G - 55TO+125C 0603 R/TP 0.3+-0.03 L:0.6+-0.03 W:0.3+-0.03 T:0.3+-0.03 MURATA MANUFACTURING CO.,LTD.	
6	C1226	Capacitor(High Frequency),Ceramic,Chip	EAE62963701	GRM0335C1H100J_H 10pF -5 to +5% 50V C0G - 55TO+125C 0603 R/TP 0.3+-0.03 L:0.6+-0.03 W:0.3+-0.03 T:0.3+-0.03 MURATA MANUFACTURING CO.,LTD.	
6	R21011	Resistor,Chip	ERHY0009515	MCR006YZPJ221 220OHM 5% 1/20W 0603 R/TP - ROHM.	
6	SW1103 SW1107	Connector,RF	EAG63412001	W.FL2-R-SMT-1(61) 0.35MM STRAIGHT SOCKET SMD R/TP AU 50OHM 400mDB HIROSE KOREA CO.,LTD	
6	R4107	Resistor,Chip	EBC62616701	RC0402FR-0730K9L 30.9KOHM 1% 1/16W 1005 R/TP - YAGEO CORPORATION	
6	R2139	Resistor,Chip	ERHY0009584	MCR006YZPF24R0 24OHM 1% 1/20W 0603 R/TP - ROHM.	
6	C4118	Capacitor,Ceramic, Chip	EAE62685201	C1005X5R1E104K 0.1uF 10% 25V X5R -55TO+85C 1005 R/TP 0.55T max. TDK KOREA COOPERATION	

Level	Location no	Description	P/N	Specification	Remark
6	R7603	Resistor,Chip	ERHY0009555	MCR006YZPF1202 12KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	C8801	Capacitor,Ceramic, Chip	ECCH0000155	MCH153CN103KK 10nF 10% 16V X7R -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C7613	Capacitor,Ceramic, Chip	ECCH0009514	MCH032A(AN)100DK 10pF 0.5PF 25V X7R -55TO+125C 0603 R/TP - ROHM.	
6	L1200	Inductor,Multilayer, Chip	EAP62246301	LG HK 0603 15NJ-T 15NH 5% - 180mA - - 0.71OHM 5HZ 2.3G SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	U1005	Filter,Separator,Switch	EAM63031101	RF1614 0.54 60 28 - RF MICRO DEVICES INC	
6	FL1106	Filter,Saw	EAM62930601	SAFFB876MAA0F0A 876.5MHz 1.1x0.9x0.5t SMD R/TP 5P MURATA MANUFACTURING CO.,LTD.	
6	U21001	Module, FEM(Front End Module)	EAT61875801	RF5521 0DBM 9DB 0% 5UA 14mA 0DB 20DBM 1.2DBM 10P 1.75x1.75x0.5MM FEM(SP3T+LNA) for 2.4GHz WiFi with BCM4330/34/35/39 RF MICRO DEVICES INC	
6	U1004	Filter,Separator,Switch	EAM63031001	RF1614A 0.69 60 37 - RF MICRO DEVICES INC	
6	L4102	Inductor,Wire Wound,Chip	EAP62526701	TFM252010GHM-2R2MTAA 2.2UH 20% - 2.5A 3.1 2.5 0.097OHM - - SHIELD 2.5X2.0X1.0 MM - R/TP TDK KOREA COOPERATION	
6	FL1100 FL1102	Coupler,RF Directional	ECA30240001	LDJ18829M24AD011 1.6x0.8x0.7t SMD COUPLER 1694MHz 1992MHz (698~2690MHz) SMD R/TP 22.4 to 25.7 0.16 26 - MURATA MANUFACTURING CO.,LTD.	
6	LD8900	LED,Chip	EAV62193601	IR26-61C/L261/TR8(LM) CLEAR 1.2~1.5V(If=20mA) 65mA 2.0~5.0 940nm(Typ.) 100mW 3012 R/TP 2P - EVERLIGHT ELECTRONICS CO., LTD.	
6	C4107	Capacitor,Ceramic, Chip	ECCH0007804	CL05A225MP5NSNC 2.2uF 20% 10V X5R -55TO+85C 1005 R/TP 0.5MM - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	R2400 R2401	Resistor,Chip	ERHY0009507	MCR006YZPJ105 1MOHM 5% 1/20W 0603 R/TP - ROHM.	
6	U3100	IC,Mobile SDRAM	EAN63146701	K3QF6F60MM-QGCF 16GBIT LPDDR3 1.7VTO1.95V 933MHz 5500ns FBGA TR 216P 3GB (24Gb) LPDDR3 PoP 216ball 933MHz (25nm 6Gb x 4, 15x15, MSM8974) SAMSUNG ELECTRONIC CO.,LTD	
6	D7600	Diode,Switching	EDSY0019602	PMEG3005AEA 430mV 30V 500mA 3.5A 0SEC 0W SOD323 R/TP 2P 1 NXP Semiconductors	

Level	Location no	Description	P/N	Specification	Remark
6	X7600	Crystal	EAW61543401	1ZCB27000AA0A 27MHZ 10PPM 12F ; SMD R/TP DAISHINKU CORPORATION.	
6	C1129 C1155	Capacitor,Ceramic, Chip	ECCH0009106	C0603X7R1C103KT 10nF 10% 10V X7R -55TO+125C 0603 R/TP - TDK CORPORATION	
6	R1306	Resistor,Chip	EBC62236701	RC0402FR-074K75L 4.75KOHM 1% 1/16W 1005 R/TP 0.4T max. YAGEO CORPORATION	
6	R4706	Resistor,Chip	ERHZ0000242	MCR01MZP5F2200 220OHM 1% 1/16W 1005 R/TP - ROHM.	
6	C21019 L1154 L21005	Inductor,Multilayer, Chip	EAP62245901	LG HK 0603 2N7S-T 2.7NH 0.3NH - 340mA - - 0.21OHM 7.7GHZ 5 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	C4401	Capacitor,Ceramic, Chip	EAE62505701	CL10A105KB8NNNC 1uF 10% 50V X5R -55TO+85C 1608 R/TP 0.9T max. - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C4119	Capacitor,Ceramic, Chip	EAE62282201	GRM033R71E102KA01D 0.000000001F 10% 25V X7R -55TO+125C 0603 R/TP 0.3+/-0.03 MM - MURATA MANUFACTURING CO.,LTD.	
6	U7602	IC,LDO Voltage Regulator	EAN62735301	RP114K101D-TRB 1.4v to 5.25v 1.0 0W DFN R/TP 4P - RICOH COMPANY, LTD.	
6	FL1209	Filter,Duplexer	EAM62692901	B8564 881.5MHz 869.0to894.0MHz 836.5MHz 824.0to849.0MHz 1.8typ/2.1max 1.5typ/2.1max 2.0x1.6x0.47t DUAL SMD R/TP 9P EPCOS PTE LTD.	
6	C21008	Capacitor,Ceramic, Chip	EAE63286601	CM03X5R225M10AH 2.2uF -20TO20% 10V X5R -55TO+85C 0603 R/TP Max 0.39T L:0.6+-0.09 W:0.3+-0.09 T:0.3+-0.09 KYOCERA ELECTRONIC DEVICES HONG KONG LIMITED	
6	L1301	Inductor,Wire Wound,Chip	EAP62307401	VLS252010ET-1R5N 1.5UH 30% - 1.45A 1.45 1.5 0.128OHM - - SHIELD 2.5X2.0X1.0 MM - R/TP TDK KOREA COOPERATION	
6	R1202	Resistor,Chip	ERHY0042409	RC0201FR-0749R9L 49.9OHM 1% 1/20W 0603 R/TP - YAGEO CORPORATION	
6	R8400	Resistor,Chip	EBC61856101	RC0201JR-0722RL 22OHM 5% 1/20W 0603 R/TP - YAGEO CORPORATION	
6	R7202	Wire Pad,Open	SAFO0000401	AX3100 ATL SV_SHIPBACK,MAIN,A,0OHM DNI	
6	R4106	Resistor,Chip	ERHZ0000204	MCR01MZP5F1003 100KOHM 1% 1/16W 1005 R/TP - ROHM.	
6	U21002	Module, FEM(Front End Module)	EAT61875701	RF5540 0DBM 11DB 0% 30UA 29mA 0DB 20DBM 1.8DBM 12P 2.0x2.0x0.5MM RF5540,QFN,12p,2.0*2.0*0.5, FEM(SPDT+LNA) for 5GHz WiFi with BCM4330/39 RF MICRO DEVICES INC	

