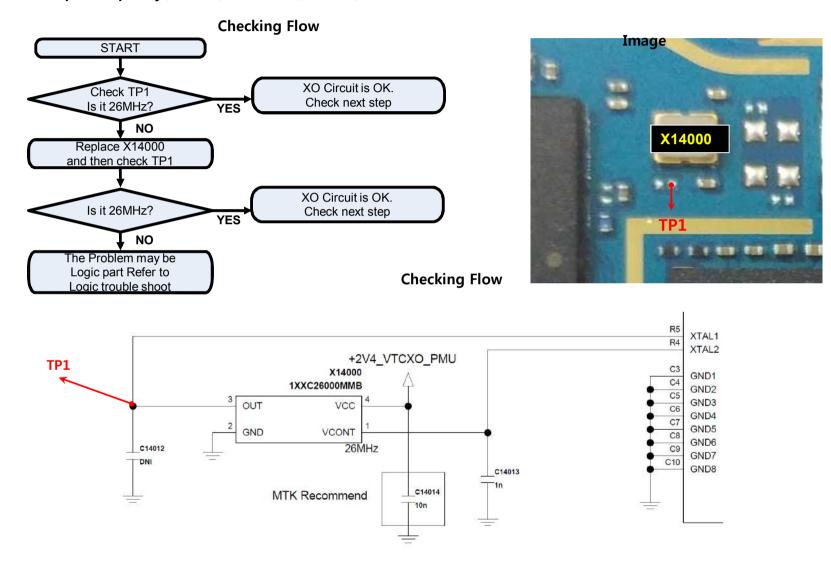
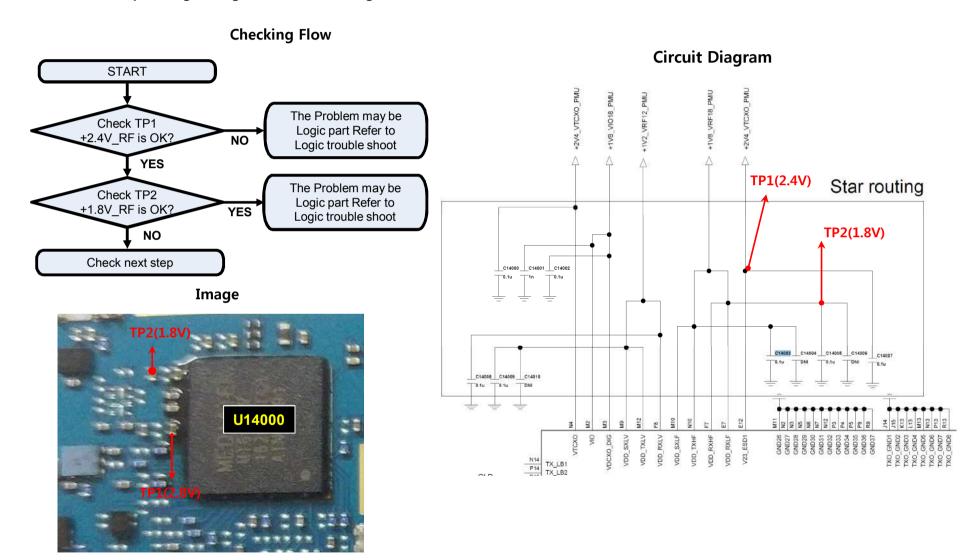
3.1 Checking XO Block

The out put frequency(26MHz) of VTCXO(X14000) is used as the reference one of MT6169



3.2 Checking Transceiver DC Power Supply Circuit Block

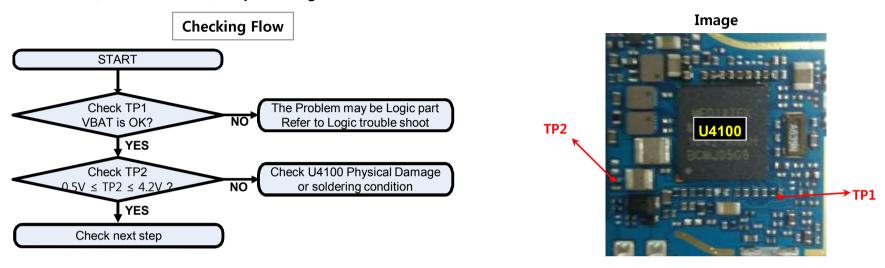
The MT6169 operating voltages used two voltage sources 1.8V and 2.4V

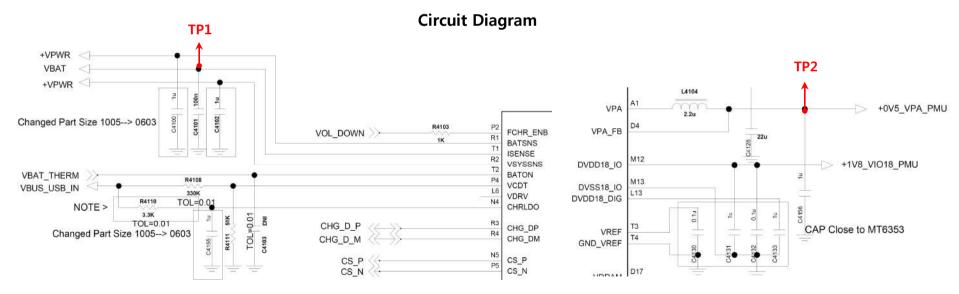


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3.3 Checking DC-DC Block

The DC-DC(MT6328, U4100) output voltages is used as the reference one of SKY77643-31

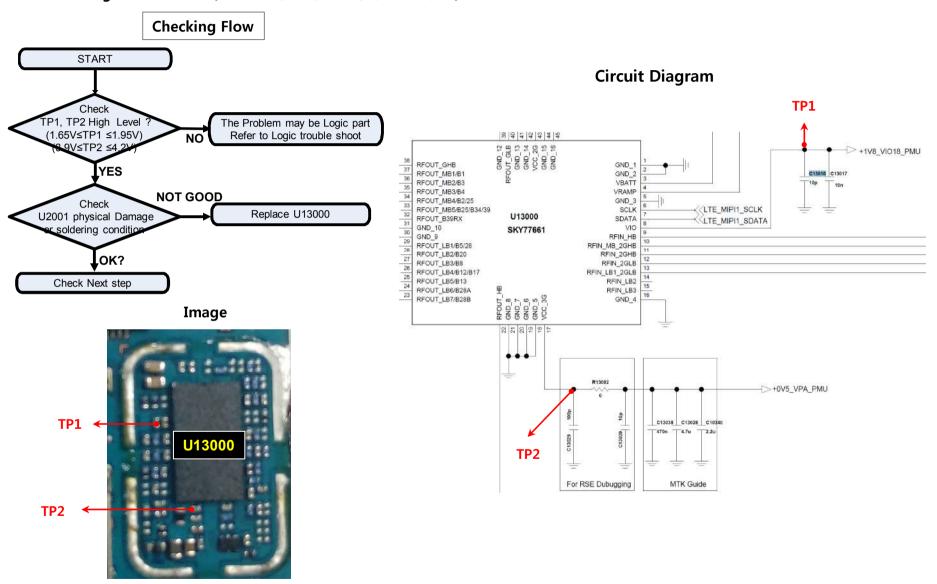




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3.4 ASM(Antenna Switch Module) Block

3.4.1 Checking ANT #1 ASM (GSM 850/900, W B5/8, LTE B7/28)



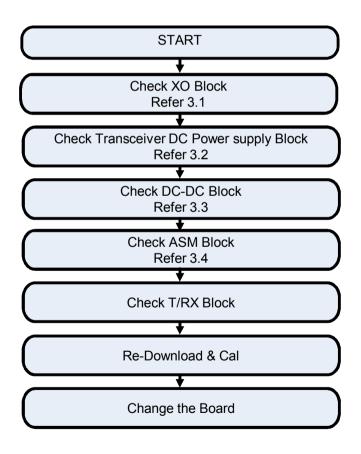
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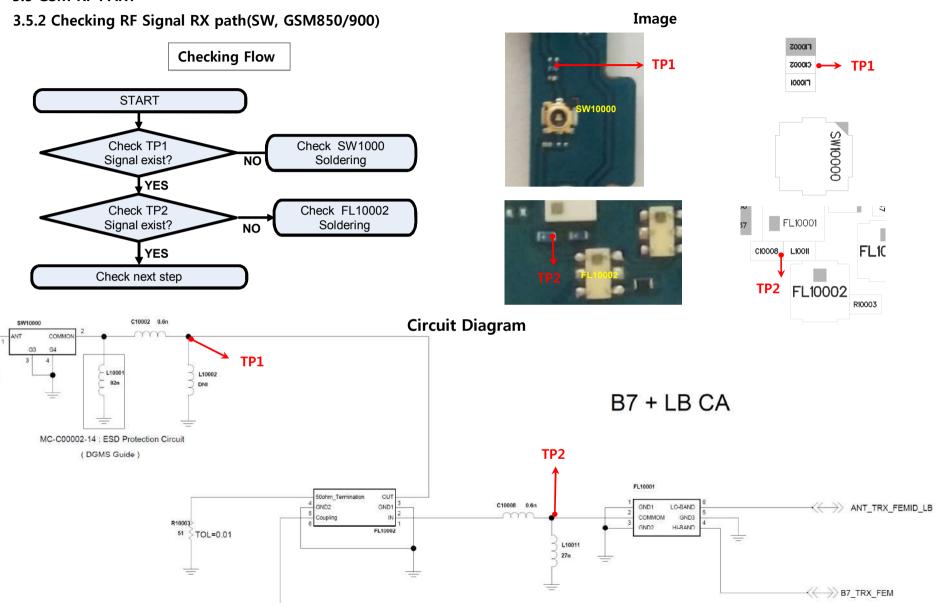
3.5 GSM RF PART

GSM RF Part support GSM850/900/1800/1900 with ASM, PAM, Transceiver component

Checking Flow



3.5 GSM RF PART

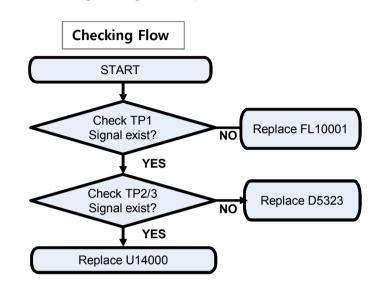


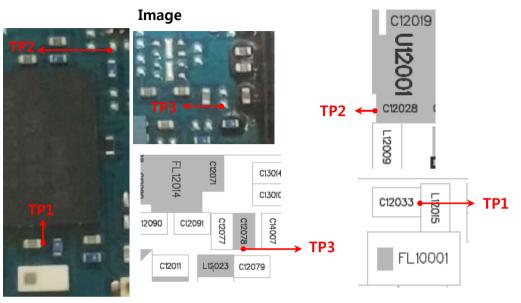
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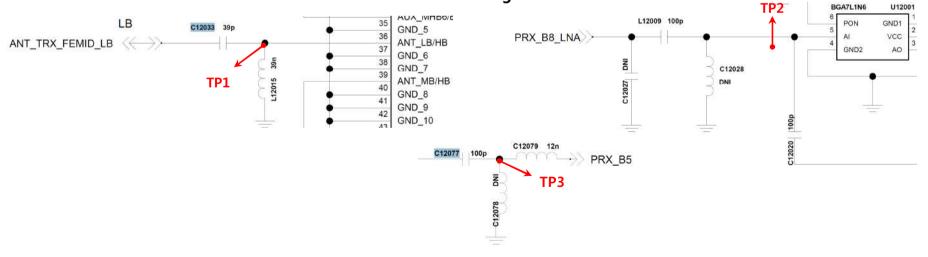
3.5 GSM RF PART