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6	L1123	Inductor,Multilayer, Chip	EAP61866401	LG HK0603 9N1J-T 9.1NH 5% - 220mA - - 0.48OHM 3.2GHZ 5 SHIELD 0 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	FL1201	Module,Rx Module	EAT61793601	LMSP32QP-F03 0DBM 0DB 0% 0A 0A 0DB 0DBM 0DBM 23P 3.2x2.5x1.0MM MIPI SP12T, 2Tx, 10TRX MURATA MANUFACTURING CO.,LTD.	
6	R7602 R7609	Resistor,Chip	EBC62296301	RC0201FR-07665KL 665KOHM 1% 1/20W 0603 R/TP 0.26T max. YAGEO CORPORATION	
6	ANT1112	C-Clip	EAG63730501	TE 1.1H C-CLIP 1P ANT TERMINAL STRAIGHT SMD T/REEL AU 2.5 X 1.0X 1.1(L X W X H) SERVEONE CO., LTD.	
6	L2300	Inductor,Multilayer, Chip	EAP62807301	LQM18FN2R2M00D 2.2UH 20% - 120mA 0.12 0.12 0.52OHM 80MHZ - SHIELD - 1.6X0.8X1.0MM R/TP MURATA MANUFACTURING CO.,LTD.	
6	L1136	Inductor,Multilayer, Chip	EAP61866901	LQP03TN2N0C02D 2NH 0.2NH - 600mA - - 0.15OHM 6GHZ 14 SHIELD 0 0.6X0.3X0.3MM R/TP MURATA MANUFACTURING CO.,LTD.	
6	R2127	Resistor,Chip	EBC61959901	WR04X4641FTL 4.64KOHM 1% 1/16W 1005 R/TP WALSIN (Resistor Maker) - STC (WALSIN Resistor Supplier) STC CORP.	
6	C1121 R1109	Resistor,Chip	ERHY0009311	MCR006YZPF51R0 51OHM 1% 1/20W 0603 R/TP - ROHM.	
5	SAD010000	Software,Mobile	SAD34987401	Android KK Base AS99010a - NORTH AMERICA QCT LGAS990.ABPTTN	
5	EBR071600	PCB Assembly, Main,SMT Bottom	EBR78601211	LGAS990.ABPTTN 1.0 Main	
6	R6424	Resistor,Chip	ERHZ0000538	MCR01MZP5F3303 330KOHM 1% 1/16W 1005 R/TP - ROHM.	
6	L1200	Inductor,Multilayer, Chip	EAP62246301	LG HK 0603 15NJ-T 15NH 5% - 180mA - - 0.71OHM 5HZ 2.3G SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	C1117 C1142 C1180 C1181 C1227 C1270 L1135 L21009 L21010 L21011	Inductor,Multilayer, Chip	EAP62226901	LG HK 0603 1N0S-T 1NH 0.3NH - 470mA - - 0.11OHM 10GHZ 4 SHIELD - 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	

Level	Location no	Description	P/N	Specification	Remark
6	C2303 C2304	Capacitor,Ceramic, Chip	EAE63582701	CL10A476MQENRBE 47uF -20TO20% 6.3V X5R -55TO+85C 1608 R/TP L:1.6+-0.2, W:0.8+-0.2, T:1.1+-0.1 Max 1.2T, SEMCO Acoustic Noise MLCC THMC SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C1186	Capacitor(High Frequency),Ceramic,Chip	EAE62962201	GRM0335C1ER75W_H 0.75pF 0.05PF 25V C0G -55TO+125C 0603 R/TP 0.3 L:0.6+-0.03 W:0.3+-0.03 T:0.3+-0.03 MURATA MANUFACTURING CO.,LTD.	
6	C14009 C21027 L1252	Capacitor(High Frequency),Ceramic,Chip	EAE62945801	GRM0335C1E1R0C_H 1pF 0.25PF 25V C0G -55TO+125C 0603 R/TP 0.3+-0.03 L:0.6+-0.03 W:0.3+-0.03 T:0.3+-0.03 MURATA MANUFACTURING CO.,LTD.	
6	C1166	Capacitor(High Frequency),Ceramic,Chip	EAE62923501	GRM1555C1H2R0C_H 2pF 0.25PF 50V C0G -55TO+125C 1005 R/TP 0.5T L:1.0+-0.05 W:0.5+-0.05 T:0.5+-0.05 MURATA MANUFACTURING CO.,LTD.	
6	S9500	Socket,DIMM/SIMM	EAG64249801	1041681616 8P STRAIGHT STANDARD SMD REEL Combo MOLEX	
6	R6118 R6119	Resistor,Chip	EBC62036001	RC0201FR-0710RL 10OHM 1% 1/20W 0603 R/TP - YAGEO CORPORATION	
6	C1165	Inductor,Multilayer, Chip	ELCH0001031	HK1005 15NJ-T 15NH 5% - 300mA - - 0.46OHM 2.3GHZ 8 SHIELD NONE 1.0X0.5X0.5MM R/TP TAIYO YUDEN CO.,LTD	
6	L13006	Inductor,Multilayer, Chip	ELCH0003835	LQG15HS4N7S02D 4.7NH 0.3NH - 300mA - - 0.18OHM 6GHZ 8 SHIELD NONE 1.0X0.5X0.5MM R/TP MURATA MANUFACTURING CO.,LTD.	
6	R4752	Resistor,Chip	ERHY0009547	MCR006YZPF2003 200KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	R4754	Resistor,Chip	ERHY0009550	MCR006YZPF4702 47KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	R18006	Resistor,Chip	ERHZ0000268	MCR01MZP5F3302 33KOHM 1% 1/16W 1005 R/TP - ROHM.	
6	L6001	Resistor,Chip	ERHZ0000401	MCR01MZSJ000 0OHM 5% 1/16W 1005 R/TP - ROHM.	
6	D6450 D6451	Varistor	SEVY0005402	ICVS0505500FR 5.6V 0% 50F 1.0*0.5*0.55 - SMD R/TP INNOCHIPS TECHNOLOGY	
6	ZD7400	Varistor	EAF61650701	LXES15AAA1-117 15V 25% 0.1pF 1.0X0.5X0.33 mm IEC61000-4-2 (ESD) level #4 SMD R/TP MURATA MANUFACTURING CO.,LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	C2331 C2332 C2333 C2334	Capacitor,Ceramic, Chip	ECCH0017501	CL10A226MQ8NRNE 22uF 20% 6.3V X5R - 55TO+85C 1608 R/TP 0.8MM - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	R2108 R2109	Resistor,Chip	ERHY0009516	MCR006YZPJ222 2.2KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	C1300 C2300 C2301 C2302 C2313 C2314 C2315 C2316 C2317 C2318 C2319 C2320 C2321 C2322 C2323 C2324 C2325 C2326 C2327 C2328 C2329 C2330 C2336 C2337 C2338 C2339 C2340	Capacitor,Ceramic, Chip	ECCH0017301	CL03A105MQ3CSNH 0.000001F 20% 6.3V X5R - 45TO+85C 0603 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	C2341 C2342 C2343 C2344 C2345 C2346 C2347 C2349 C2351 C2353 C2354 C2355 C2356 C2357 C2358 C2359 C2361 C2362 C2363 C2364 C2365 C2366 C2367 C2368 C2369 C2370 C2372	Capacitor,Ceramic, Chip	ECCH0017301	CL03A105MQ3CSNH 0.000001F 20% 6.3V X5R - 45TO+85C 0603 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	C2374 C2375 C2376 C2380 C2381 C2382 C2383 C2384 C2385 C2386 C2387 C2388 C2389 C2390 C2398 C4122 C4123 C4125 C4126 C4128 C4130 C4131 C4132 C4134 C4142 C4145 C4146 C7606 C7608 C8400 C8401	Capacitor,Ceramic, Chip	ECCH0017301	CL03A105MQ3CSNH 0.000001F 20% 6.3V X5R -45TO+85C 0603 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C1205 C1208 C1274 C1328	Capacitor,Ceramic, Chip	ECZH0025916	GRM0335C1E330J 33pF 5% 25V NP0 -55TO+125C 0603 R/TP - - MURATA MANUFACTURING CO.,LTD.	
6	U7901 U7902	IC,LDO Voltage Regulator	EUSY0407401	RT9032 2.5 to 5.5 ADJ. 0W WDFN R/TP 9P - RICHTEK TECHNOLOGY CORP.	
6	C7501 C7504	Capacitor,Ceramic, Chip	EAE63162401	GRM188R61E106M 10uF -20TO20% 25V X5R -55TO+85C 1608 R/TP Max 1.0T L:1.6+-0.2 W:0.8+-0.2 T:0.8+-0.2 MURATA MANUFACTURING CO.,LTD.	
6	C21022 C21024 C2371 C4135 C4136 C7400 C7401	Capacitor,Ceramic, Chip	ECCH0000198	CL05A225MQ5NSNC 2.2uF 20% 6.3V X5R -55TO+85C 1005 R/TP . SAMSUNG ELECTRO-MECHANICS CO., LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	D11000 D11001 D11002	Diode,TVS	EAH62033201	UCLAMP3311Z 3.3V 3.65V min. 7.5V 4A 30W SLP0603P2X3A R/TP 2P 1 SEMTECH INTERNATIONAL AG	
6	C1101 C1105 C1127 C1128 C1145 C1154 C1182 C1202 C1203 C1220 C1228 C1282 C1283 C1302 C1317 C21032	Capacitor,Ceramic, Chip	ECCH0009103	C0603C0G1H101JT00NN 100pF 5% 50V C0G -55TO+125C 0603 R/TP - - TDK CORPORATION	
6	FL7100 FL7101 FL7102 FL7104 FL7105 FL7900 FL7901	Filter,EMI/Power	EAM62630501	ICMEF104P101MFR COMMON MODE NOISE FILTER - 0.0000000000017F 0H SMD R/TP - INNOCHIPS TECHNOLOGY	
6	ANT1114	C-Clip	EAG63652301	2108610-5 1P ANT TERMINAL STRAIGHT SMD T/REEL AU 2.9X1.0X1.4(L X W X H) SERVEONE CO., LTD.	
6	C4151	Capacitor,Ceramic, Chip	EAE62685301	CL05A105KA5NQNC 1uF 10% 25V X5R -55TO+85C 1005 R/TP 0.6T max. Samsung(1.0+-0.1 0.5+-0.1 0.5+-0.1) Murata (1.0+-0.05 0.5+-0.05 0.5+-0.05) SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C18003 C18014	Capacitor,Ceramic, Chip	EAE63162301	GRM188R61H474K 0.47uF -10TO+10% 50V X5R -55TO+85C 1608 R/TP Max 0.9T L:1.6+-0.1 W:0.8+-0.1 T:0.8+-0.1 MURATA MANUFACTURING CO.,LTD.	

Level	Location no	Description	P/N	Specification	Remark
6	C1336 C21003 C21004 C21005 C21026 C21040 C2110 C2111 C2360 C2373 C4144 C5205 C5217 C7601 C7603 C7605 C7607 C7609 C8700 C8701	Capacitor,Ceramic, Chip	ECCH0009101	C0603X5R0J104KT00NN 0.1uF 10% 6.3V X5R -55TO+85C 0603 R/TP - TDK CORPORATION	
6	C5204 C5213	Capacitor,Ceramic, Chip	ECZH0000830	C1005C0G1H330JT000F 33pF 5% 50V NP0 -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	C21016 C4101 C4102 C4703	Capacitor,Ceramic, Chip	EAE62506501	CL05A475MP5NRNC 4.7uF 20% 10V X5R -55TO+85C 1005 R/TP - - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	VA7100 VA7107 VA7108	Varistor	SEVY0010501	IECS0505C040FR 10V 0% 4E-12F 1.0x0.5x0.3 IEC61000-4-1 (ESD) level #4 SMD R/TP INNOCHIPS TECHNOLOGY	
6	FL2300 FL2301 FL2302 FL2303 FL2304 FL2305 FL2306 FL2307 FL2308 FL2309	Capacitor,Low ESL	EAE63462901	NFM15PC435R0G3D_ 4.3uF -20TO20% 4V X5R -55TO+85C 1005 R/TP Max 0.5T (L:1.0+-0.2 W:0.5+-0.2 T:0.4+-0.1) MURATA MANUFACTURING CO.,LTD.	
6	C5207 C5211	Capacitor,Ceramic, Chip	ECZH0000841	C1005C0G1H560JT000F 56pF 5% 50V NP0 -55TO+125C 1005 R/TP - - TDK Electronics KOREA CORPORATION	
6	U3200	IC,MCP,eMMC	EAN62992902	THGBMBG8D4KBAIR FLASH 2.7VTO3.6V,1.7VTO1.95V 11.5x13.0x1.0 TR 153P MLC NAND FBGA 32GB eMMC v5.0 (A19nm 64Gb MLC x 4, 11.5x13.0) TOSHIBA ELECTRONICS KOREA CORPORATION	