3.5.3 Checking RF Signal RX path(GSM850/900)



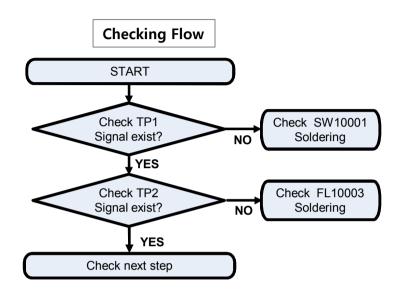


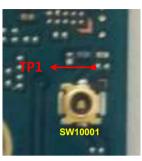
Circuit Diagram



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3.5 GSM RF PART 3.5.4 Checking RF Signal RX path(GSM1800/1900)





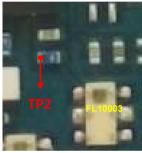
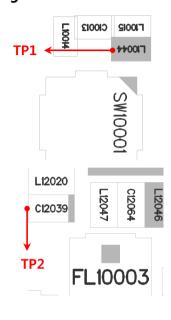
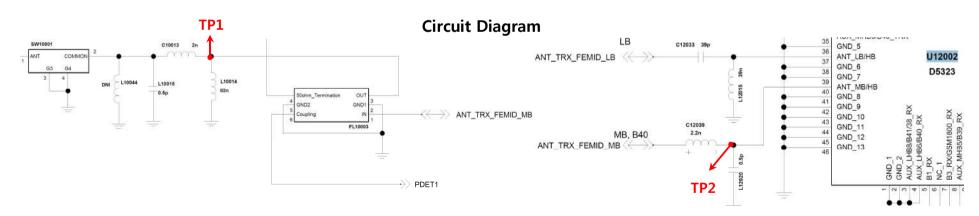


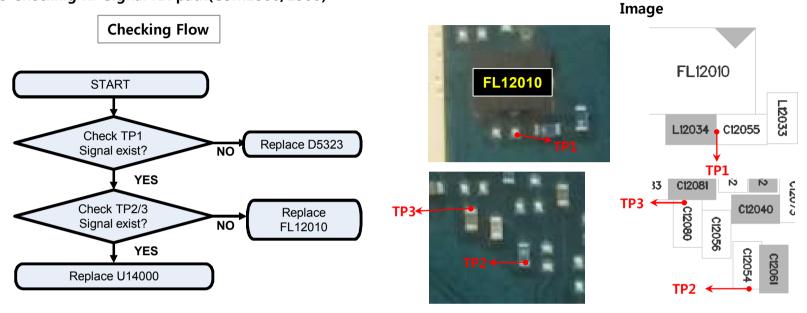
Image TP





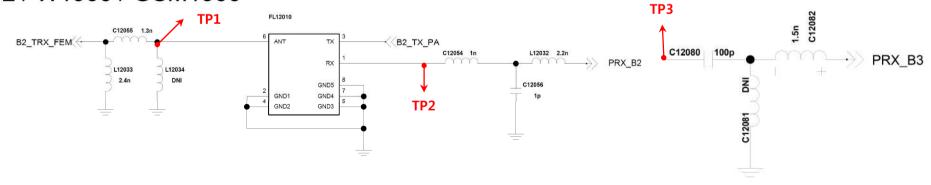
3.5 GSM RF PART

3.5.5 Checking RF Signal RX path(GSM1800/1900)

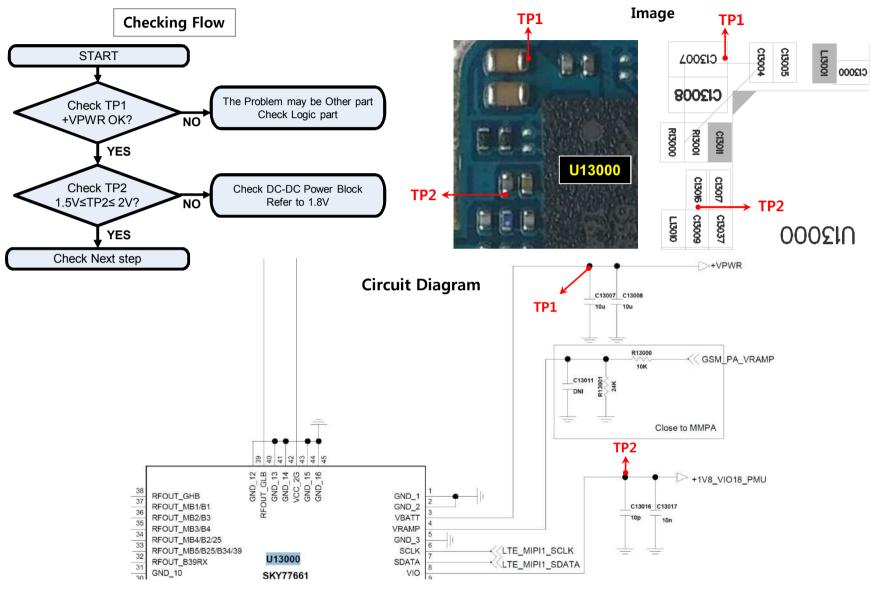


Circuit Diagram

B2 / W1900 / GSM1900



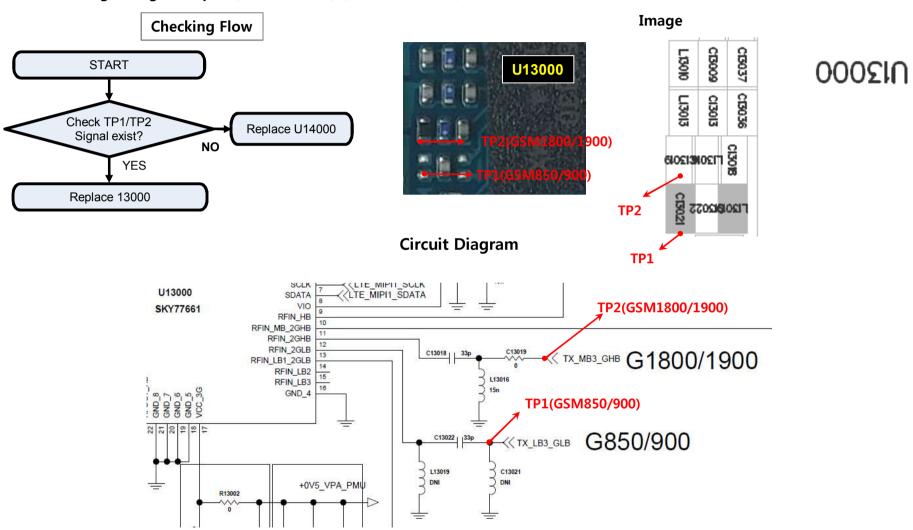
3.5 GSM RF PART 3.5.7 Checking GSM PAM DC Power Circuit



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3.5 GSM RF PART

3.5.8 Checking RF Signal TXpath(GSM850/900)/(GSM1800/1900)

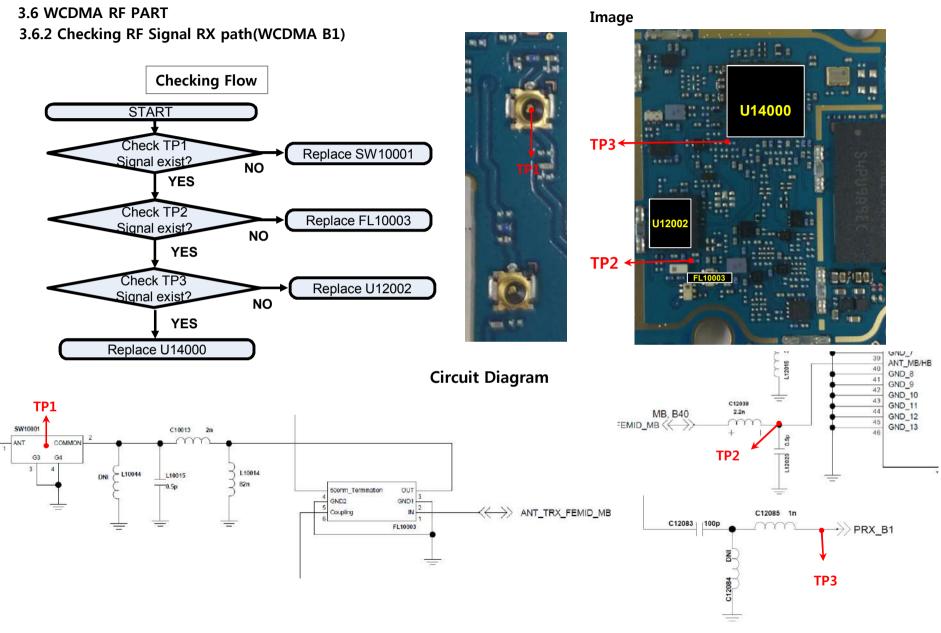


3.6 WCDMA RF PART

WCDMA RF Part support WCDMA B1/2/5/8 with ASM, PAM, Transceiver component

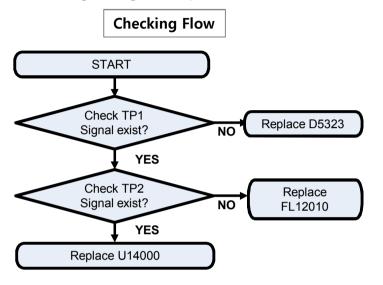
START Check XO Block Refer 3.1 Check Transceiver DC Power supply Block Refer 3.2 Check DC-DC Block Refer 3.3 Check ASM Block Refer 3.4 Check T/RX Block Re-Download & Cal Change the Board

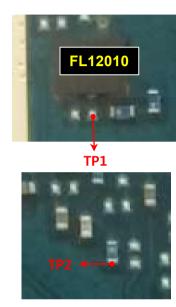
Checking Flow

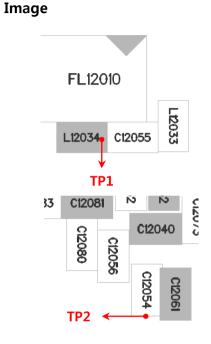


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3.6 WCDMA RF PART 3.6.2 Checking RF Signal RX path(WCDMA B2)