Level	Location no	Description	P/N	Specification	Remark
6	R6423 R6622	Resistor,Chip	ERHY0009586	MCR006YZPF2201 2.2KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	C9102	Capacitor,TA,Polymer	EAE63724801	TCNS107M006R0250 100uF -20TO20% 6.3V 60UA -55TO+105C 0.25OHM 3.2X1.6X1.2MM NONE SMD R/TP Max 1.2T KYOCERA ELECTRONIC DEVICES HONG KONG LIMITED	
6	U4900	IC,DC,DC Converter	EAN62735901	TPS61282 2.3V to 4.8V 4.8V max. 0W CSP R/TP 16P Swithcing frequency : 2.7MHz, GPIO interface, CSP(1.705X1.705) TEXAS INSTRUMENTS KOREA LTD, HONGKONG BRANCH.	
6	SW1101 SW1104 SW1105 SW1106	Connector,RF	EAG63772101	MM8030-2610RK0 NONE STRAIGHT SOCKET SMD T/REEL AU 50OHM 400mDB MURATA MANUFACTURING CO.,LTD.	
6	C1215 C1277 C4105	Capacitor,Ceramic,Chip	EAE62962301	GRM155R61A225KE95 2.2uF -10TO+10% 10V X5R -55TO+85C 1005 R/TP 0.5 L:1.0+-0.05 W:0.5+-0.05 T:0.5+-0.05 MURATA MANUFACTURING CO.,LTD.	
6	R11004 R11005	Resistor,Chip	ERHY0024601	RC0603J151CS 150OHM 5% 1/20W 0603 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	ANT1112	C-Clip	EAG63730501	TE 1.1H C-CLIP 1P ANT TERMINAL STRAIGHT SMD T/REEL AU 2.5 X 1.0X 1.1(L X W X H) SERVEONE CO., LTD.	
6	R4905 R4906 R9500	Resistor,Chip	ERHZ0000405	MCR01MZP5J103 10KOHM 5% 1/16W 1005 R/TP - ROHM.	
6	CN9100	Connector,Terminal Block	EAG63530401	KQ03L3-4R 4P 2.50MM STRAIGHT DIP T/REEL - HIROSE KOREA CO.,LTD	
6	C4401	Capacitor,Ceramic,Chip	EAE62505701	CL10A105KB8NNNC 1uF 10% 50V X5R -55TO+85C 1608 R/TP 0.9T max. - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	R6111	Resistor,Chip	ERHZ0003901	RC2012FR100CS 0.1OHM 1% 1/8W 2012 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	FB6923 FB6924	Inductor,Multilayer,Chip	ELCH0001444	0402AF-101XJEW 100NH 5% - 900mA - - 0.16OHM 1.4GHZ 8 NON SHIELD NONE 1.12X0.66X0.66MM R/TP COILCRAFT SINGAPORE PTE LTD.	
6	C7912	Capacitor,Ceramic,Chip	ECZH0001215	C1005X5R1A105KT000F 1uF 10% 10V X5R - 55TO+85C 1005 R/TP - - TDK Electronics KOREA CORPORATION	
6	ZD9100	Diode,TVS	EDTY0012102	PESD5V0V1BL 5V 5.8V min. 12.5V 4.8A 45W SOD-882 R/TP 2P 1 STC CORP.	

Level	Location no	Description	P/N	Specification	Remark
6	ANT1113	C-Clip	EAG63910001	1201-01A 1P ANT TERMINAL STRAIGHT SMD REEL AU 2.6X1.0X0.9(LXWXH) SERVEONE CO., LTD.	
6	U6100	IC,Audio Codec	EAN62648101	WCD9320 999 999W NSP R/TP 84P MSM8974 Referenced QCT CODEC QUALCOMM INCORPORATED.	
6	C1212 C1304 C1305 C1306 C1307 C1308 C1311 C1312 C1313 C1314 C1315 C1316 C1318 C1319 C1320 C1321 C1322 C1323 C4111 C4112 C4800	Capacitor,Ceramic, Chip	EAE62286801	CL03A104KP3NNNC 0.0000001F 10% 10V X5R -55TO+85C 0603 R/TP 0.3 - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	R4801 R7604 R7605 R7606	Resistor,Chip	ERHY0009526	MCR006YZPJ472 4.7KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	C8100 C8102	Capacitor,Ceramic, Chip	ECZH0004402	CL05F104ZO5NNNC 0.1uF -20TO+80% 16V Y5V -30TO+85C 1005 R/TP - - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C4115 C4117	Capacitor,Ceramic, Chip	EAE62767801	JDK212BBJ476MD 47uF -20TO20% 6.3V X5R -55TO+85C 2012 R/TP 0.85T - TAIYO YUDEN CO.,LTD	

Level	Location no	Description	P/N	Specification	Remark
6	C21006 C21020 C21039 C2335 C2348 C4114 C4141 C4702 C4801 C5203 C5209 C5214 C5216 C5218 C7604 C7610 C7614 C8800	Capacitor,Ceramic, Chip	EAE62762301	CL03A105MP3NSNC 1uF 20% 10V X5R -55TO+85C 0603 R/TP 0.33 MM - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C6201 C6926	Capacitor,Ceramic, Chip	EAE62722601	CL05A104KA5NNNC 0.1uF 10% 25V X5R -55TO+85C 1005 R/TP 0.55 max. - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	MIC6920 MIC6921 MIC6923	Microphone,Condenser	EAB62909301	SPH0611LR5H -38DB 400OHM OMNI 1.5 TO 3.6V 3.5 x 2.65 x 0.98T SMD KNOWLES ACOUSTICS	
6	C18002 C18015	Capacitor,Ceramic, Chip	EAE62685701	GRM155R71H103KA88D 10nF 10% 50V X7R -55TO+125C 1005 R/TP 0.55T max. - MURATA MANUFACTURING CO.,LTD.	
6	U8100	IC,Gyro Sensor	EAN62826901	MPU-6515 Accelerometer embedded Gyro Sensor 3.0x3.0x0.9 QFN R/TP 24P One Chip Solution INVENSENSE	
6	R21005 R21006 R21007 R21008 R21009 R4118	Resistor,Chip	ERHY0009527	MCR006YZPJ473 47KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	C18006 C18007	Capacitor,Ceramic, Chip	EAE62966901	CL10B104KB8NNNC_ 100nF -10TO+10% 50V X7R -55TO+125C 1608 R/TP 0.8 L:1.6+-0.1 W:0.8+-0.1 T:0.8+-0.1 SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C1324 C21017 C4100 C4400 C4704 C4710 C5220 C7502	Capacitor,Ceramic, Chip	EAE62502901	CL05A106MP5NUNC 10uF 20% 10V X5R -55TO+85C 1005 R/TP 0.55T max. SAMSUNG ELECTRO-MECHANICS CO., LTD.	