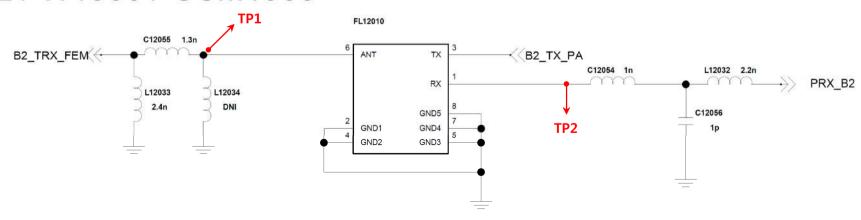






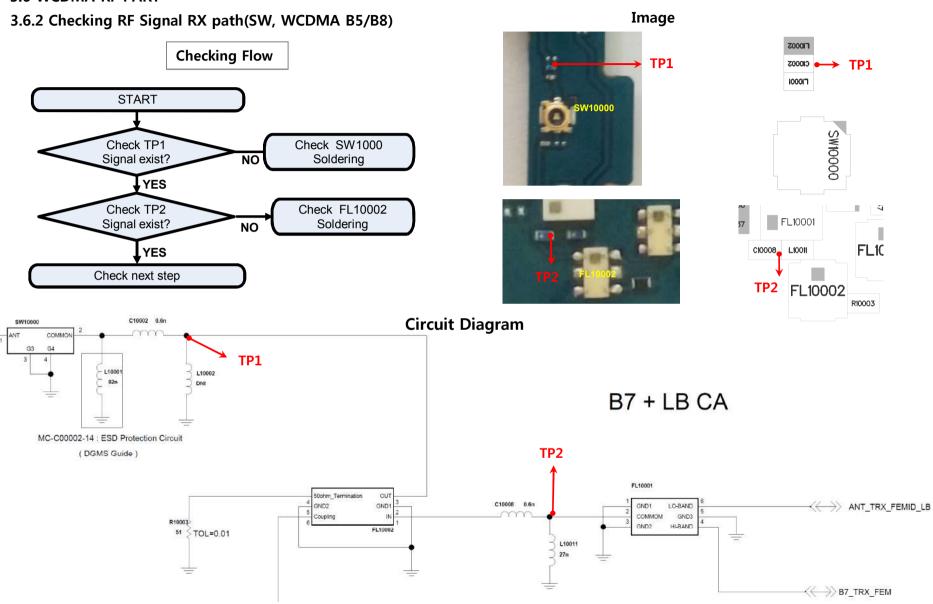
B2 / W1900 / GSM1900

Circuit Diagram



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3.6 WCDMA RF PART

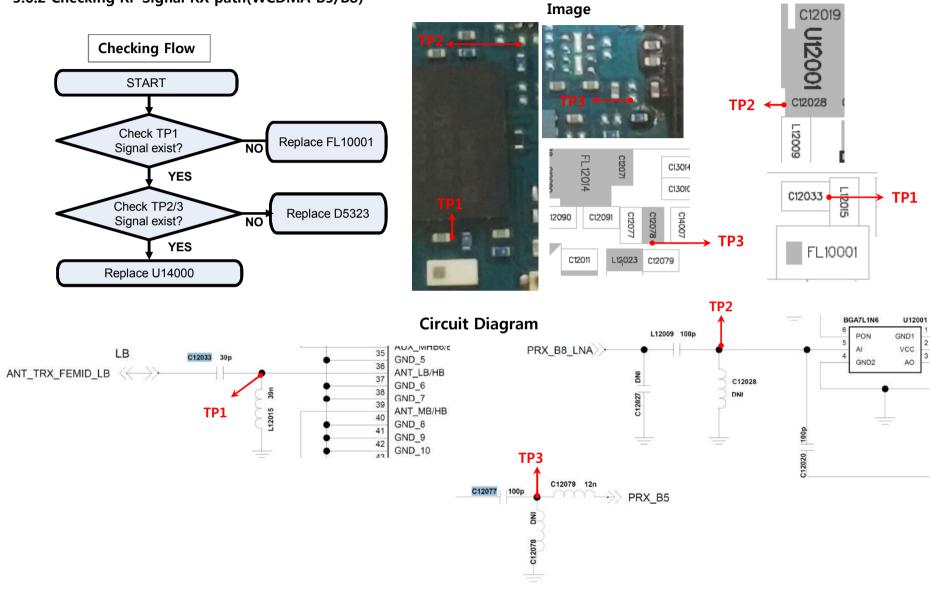


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3.6 WCDMA RF PART

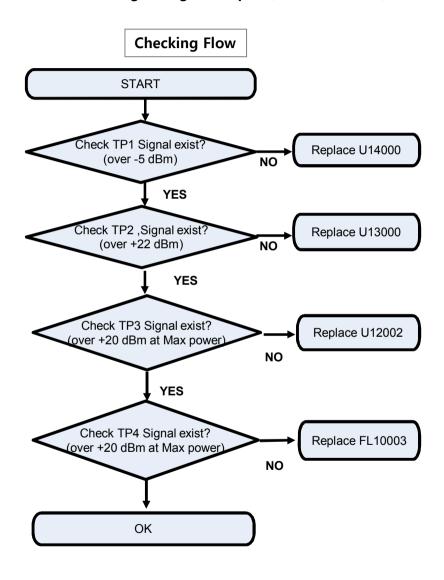
3.6.2 Checking RF Signal RX path(WCDMA B5/B8)



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3.6 WCDMA RF PART

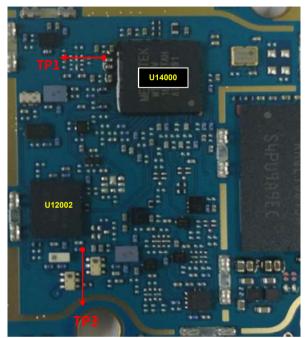
3.6.5 Checking RF Signal TX path(WCDMA B1/B2)

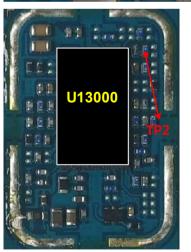


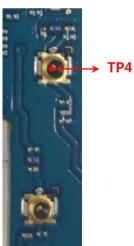
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3. TROUBLE SHOOTING

Image







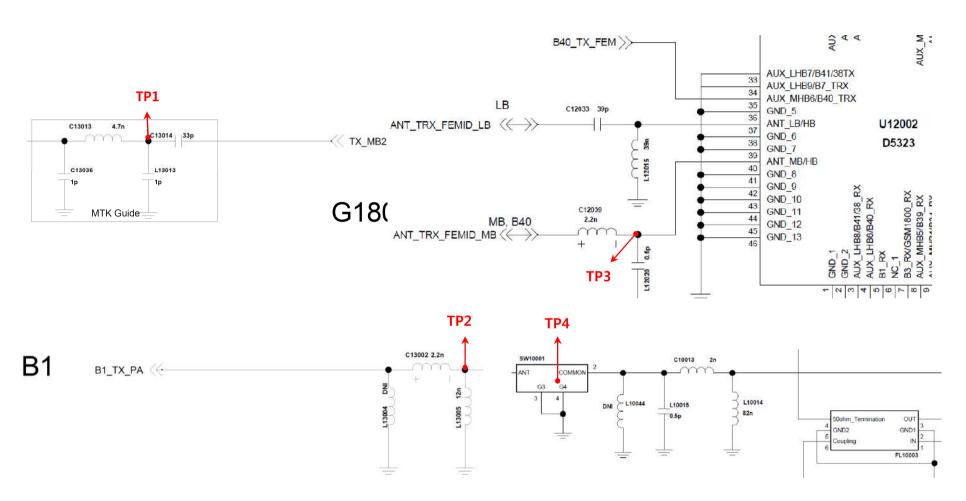
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3.6 WCDMA RF PART

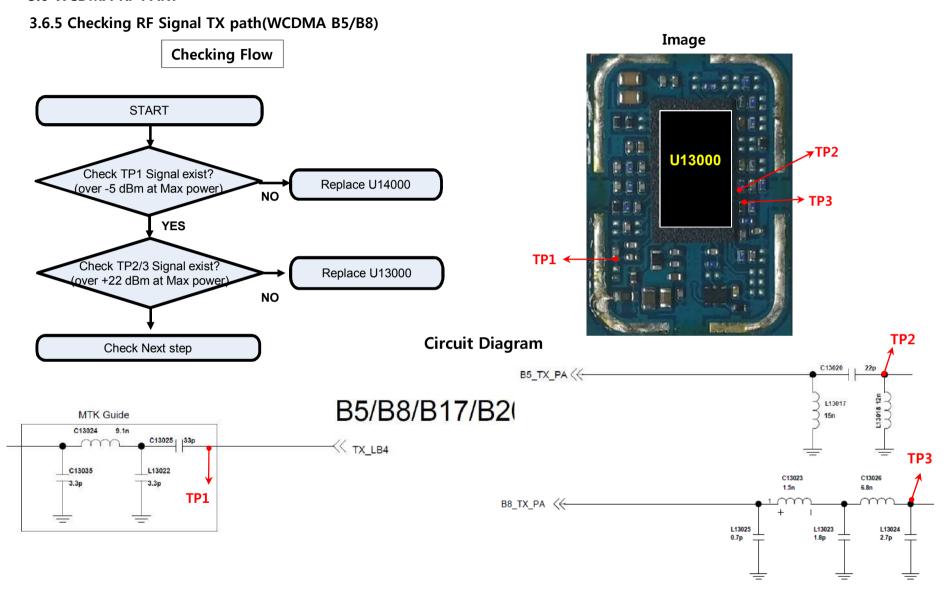
3. TROUBLE SHOOTING

3.6.5 Checking RF Signal TX path(WCDMA B1/B2)

Circuit Diagram



3.6 WCDMA RF PART

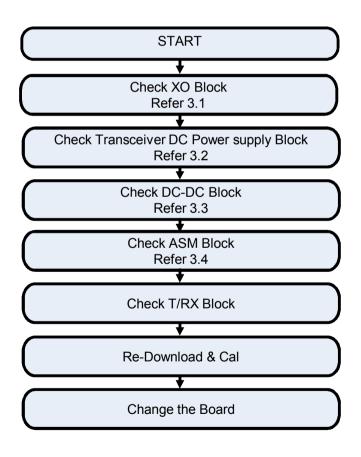


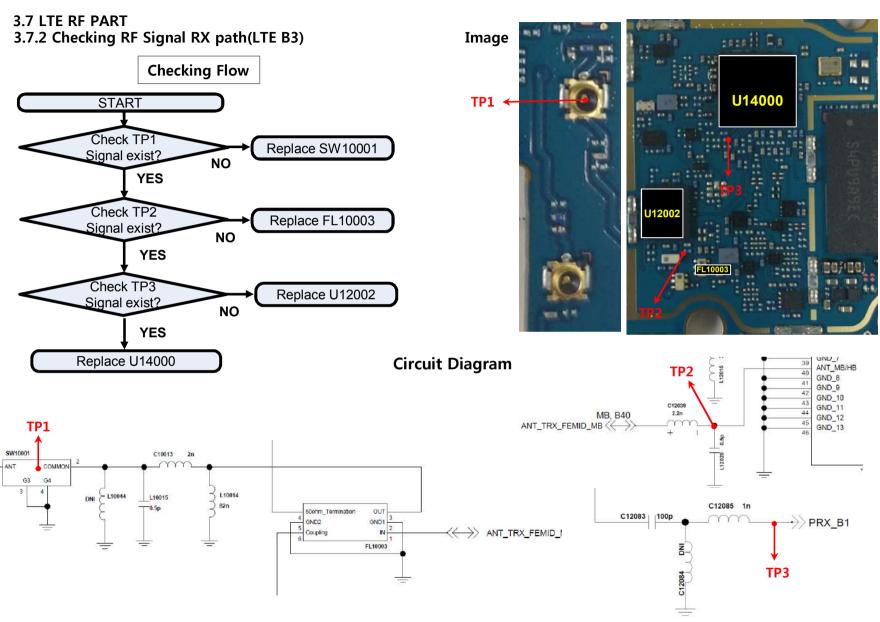
LGE Internal Use Only

3.7 LTE RF PART

LTE RF Part support LTE B1/3/7/8/20 with ASM, PAM, Transceiver component

Checking Flow



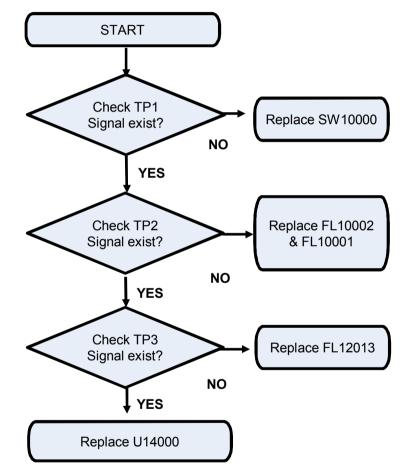


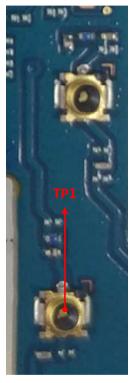
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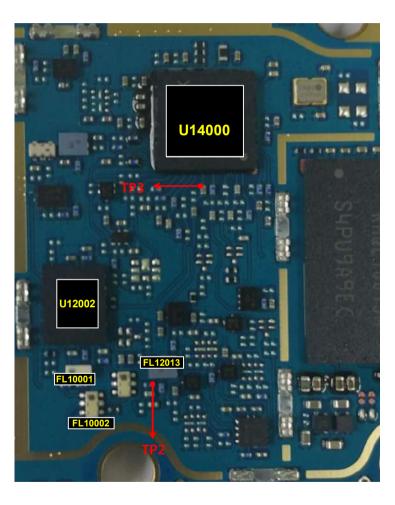
3.7 LTE RF PART 3.7.2 Checking RF Signal RX path(LTE B7)

Checking Flow



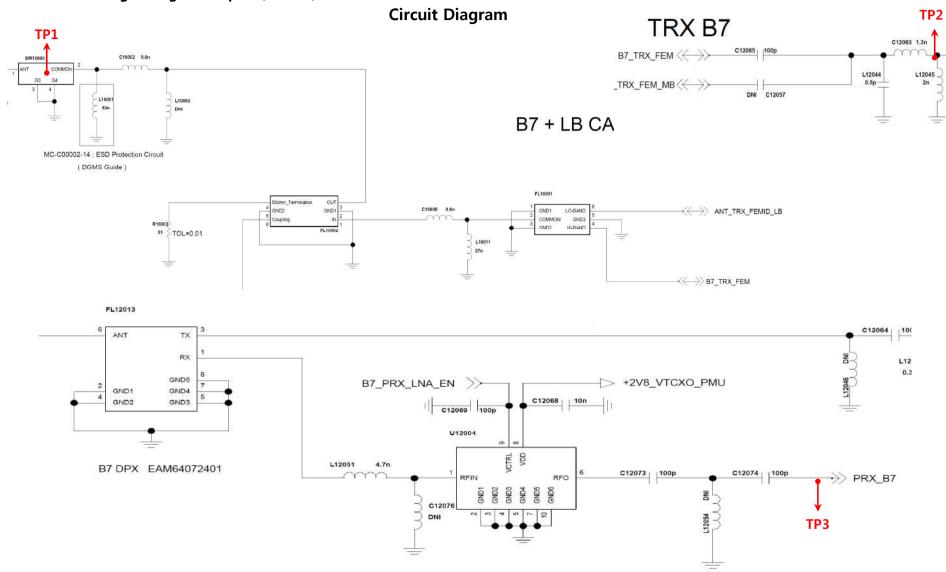


Image



3.7 LTE RF PART

3.7.2 Checking RF Signal RX path(LTE B7)



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3.7 LTE RF PART 3.7.2 Checking RF Signal RX path(LTE B28A)

START

Check TP1

Signal exist?

Check TP2 Signal exist?

Check TP3

Signal exist?

Check TP4

Signal exist?

Replace U14000

YES

YES

YES

YES

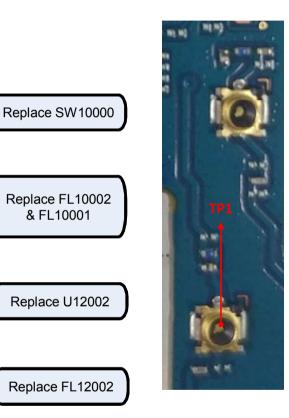
Checking Flow

NO

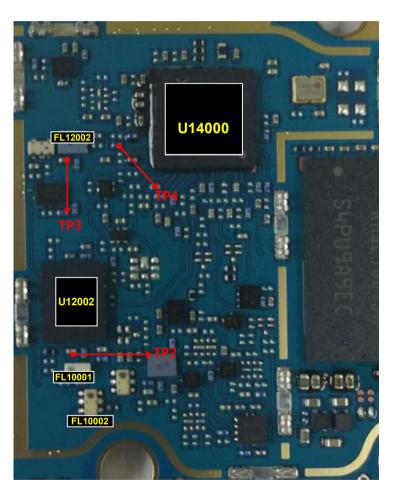
NO

NO

NO



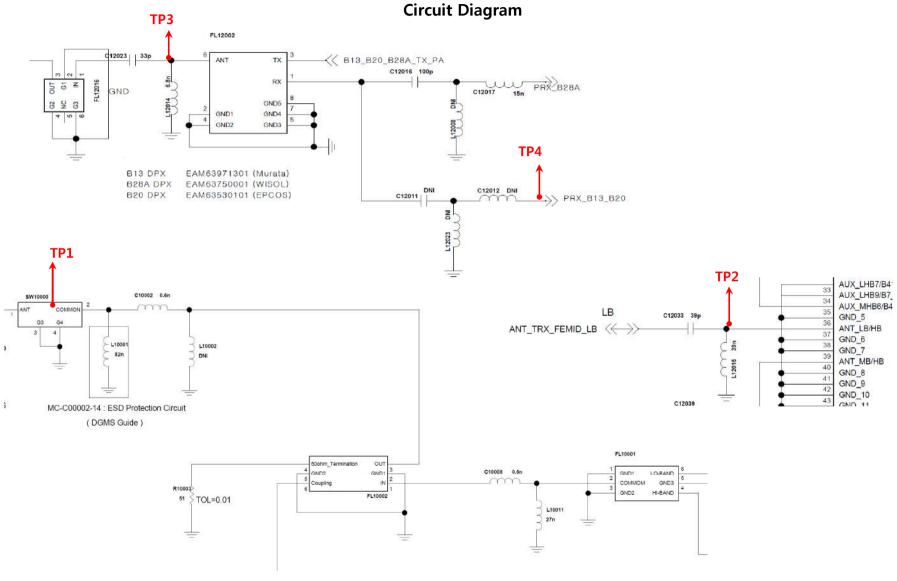
Image



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3.7 LTE RF PART

3.7.2 Checking RF Signal RX path(LTE B28A)



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3.7 LTE RF PART 3.7.2 Checking RF Signal RX path(LTE B28B)

START

Check TP1

Signal exist?

Check TP2 Signal exist?

Check TP3

Signal exist?

Check TP4

Signal exist?