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6	C4706	Capacitor,Ceramic, Chip	EAE62542701	CL21A226MPCLRNC 22uF 20% 10V X5R -55TO+85C 2012 R/TP 0.95T max. - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	R8400	Resistor,Chip	EBC61856101	RC0201JR-0722RL 22OHM 5% 1/20W 0603 R/TP - YAGEO CORPORATION	
6	C7600 C7602	Capacitor,Ceramic, Chip	EAE62726601	CL03A225MQ3CRNC 2.2uF -20TO20% 6.3V X5R -55TO+85C 0603 R/TP 0.3T - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	L1100 L11000 L11001 L1109 L1133 L1142	Inductor,Multilayer, Chip	EAP61866701	LG HK0603 82NJ-T 82NH 5% - 70mA - - 3.37OHM 1GHZ 4 SHIELD 0 0.6X0.3X0.3MM R/TP TAIYO YUDEN CO.,LTD	
6	R8900	Resistor,Chip	EBC62235801	RC0603F363CS 36KOHM 1% 1/20W 0603 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	FB6100 FB6920 FB6921 FB6922	Filter,Bead	SFBH0008102	BLM15HD182SN1D 1800 ohm 1.0X0.5X0.5 25% 2.2 ohm 0.2A SMD R/TP 2P 0 MURATA MANUFACTURING CO.,LTD.	
6	U10000	IC,LDO Voltage Regulator	EAN62732201	RP115L211B-E2 under 5.25V 2.1 0W DFN R/TP 8P (1.6x1.2x0.4) stand by current : 3uA RICOH COMPANY, LTD.	
6	R1102 R21014 R2143 R2144 R5205 R6121 R6124	Resistor,Chip	ERHY0009501	MCR006YZPJ000 0OHM 5% 1/20W 0603 R/TP - ROHM.	
6	R4608 R4609 R4610 R9106	Resistor,Chip	ERHY0009543	MCR006YZPJ121 120OHM 5% 1/20W 0603 R/TP - ROHM.	
6	L4200 L4201 L4203 L4900	Inductor,Wire Wound,Chip	EAP62327801	PIFE20161B-R47MS-39 470NH 20% - 3.5A 3.5 3.5 0.036OHM - - SHIELD 2.0X1.6X1.2 MM - R/TP CYNTEC CO., LTD.	
6	U6420	IC,Comparator	EAN63149301	MAX14704 3.0~5.5V 0.8mA(MAX) COMPARATOR WLP R/TP 12P - MAXIM INTEGRATED PRODUCTS INC.	

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6	C9516 C9517 C9518 C9519 C9520	Capacitor,Ceramic, Chip	ECCH0009213	GRM0335C1E6R0D 6pF 0.5PF 25V X7R -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	R21012 R21013 R2300 R2309 R5201 R7201	Wire Pad,Short	SAFP0000401	AX3100 ATL SV_SHIPBACK,MAIN,A	
6	R2116 R2117	Resistor,Chip	ERHY0009306	MCR006YZPF1801 1.8KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	U8200	IC,Geomagnetic Sensor	EAN62986601	HSCDTD008A 3 Axis Geomagnetic Sensor,measurable range : +-24G, ADC: 12bit, sensitivity : 0.15uT 1.6X1.6X0.7 LGA P/TP 8P - ALPS ELECTRIC KOREA CO.,LTD.	
6	VA7101 VA7102	Varistor	EAF61891401	IECS0305C040 5V 0% 0.5pF 0.6x0.3 IEC61000-4-2 (ESD) level #4 SMD R/TP INNOCHIPS TECHNOLOGY	
6	ANT4700 ANT4701 CN5200 CN5202	C-Clip	EAG63651901	2108609-5 1P ANT TERMINAL STRAIGHT SMD T/REEL AU 2.9 X 1.0 X 3.0(L X W X H) SERVEONE CO., LTD.	
6	CN9200	Connector,I/O	EAG63430401	GU07L-11P-E2000 11P 0.60MM STRAIGHT RECEPTACLE DIP R/TP Normal Offset LS Mtron Ltd.	
6	R4400	Resistor,Chip	ERHY0009506	MCR006YZPJ104 100KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	FL4750	Filter,EMI/Power	EAM62790301	NFM18PC225B1A3D_ EMI - 0.0000022F 0H SMD R/TP size : 1.6x0.8x0.6 (3 terminal cap) MURATA MANUFACTURING CO.,LTD.	
6	R4102 R4700 R4701 R4702 R4703 R4704 R4707 R7610 R8401 R8801 R8802	Resistor,Chip	ERHY0009505	MCR006YZPJ103 10KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	C9105	Capacitor,Ceramic, Chip	ECCH0000161	MCH153CN333KK 33nF 10% 16V X7R -55TO+125C 1005 R/TP - - ROHM Semiconductor KOREA CORPORATION	

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6	C1137 C1140 C1141 C1164 C1172 C1192 C1194 C4402 C6117 C6118 C8802 C8803	Capacitor,Ceramic, Chip	ECCH0009104	C0603C0G1H330JT00NN 33pF 5% 50V C0G -55TO+125C 0603 R/TP - - TDK CORPORATION	
6	C1301 C21021 C21023 C4121 C4124 C4133 C4137 C4138 C4139 C4140 C7402 C7403	Capacitor,Ceramic, Chip	ECCH0017601	CL05A475MQ5NRNC 4.7uF 20% 6.3V X5R -55TO+85C 1005 R/TP 0.5MM - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	LD4500	Module,Assembly	EAT62233201	LEYRS63A81GW00 Tunable Dual Flash LED Module LG INNOTEK CO., LTD	
6	R7612	Resistor,Chip	ERHZ0000701	MCR03EZP5J000 0OHM 5% 1/10W 1608 R/TP - ROHM.	
6	D9201	Diode,TVS	EAH62172601	RCLAMP1255P 12V 13.5V min. 25V 100A 2.5KW SLP2018P6 R/TP 8P 4 SEMTECH INTERNATIONAL AG	
6	CN11002 CN11003	Terminal Block	ENZY0025801	KQ13L2-6R 6P 0.50MM STRAIGHT SMD R/TP - HIROSE KOREA CO.,LTD	
6	C5200 C5215	Capacitor,Ceramic, Chip	ECCH0033301	GRM1555C1H680F 68pF 1% 50V C0G -55TO+125C 1005 R/TP - - MURATA MANUFACTURING CO.,LTD.	
6	FB6201 FB6202	Filter,Bead	EAM62691601	MPZ1608S600AT 60 1.6x0.8x0.6 25% - 3.5 SMD R/TP 2P - TDK KOREA COOPERATION	
6	FL7400	Filter,EMI/Power	SFEY0015901	ICMEF214P101MFR ICMEF214P101MFR ICMEF214P101MFR,SMD ,ESD Common mode Filter INNOCHIPS TECHNOLOGY INNOCHIPS TECHNOLOGY	
6	R5203	Resistor,Chip	ERHZ0000236	MCR01MZP5F2001 2KOHM 1% 1/16W 1005 R/TP - ROHM.	