Replace U14000

YES

YES

YES

YES

Checking Flow

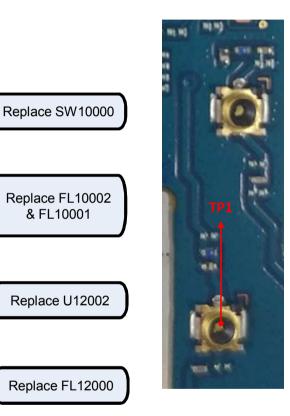
NO

NO

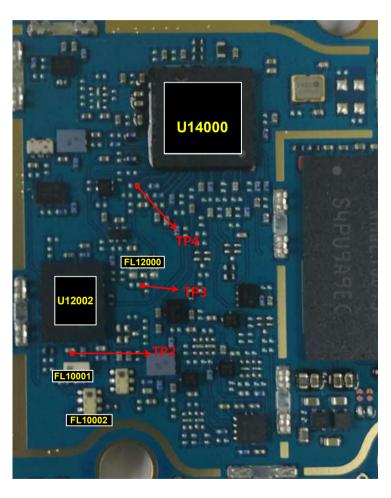
NO

NO

. & FL10001

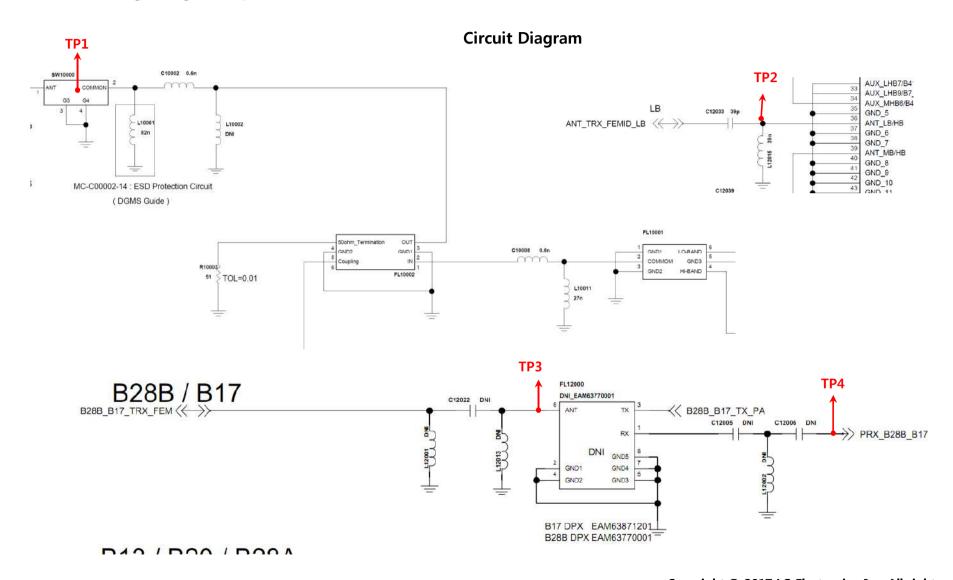


Image

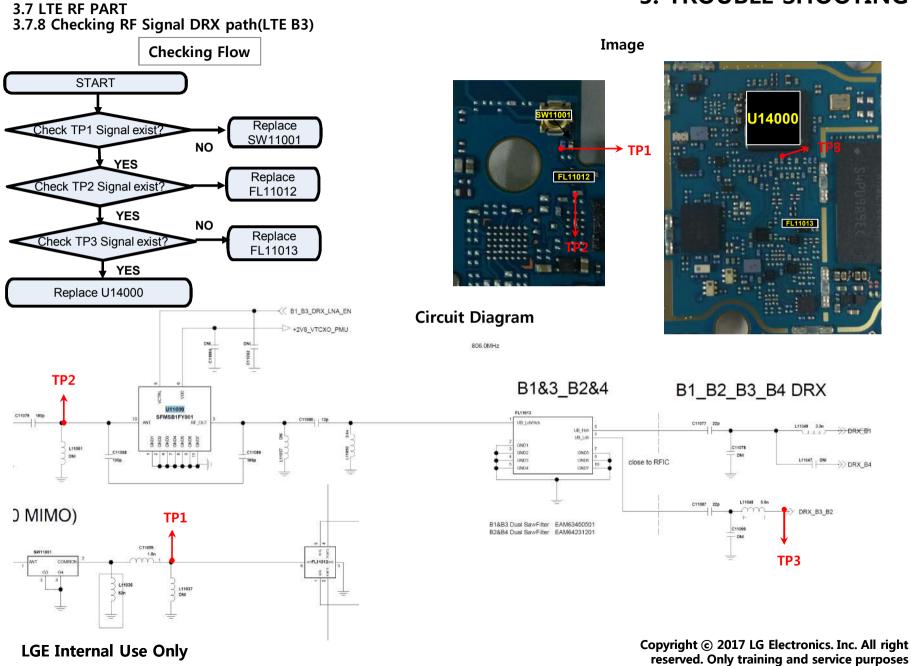


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3.7 LTE RF PART 3.7.2 Checking RF Signal RX path(LTE B28B)



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3.7 LTE RF PART 3.7.8 Checking RF Signal DRX path(LTE B7)

START

Check TP1 Signal exist?

Check TP2 Signal exist

YES

YES

Checking Flow

NO

Replace

FL10004

Replace

FL10005

F10004

Image

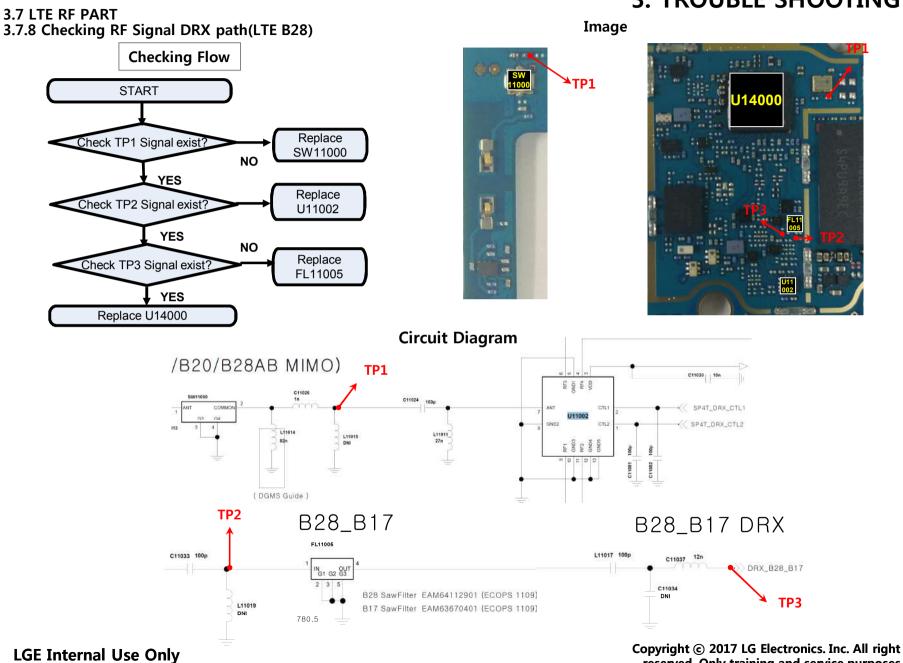
U14000

Replace U14000 FL10004 **Circuit Diagram** B13 Notch Filter LO-BAND COMMOM GND3 GND2 HI-BAND **Circuit Diagram** B7_DRX_LNA_EN >> L10037 2.7n +2V8_VTCXO_PMU tion Circuit DRX B7 L10041 5.1n TP1 TP2 L10029 2.2n C10033 22p C10032 22p FL10005 DRX_B

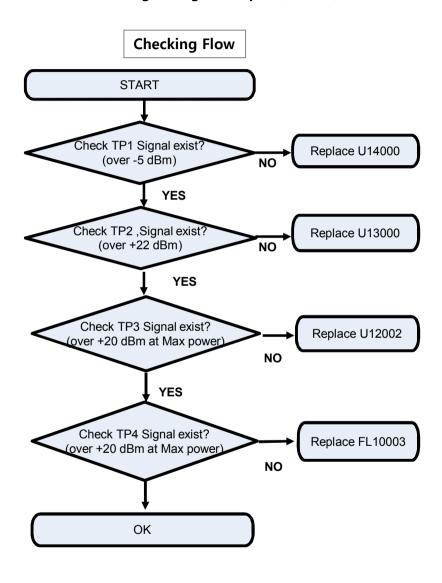
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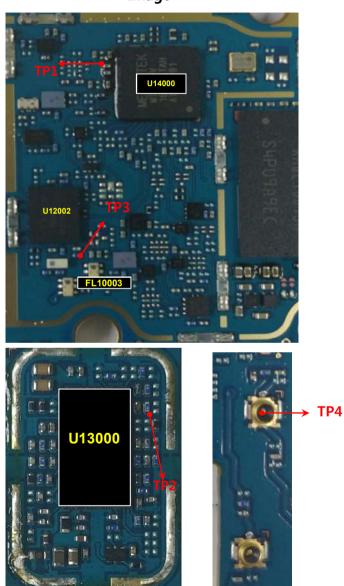


3.7 LTE RF PART 3.7.12 Checking RF Signal TX path(LTE B3)



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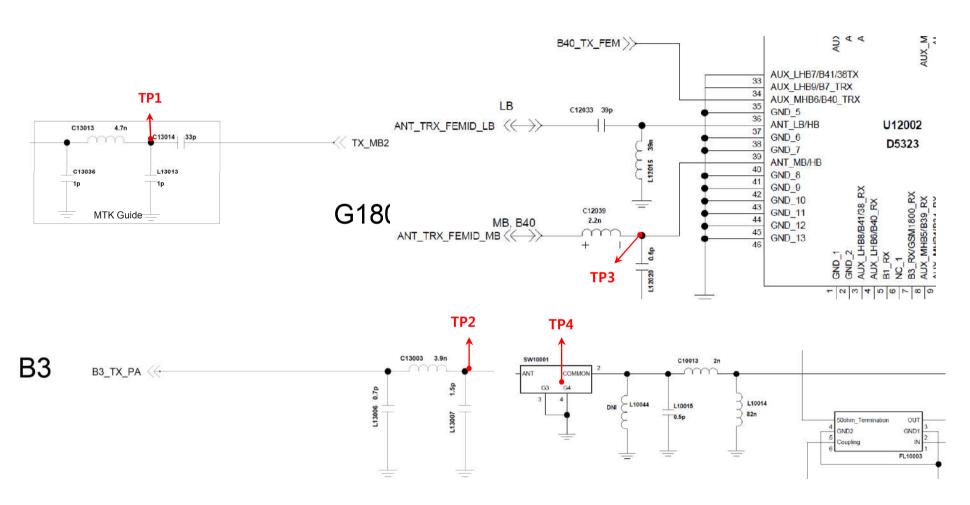
Image



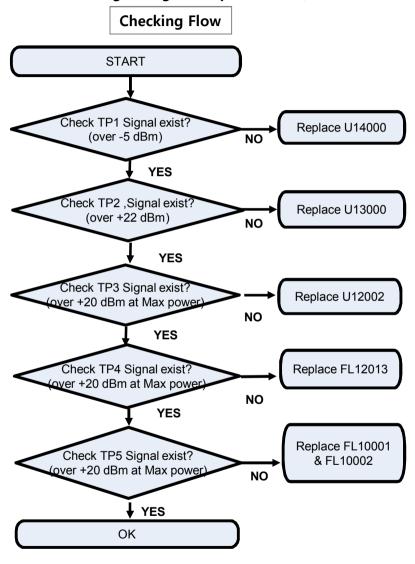
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3.7 LTE RF PART 3.7.12 Checking RF Signal TX path(LTE B3)

Circuit Diagram

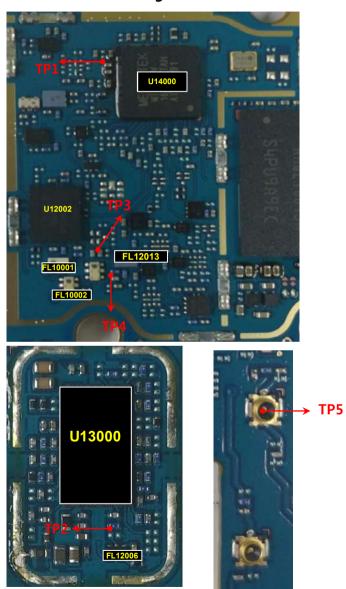


3.7 LTE RF PART 3.7.12 Checking RF Signal TX path(LTE B7)



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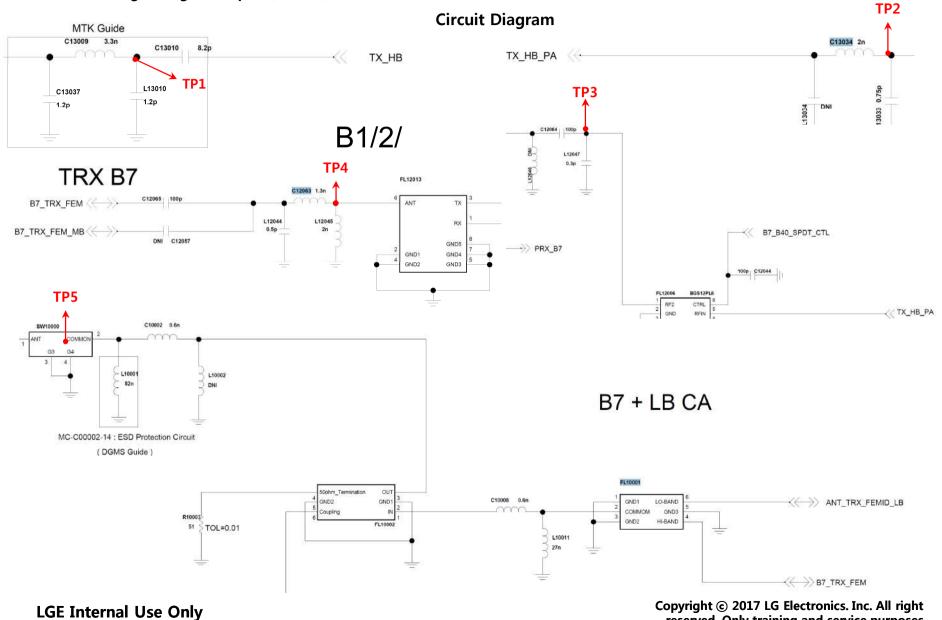
Image