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6	C8801	Capacitor,Ceramic, Chip	ECCH0000155	MCH153CN103KK 10nF 10% 16V X7R -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	ANT6000	C-Clip	EAG63613001	2108612-5 1P ANT TERMINAL STRAIGHT SMD T/REEL AU 2.9X1.0X2.05(L X W X H) SERVEONE CO., LTD.	
6	ZD4500 ZD4501	Diode,TVS	EDTY0009101	ESD9X5.0ST5G 5V 6.2 12.3V 8.7A 107W SOD528 R/TP 2P 1 ON SEMICONDUCTOR	
6	R9102	Resistor,Chip	ERHY0035601	PMR10EZPFU10L0 0.01OHM 1% 1/2W 2012 R/TP - ROHM.	
6	U4200	IC,PMIC	EAN62667201	PM8841 to 5.5V adj 0W CSP R/TP 98P - QUALCOMM INCORPORATED.	
6	R2400 R2401	Resistor,Chip	ERHY0009507	MCR006YZPJ105 1MOHM 5% 1/20W 0603 R/TP - ROHM.	
6	U8900	IC,Microprocessors	EAN62661801	MAXQ616V ~3.6V 3.1mA 12MHZ WLP R/TP 16P - MAXIM INTEGRATED PRODUCTS INC.	
6	C4118	Capacitor,Ceramic, Chip	EAE62685201	C1005X5R1E104K 0.1uF 10% 25V X5R -55TO+85C 1005 R/TP 0.55T max. TDK KOREA COOPERATION	
6	D9502	Diode,TVS	EDTY0012101	PESD5V0F1BL 5.5V 6V min 11V 2.5A - SOD-882 R/TP 2P 1 STC CORP.	
6	C4110 C4120	Capacitor,Ceramic, Chip	EAE62522101	CL10A226MP8NUNE 22uF 20% 10V X5R - 55TO+85C 1608 R/TP 1.05T max. - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	FL7600	Filter,LCR	EAM62451101	ICMEF112P350MFR COMMON MODE NOISE FILTER 0HZ 0F 0H SMD R/TP Common mode Impedance at 100MHz : 35ohm+-30%, DC Resistance Max :3.0ohm INNOCHIPS TECHNOLOGY	
6	R9104	Resistor,Chip	ERHZ0000331	RC1005F114CS 110KOHM 1% 1/16W 1005 R/TP - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C7613	Capacitor,Ceramic, Chip	ECCH0009514	MCH032A(AN)100DK 10pF 0.5PF 25V X7R - 55TO+125C 0603 R/TP - ROHM.	
6	C6927	Capacitor,Ceramic, Chip	EAE63004901	GRM219R61C226ME15 22uF -20TO20% 16V X5R - 55TO+85C 2012 R/TP Max 1T L:2.0+-0.2 W:1.25+-0.2 T:0.85+-0.15 MURATA MANUFACTURING CO.,LTD.	
6	U8500	IC,Acceleration Sensor	EAN62972701	HSPPAD038A Pressure sensor,300~1100hPa, relative accuracy 0.15hPa,absolute accuracy 2hPa 2.5x2.5.0.8 QFN R/TP 6P - ALPS ELECTRIC KOREA CO.,LTD.	

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6	C5212 C9200	Capacitor,Ceramic, Chip	ECCH0000115	MCH155A220JK 22pF 5% 50V NP0 -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C5206 C5210	Capacitor,Ceramic, Chip	ECZH0001116	C1005X7R1H271KT000F 270pF 10% 50V X7R -55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	FL7902	Filter,EMI/Power	EAM62570201	ICMEF062P900MFR COMMON MODE NOISE FILTER - 0.0000000000017F 0H SMD R/TP - INNOCHIPS TECHNOLOGY	
6	U4750 U4751	IC,Over Voltage Protection	EAN62773901	MAX14670EWL+T up to 28V adj 0W CSP R/TP 15P - MAXIM INTEGRATED PRODUCTS INC.	
6	C6106	Capacitor,Ceramic, Chip	ECCH0006201	C1608X5R0J475KT000N 4.7uF 10% 6.3V X5R -55TO+85C 1608 R/TP - TDK CORPORATION	
6	CN7100	Connector,BtoB	EAG63291501	BM10NB(0.8)-44DS-0.4V 44P 0.40MM STRAIGHT FEMALE SMD R/TP 800mM - HIROSE KOREA CO.,LTD	
6	CN7400	Connector,BtoB	EAG63789801	BM15FR0.8-20DS-0.35V 20P 0.35MM STRAIGHT FEMALE SMD T/REEL 800mM - HIROSE KOREA CO.,LTD	
6	D9100	Diode,TVS	EDTY0010002	PESD5V0S1UL 5V 6.4V min. 20V 15A 150W SOD-882 R/TP 2P 1 STC CORP.	
6	CN7200	Connector,BtoB	ENBY0051001	GB042-10S-H10-E3000 10P 0.4MM STRAIGHT FEMALE SMD R/TP 1M - LS Mtron Ltd.	
6	VA9500	Capacitor(High Frequency),Ceramic,Chip	EAE62963401	GRM1555C1H6R0D_H 6pF 0.5PF 50V C0G -55TO+125C 1005 R/TP 0.5+/-0.05 L:1.0+-0.05 W:0.5+-0.05 T:0.5+-0.05 MURATA MANUFACTURING CO.,LTD.	
6	L4204 L4205 L4206 L4207	Inductor,Multilayer, Chip	EAP62545901	MIPSZ2016DR24FHS 240NH 20% - 4A 4 4 0.022OHM 0HZ - SHIELD - 2.0X1.6X1.0 MM R/TP FDK CORPORATION.	
6	C18005 C18008	Capacitor,Ceramic, Chip	EAE63069301	C1005X7R1H333K050BB 33nF -10TO+10% 50V X7R -55TO+125C 1005 R/TP Max 0.55T L:1.0+-0.05 W:0.5+-0.05 T:0.5+-0.05 TDK KOREA COOPERATION	
6	R4111 R4112	Resistor,Chip	ERHZ0000270	MCR01MZP5F33R0 33OHM 1% 1/16W 1005 R/TP - ROHM.	
6	D6700 D6701	Varistor	SEVY0008901	ICVS0318150FR 18V 0% 15pF 0.6*0.3*0.33 NONE SMD R/TP INNOCHIPS TECHNOLOGY	
6	U6200	IC,Speaker Amplifier	EAN63029101	CS35L32 999 999W WLCSP R/TP 30P - CIRRUS LOGIC, INC.,	