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3.7 LTE RF PART 3.7.12 Checking RF Signal TX path(LTE B7)



50

3.7 LTE RF PART 3.7.12 Checking RF Signal TX path(LTE B28A)

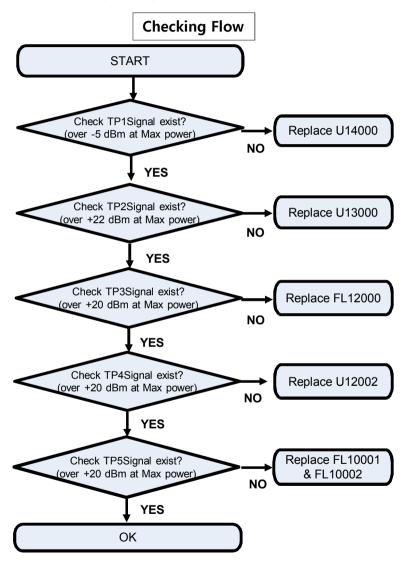


Image U14000 TP3 TP4 TP5 U13000 TP2

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3.7 LTE RF PART 3.7.12 Checking RF Signal TX path(LTE B28A) **Circuit Diagram** X & X B40_TX_FEM >> B5/B8/B17/B20/B28 MTK Guide C13024 AUX LHB7/B41/38TX TP4 C13025 | 33p -≪ TX_LB4 AUX_LHB9/B7_TRX AUX MHB6/B40 TRX LB C12033 39p GND 5 C13035 L13022 ANT LB/HB ANT_TRX_FEMID_LB <-TP1 GND_6 GND 7 ANT MB/HB TP2 GND 8 GND 9 B13 / B20 / B28A GND_10 C12039 GND_11 MB. B40 GND_12 B13_B20_B28A_TX_PA <--ANT_TRX_FEMID_MB <--> GND_13 C13032 10n TP5 TP3 C10002 0.6n SW10000 FL12000 COMMON FL12000 G3 G4 B28B_B17_TX_PA L10001 L10002 C12022 1n 82n C12006 15n PRX_B28B_B17 4.7n GND5 GND1 GND4 GND2 GND3 MC-C00002-14 : ESD Protection Circuit (DGMS Guide) FL10001 50ohm_Termination OUT C10008 0.6n GND2 GND1 GND1 LO-BAND ANT_TRX_FEMID_LB COMMOM GND3 GND2 HI-BAND 51 \$TOL=0.01 L10011 → B7_TRX_FEM

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3.7 LTE RF PART

3.7.12 Checking RF Signal TX path(LTE B28B)

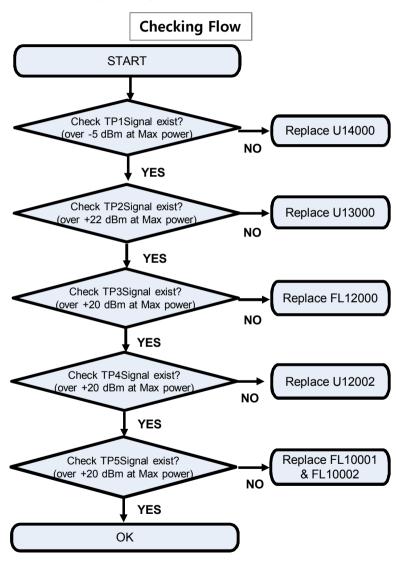


Image U14000 TP3 TP4 TP5 U13000 TP2

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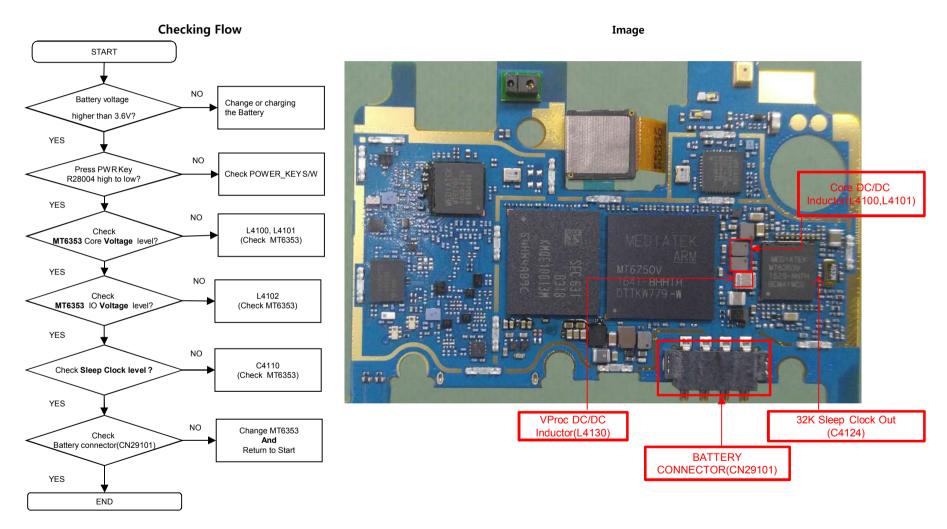
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3.7 LTE RF PART 3.7.12 Checking RF Signal TX path(LTE B28B) **Circuit Diagram** X & X B40_TX_FEM >> B5/B8/B17/B20/B28 MTK Guide C13024 9.1n AUX LHB7/B41/38TX TP4 C13025 | 33p -≪ TX_LB4 AUX_LHB9/B7_TRX AUX MHB6/B40 TRX LB C12033 39p GND 5 C13035 L13022 ANT_TRX_FEMID_LB < ANT LB/HB TP1 GND_6 TP2 GND 7 ANT MB/HB GND 8 GND 9 B28B / B17828B_B17_TX_PA GND_10 C12039 GND_11 33p C13033 MB. B40 GND_12 ANT_TRX_FEMID_MB <--> GND_13 6.8n TP5 TP3 C10002 0.6n SW10000 FL12000 COMMON FL12000 G3 G4 ANT B28B_B17_TX_PA L10001 L10002 C12022 1n 82n PRX_B28B_B17 4.7n C12006 15n GND5 GND1 GND4 GND2 GND3 MC-C00002-14 : ESD Protection Circuit (DGMS Guide) FL10001 50ohm_Termination OUT C10008 0.6n GND2 GND1 GND1 LO-BAND ANT_TRX_FEMID_LB COMMOM GND3 GND2 HI-BAND 51 \$TOL=0.01 L10011 → B7_TRX_FEM

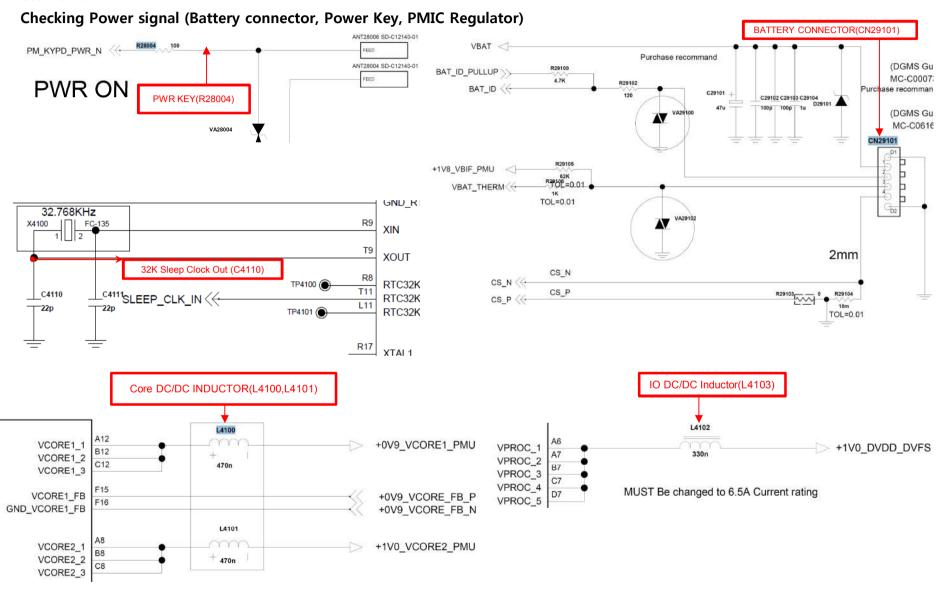
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3.8 Power
Checking Power signal (Battery connector, Power Key, PMIC Regulator)



3.8 Power

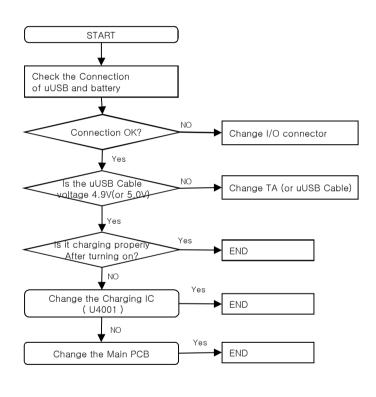


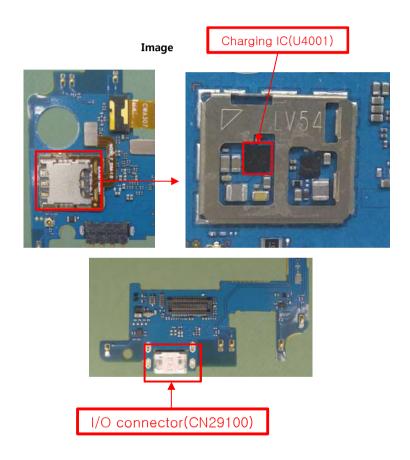
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3.9 Charger

The I/O connector and uUSB cable voltage(5.0V) is used as the reference one of PMIC for charging.

Checking Flow



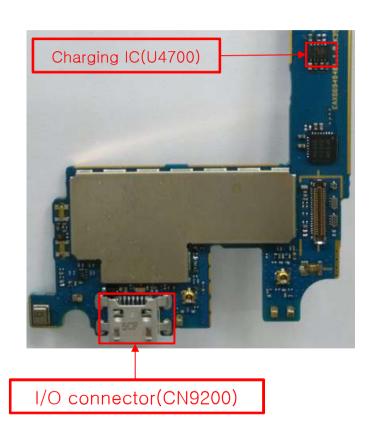


3.9 Charger

The I/O connector and uUSB cable voltage(5.0V) is used as the reference one of PMIC for charging.