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6	C18004 C18013	Capacitor,Ceramic, Chip	EAE62685601	GRM155R71H223KA12D 22nF 10% 50V X7R -55TO+125C 1005 R/TP 0.55T max. MURATA MANUFACTURING CO.,LTD.	
6	R9105	Resistor,Chip	ERHY0009538	MCR006YZPF1802 18KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	C6116	Capacitor,Ceramic, Chip	ECCH0004904	GRM155R60J105K 1uF 10% 6.3V X5R -55TO+85C 1005 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	U1106	IC,RF Amplifier	EAN62952101	D5105 1.5~3.1 4 0 10W 30W 0 2 SMD R/TP 9P - EPCOS PTE LTD.	
6	R5202	Resistor,Chip	ERHY0009302	MCR006YZPF1001 1KOHM 1% 1/20W 0603 R/TP - ROHM.	
6	C6111 C8200 C8201 C9401	Capacitor,Ceramic, Chip	ECCH0002001	C1005JB0J104KT000F 0.1uF 10% 6.3V X5R -55TO+85C 1005 R/TP - - TDK CORPORATION	
6	U7900	IC,LDO Voltage Regulator	EAN62768901	RP114K181D-TRB 1.4 to 5.25 1.8 0W DFN R/TP 4P - RICOH COMPANY, LTD.	
6	R11006	Resistor,Chip	ERHY0009301	MCR006YZPF1000 100OHM 1% 1/20W 0603 R/TP - ROHM.	
6	CN7900	Connector,BtoB	ENBY0040701	GB042-30S-H10-E3000 30P 0.4MM STRAIGHT FEMALE SMD R/TP 1M - LS Mtron Ltd.	
6	L4100 L4103 L4104 L4700	Inductor,Wire Wound,Chip	EAP62526601	TFM201610GHM-2R2MTAA 2.2UH 20% - 1.9A 2.4 1.9 0.152OHM - - SHIELD 2.0X1.6X1.0MM - R/TP TDK KOREA COOPERATION	
6	R4753	Resistor,Chip	ERHY0009511	MCR006YZPJ152 1.5KOHM 5% 1/20W 0603 R/TP - ROHM.	
6	C4107	Capacitor,Ceramic, Chip	ECCH0007804	CL05A225MP5NSNC 2.2uF 20% 10V X5R -55TO+85C 1005 R/TP 0.5MM - SAMSUNG ELECTRO-MECHANICS CO., LTD.	
6	C5201	Capacitor,Ceramic, Chip	ECCH0000143	MCH155CN102KK 1nF 10% 50V X7R -55TO+125C 1005 R/TP - ROHM Semiconductor KOREA CORPORATION	
6	C1133 C1147 C1156 C1176 C1178 C1221	Capacitor,Ceramic, Chip	ECZH0025917	GRM0335C1E470J 47pF 5% 25V NP0 -55TO+125C 0603 R/TP - MURATA MANUFACTURING CO.,LTD.	
6	L6201	Inductor,Wire Wound,Chip	EAP62526501	TFM201610GHM-1R0MTAA 1UH 20% - 3A 3.6 3 0.06OHM - - SHIELD 2.0X1.6X1.0 MM - R/TP TDK KOREA COOPERATION	

Level	Location no	Description	P/N	Specification	Remark
6	D7400	Diode,TVS	EAH61892901	RCLAMP7522T 5V 6.5V min / 9V typ / 11V max 15V 4A 500mW SLP1007N5T R/TP 5P 3 SEMTECH INTERNATIONAL AG	
6	L5200 L5201	Inductor,Multilayer, Chip	EAP62167601	MLG1608SR39JT 390NH 5% - 1mA - - 3OHM 300MHZ 10 SHIELD 0 1.6X0.8X0.8MM R/TP TDK KOREA COOPERATION	
6	C18009	Capacitor,Ceramic, Chip	ECCH0000146	MCH155C182K 1.8nF 10% 50V X7R -55TO+125C 1005 R/TP - - ROHM Semiconductor KOREA CORPORATION	
6	C1161 C1188	Capacitor,Ceramic, Chip	ECZH0000813	C1005C0G1H101JT 100pF 5% 50V C0G - 55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
6	U18000	IC,Charger	EAN63086101	P9025A-2A adj adj 0W CSP R/TP 36P - IDT INC.	
6	R6117	Resistor,Chip	EBC62975901	TNPW040244K2BEED 44.2KOHM 0.1% 1/16W 1005 R/TP - VISHAY INTERTECHNOLOGY ASIA PTE LTD	
6	U9500	IC,Level Translator	EAN62986901	MAX14695 VL(1.60~2.75V) VCC(1.60~3.6V) IQVCC(15uA) IQVL(10uA) LEVEL SHIFTER WLP R/TP 16P - MAXIM INTEGRATED PRODUCTS INC.	
6	FB6101	Filter,Bead	EAM62633801	MPZ1608S601AT000 600 1.6X0.8X0.8 25% 0.15 1 SMD R/TP 2P - TDK KOREA COOPERATION	
4	EBR071500	PCB Assembly,Main,Insert	EBR79522701	LGUS990.AUCLTN 1.0 Main	
5	RAA050100	Resin,PC	BRAH0001304	: EFC-3A03-20-MH(Sn99%/Ag0.3%/Cu0.7%)) . . NONE	
5	EAD00	Cable,Assembly	EAD63050001	WFL2-2LP-04N1-A76BALG UFL-LP-066 UFL-LP-066 0.06M 2 WHITE N N HIROSE KOREA CO.,LTD	
5	RAA050101	Resin,PC	BRAH0001305	HIFILL 3075B . . NONE	
4	EAU00	Motor,DC	EAU62004401	WHVM-1030QSS 2V 40mA 0A 12KRPM 12KRPM 60mSEC 0GF.CM 29OHM WOOSUNG G&T CO.,LTD	
4	EBP00	Camera Module	EBP61801702	CUDA-Y472B CUDA-Y472B 13M OIS, SONY IMX135 30FPS, FPC 90deg,10x15.5x5.7t, SEKONIX Lens LG INNOTEK CO., LTD	
4	EBP01	Camera Module	EBP62061901	C2FA-Y493A C2FA-Y493A Front IMX208 2.1M 0degree 4P CSP LG INNOTEK CO., LTD	
4	EAG00	Jack,Phone	EAG63849801	04-9809-005-001-868+ 5P 4P ANGLE TR 3.5M BLACK 5P Side Contact KYOCERA CONNECTOR KOREA SALES CO.,LTD.	

Level	Location no	Description	P/N	Specification	Remark
4	EAB00	Receiver	EAB63268701	EMR1206SHP1 50mW 32OHM 107DB 100HZTO7KHZ PIN - EM-TECH	
4	EBR01	PCB Assembly,Sub	EBR79009102	LGUS990.AUCLTN 1.0 Sub	
5	EBR072800	PCB Assembly, Sub,SMT	EBR78993702	LGUS990.AUCLTN 1.0 Sub	
6	EBR072600	PCB Assembly, Sub,SMT Bottom	EBR78993802	LGUS990.AUCLTN 1.0 Sub	
7	C103	Capacitor(High Frequency),Ceramic,Chip	EAE62963501	GRM1555C1H8R0D_H 8pF 0.5PF 50V C0G - 55TO+125C 1005 R/TP 0.5+/-0.05 L:1.0+-0.05 W:0.5+-0.05 T:0.5+-0.05 MURATA MANUFACTURING CO.,LTD.	
7	C1161 C1188	Capacitor,Ceramic, Chip	ECZH0000813	C1005C0G1H101JT 100pF 5% 50V C0G - 55TO+125C 1005 R/TP - TDK KOREA COOPERATION	
7	ANT1112	C-Clip	EAG63730501	TE 1.1H C-CLIP 1P ANT TERMINAL STRAIGHT SMD T/REEL AU 2.5 X 1.0X 1.1(L X W X H) SERVEONE CO., LTD.	
6	EBR072700	PCB Assembly, Sub,SMT Top	EBR78993902	LGUS990.AUCLTN 1.0 Sub	
7	EAX010300	PCB,RF	EAX66104001	LGUS990.AUCLTN 1.0 FR-4 Multi 2 0.5 RF	
5	EAT130000	Module,Hybrid Touch LCD	EAT62173801	LH550QH1-SD03 CAPACITIVE TOUCH G1F Synaptics S3528A1 120hz OCR 0.15mm 5.5inch QHD(2560X1440) BtoB - LG Display Co. Ltd.	
5	EBR02	PCB Assembly,Flexible	EBR78781801	LGF400L.ALGTWH 1.0 Flexible	
6	EBR070400	PCB Assembly, Flexible,SMT	EBR78781901	LGF400L.ALGTWH 1.0 Flexible	
7	EBR070300	PCB Assembly, Flexible,SMT Top	EBR78782001	LGF400L.ALGTWH 1.0 Flexible	
8	EAX010700	PCB,Flexible	EAX65783301	LGF400L.ALGTWH 1.0 POLYI Multi 2 0.2 Flexible	
7	EBR070200	PCB Assembly,Flexible, SMT Bottom	EBR78743101	LGF400L.ALGTWH 1.0 Flexible	
8	C7600 C7602	Capacitor,Ceramic, Chip	EAE62726601	CL03A225MQ3CRNC 2.2uF -20TO20% 6.3V X5R - 55TO+85C 0603 R/TP 0.3T - SAMSUNG ELECTRO-MECHANICS CO., LTD.	

Level	Location no	Description	P/N	Specification	Remark
8	D5001 D5002 D5003 D5004 D5005	Diode,TVS	EAH61995401	RClamp0521Z.TNT 5V 6V min. 25V 4A 100W SLP0603P2X3 R/TP 2P 1 SEMTECH INTERNATIONAL AG	
8	U5000	IC,Proximity	EAN63405901	VL6180 TOF sensor, Proximity,Ambient light, measurable range : 0~10cm,0.3~100kLux 4.8x2.8x1.0mm LGA R/TP 12P - ST MICROELECTRONICS ASIA PACIFIC PTE LTD.	
8	C1336 C21003 C21004 C21005 C21026 C21040 C2110 C2111 C2360 C2373 C4144 C5205 C5217 C7601 C7603 C7605 C7607 C7609 C8700 C8701	Capacitor,Ceramic, Chip	ECCH0009101	C0603X5R0J104KT00NN 0.1uF 10% 6.3V X5R -55TO+85C 0603 R/TP - TDK CORPORATION	
6	EBR070100	PCB Assembly, Flexible,Insert	EBR79063401	LGF400L.ALGTWH 1.0 Flexible	
5	EAA030102	PIFA Antenna,WiFi	EAA63624501	1SUBL028B SINGLE -3DB 4 FPCB Type - BT Tape IMTECH	
5	EAA030100	PIFA Antenna,Multiple	EAA63424902	1SUBL021B MULTI -5DB 5:1 FPCB Type - MRD Tape IMTECH	
5	EAA030101	PIFA Antenna,GPS	EAA63405802	1SUBL022B MULTI -5DB 5:1 FPCB Type - GPS Tape IMTECH	
3	EAB01	Speaker Module	EAB63348201	EME1511DJ02 Nd-Fe-B 700mW 8OHM 88DB 950HZ 67.16x36.96x5.2 FPCB EM-TECH	
2	EAD010000	Cable,Assembly	EAD62588801	DLC-LGE51DCMUA USB USB 1.2M 5 BLACK UL N CRESYN(H.K.)CO.,LTD.	
3	EAA030101	PIFA Antenna,RF	EAA63445301	BNF14A001 SINGLE -5DB 5 FPCB Type - NFC Tape AT&C CO.,LTD	
1	SAF010100	Software Assembly, Common	SAF30660402	LGAS990.ABPTTN KK -	

Level	Location no	Description	P/N	Specification	Remark
2	SAD010100	Software, Application	SAD34836803	Android KK - PCSuiteV - - NORTH AMERICA - -	
2	SAD010600	Software,OSP	SAD34683109	Windows Android KK - -	
2	SAD010500	Software,USB Driver	SAD34683209	Windows -	

12.3 Accessory

Note: This Chapterisused for reference,Part order is ordered by SBOM standard onGCSC

Level	Location no	Description	P/N	Specification	Remark
2	EAC00	Rechargeable Battery,Lithium Ion	EAC62378701	BL-53YH-LGC 3.8V 2.94AH 580mAH 5.2 x 51 x 71 5.5 x 51 x 74.5 BLACK Bar - LG Chem,LTD.	
2	AFN053800	Manual Assembly, Operation	AFN76852901	LGAS990.ABPTTN ZZ:Without Color -	
3	MBM087200	Card,Warranty	MBM64795904	PRINTING LGAS990.ABPTTN ZZ:Without Color PSWI	
3	MBM062600	Card,Quick Reference	MBM64816401	PRINTING LGAS990.ABPTTN ZZ:Without Color EN	
3	MBM062601	Card,Quick Reference	MBM64816402	PRINTING LGAS990.ABPTTN ZZ:Without Color ES	
2	MFL053800	Manual,Operation	MFL68705001	PRINTING LGAS990.ABPTTN ZZ:Without Color United States ENGLISH+ SPANISH -	
2	EAY060000	Adapters	EAY63148601	MCS-04WD2 90Vac ~ 264Vac 5V 1.8A 50/60Hz UL, CSA NONE DC PIN PLUG - DONG DO ELECTRONICS CO., LTD	