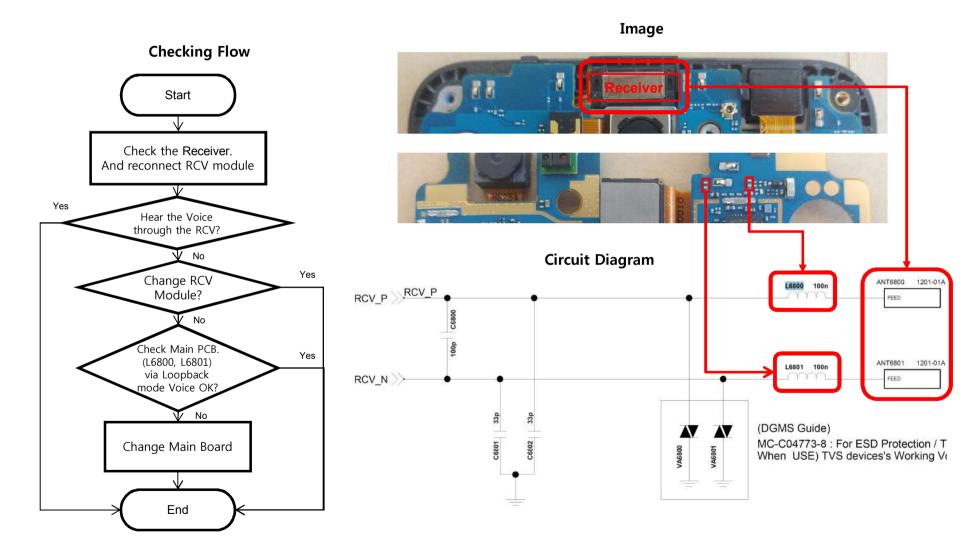
Checking Flow START Check the Connection of uUSB and battery NO Connection OK? Change I/O connector Yes NQ Is the uUSB Cable Change TA (or uUSB Cable voltage 4.9V(or 5.0V) Yes Yes ls it charging properly END After turning on? NO Change the Charging IC END (U4700) NO Yes Change the Main PCB END

Image



3.10 Audio Block(3.10.1 Audio receiver)

The receiver control signals are generated by MT6353(U4100), the MT6353 chip and the receiver are to be checked out.

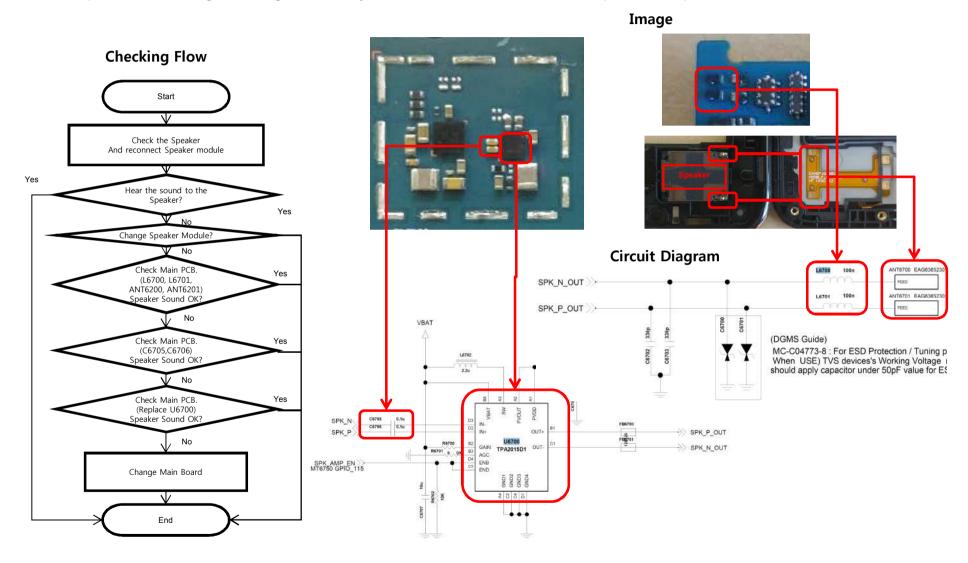


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3.10.1 Audio_speaker

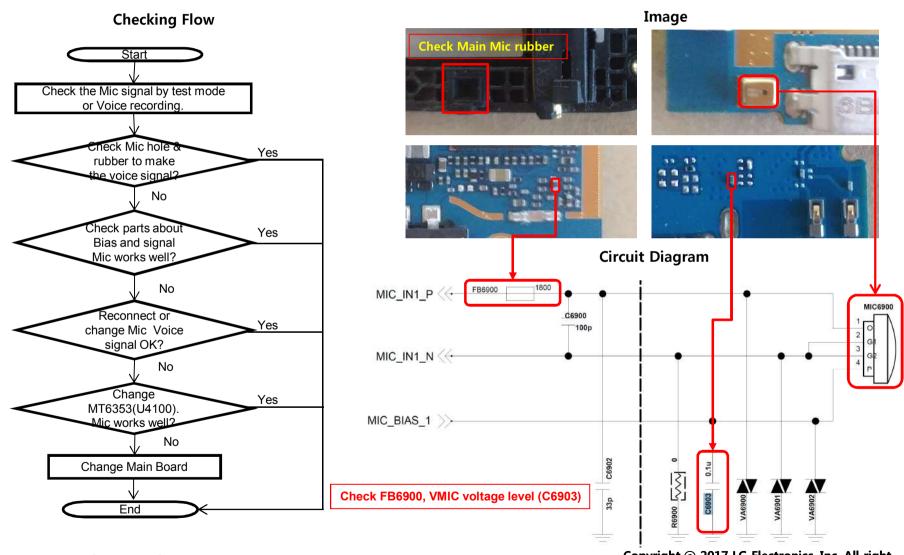
The Speaker control signals are generated by MT6353(U4100), the MT6353 chip and the speaker are to be checked out.



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3.10.2 Audio_Main MIC

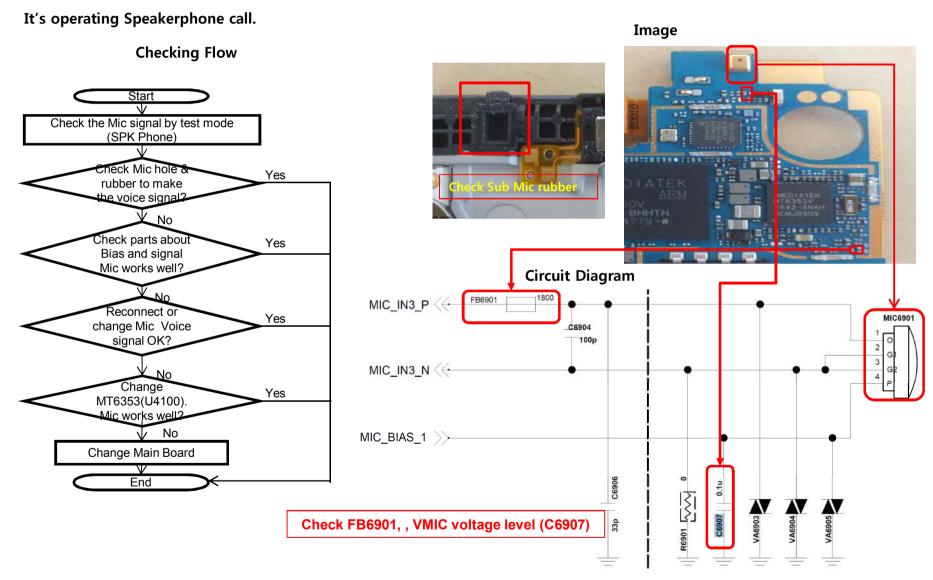
It's operating voice call(except speakerphone), voice recording, camcorder recording.



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3.10.3 Audio_sub MIC

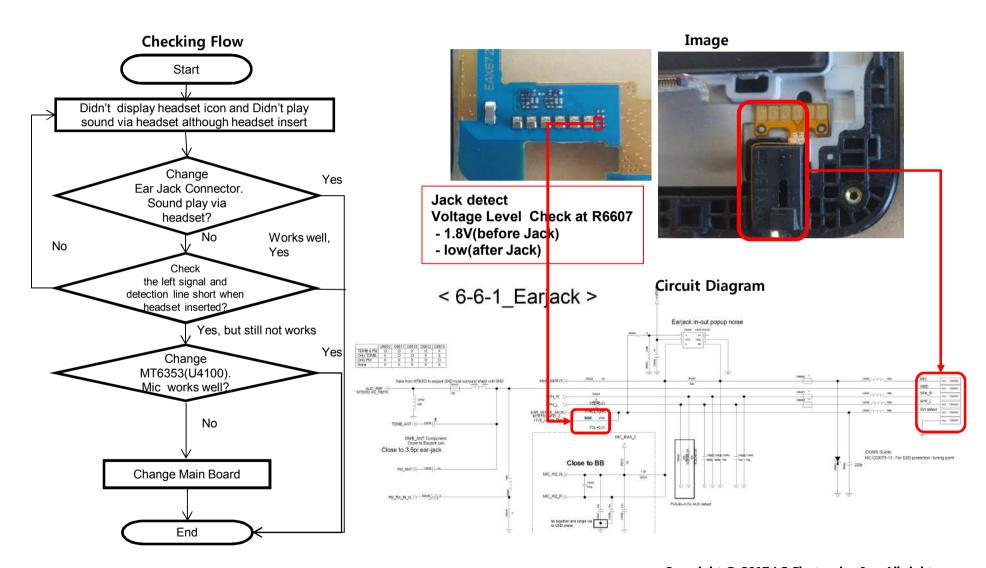


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3.10.4 Audio_Ear MIC Jack

Disable detecting headset insert or No sound from Earphone, Check the Ear Mic and MT6353

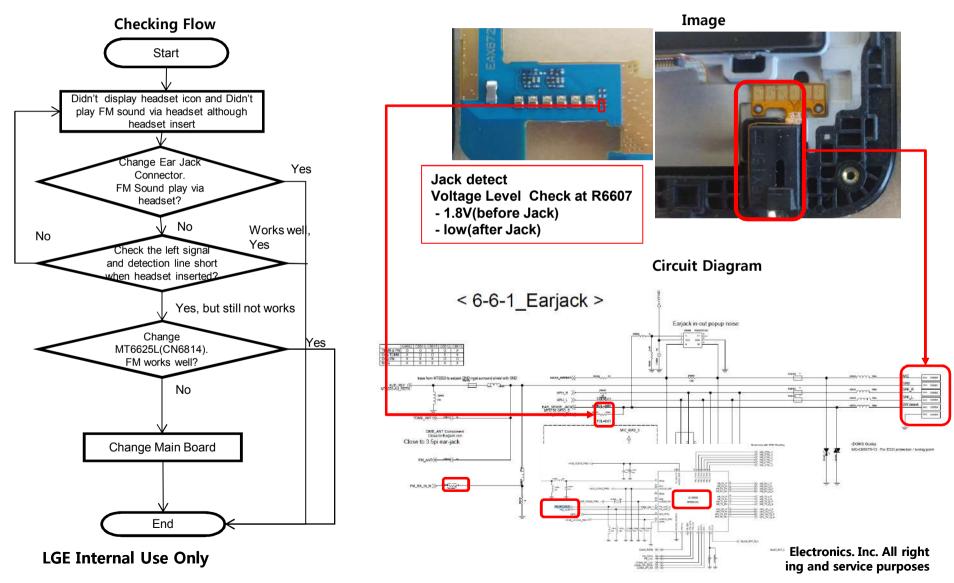


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3.10.5 FM_Radio

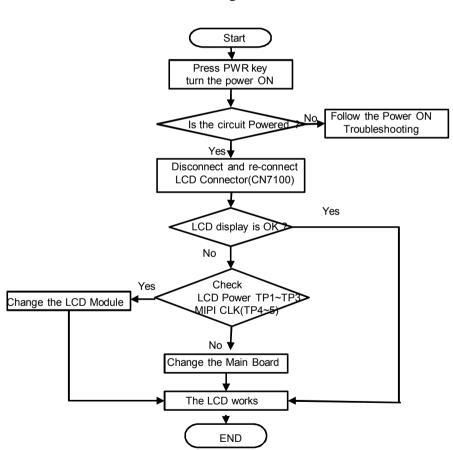
Disable detecting headset insert or No FM sound from Earphone, Check the Ear mic and MT6625L



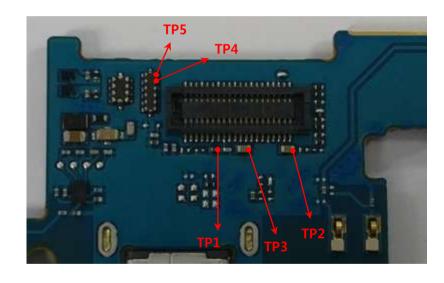
3.11 Checking LCD Block

The LCD control signals are generated by MT6750. Its interface is MIPI having four data lanes and one clock lane.

Checking Flow



Image



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3.11 Checking LCD Block

The LCD control signals are generated by MT6750. Its interface is MIPI having four data lanes and one clock lane.

Circuit Diagram +3V0_TOUCH_VDD HD LCD module: EAT63355101 TP1 100K R7117 ->> LCD DSV EN O 21 O 22 O 23 O 24 TOUCH_RESET_N >> PPPPP 19 18 TOUCH_INT_N ₹ FL7103 R27111 LCD PWM (16 TP3 0 15 TOUCH I2C SDA > 0 << LCD_MIPI0_DATA0_P</pre> 14 LCD MIPIO DATAO N TOUCH_I2C_SCL TP2 13 LCD_RESET_N) 12 29 30 C LCD_MIPIO_DATA1_P O 31 C LCD MIPIO DATA1 N 10 +5V5_DDVDH < 0 -5V5 DDVDL < LCD MIPIO CLK P LCD_MIPIO_CLK_N 35 LCD MAKER ID O 36 O 37 TP5 LCD LED C >> LCD LED A 2 9 2 62 82p CN7100 LCD_MIPI0_DATA2_P LCD_MIPI0_DATA2_N LCD_MIPI0_DATA3_P LCD MIPIO DATA3 N

LGE Internal Use Only

ZD7101

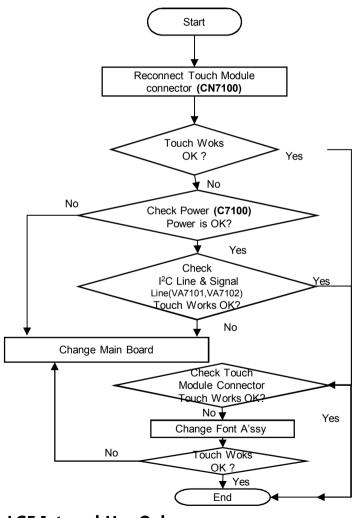
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FL7102

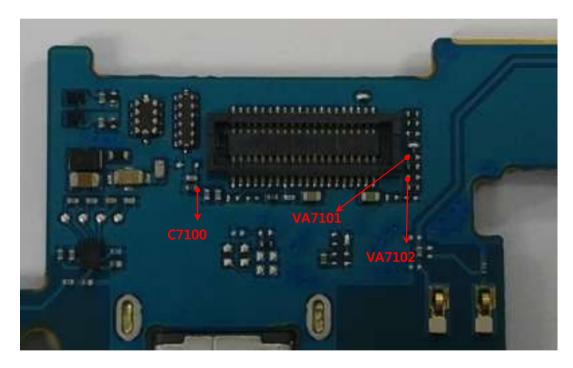
3.12 Checking Touch Block

The Touch control signals are generated by MT6750. It is assembled with LCD.

Checking Flow



Image



LGE Internal Use Only

3.12 Checking Touch Block

The Touch control signals are generated by MT6750. It is assembled with LCD.

Circuit Diagram +3V0_TOUCH_VDD HD LCD module: EAT63355101 R7118 ->> LCD_DSV_EN TOUCH_RESET_N >> 19 0 18 23 TOUCH_INT_N < 0 ₹ FL7103 17 R27111 LCD PWM < 0 16 0 15 TOUCH I2C SDA LCD MIPIO DATAO P 14 LCD MIPIO DATAO N TOUCH_I2C_SCL 0 13 LCD_RESET_N 12 LCD_MIPIO_DATA1_P 0 11 0 LCD MIPIO DATA1 N 10 +5V5 DDVDH < 0 00 -5V5 DDVDL < LCD MIPIO CLK P CLCD_MIPIO_CLK_N C7100 35 O 36 LCD MAKER ID >> **VA7101** 0 PPPPP VA7102 LCD_LED_C) 38 39 40 LCD_LED_A >> 6 2 0 61 CN7100 C7100 1u LCD_MIPI0_DATA2_P LCD_MIPI0_DATA2_N LCD_MIPI0_DATA3_P

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FL7102

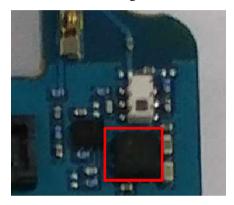
LCD MIPIO DATA3 N

3.13 Checking accelmeter+compass sensor Block

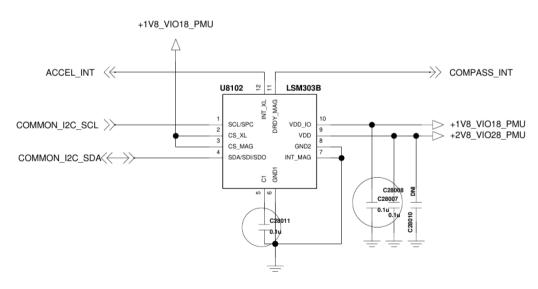
The Accl. & compass sensors are calibrated by using SW algorithm.

Checking Flow Start Check the sensor function Yes _ Function is OK? **END** No Yes . Calibration OK? END No Change the Sensor IC(U8102) Function is OK? **END** No Change the main board Function is OK? **END**

Image



Circuit Diagram



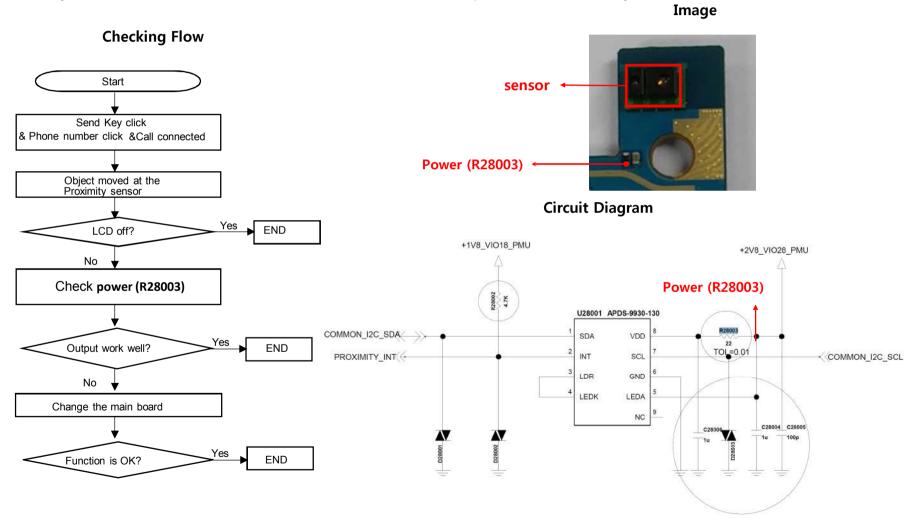
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3.13 Checking proximity sensor Block

Proximity Sensor is worked as below: Send Key click → Phone number click → Call connected

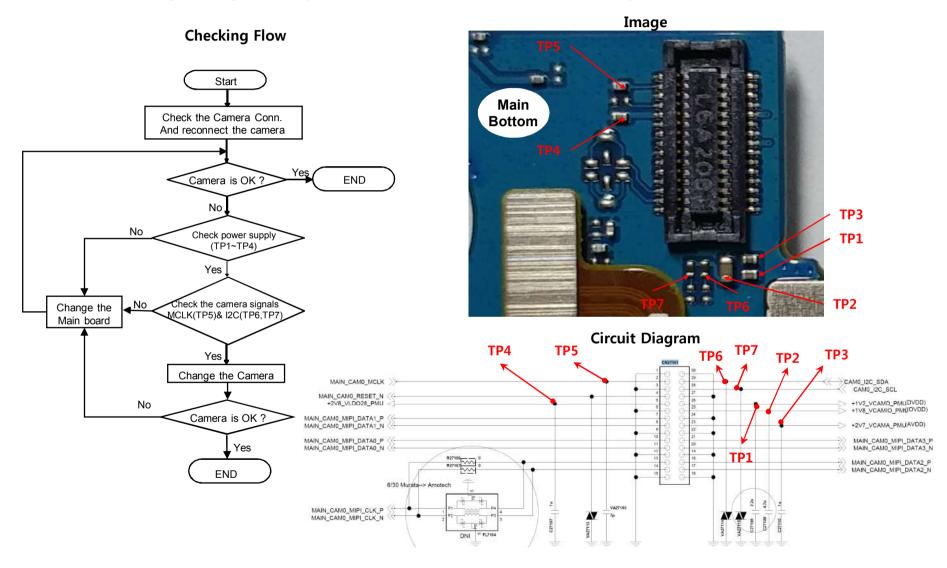
→ Object moved at the sensor → Control the screen's on/off operation automatically



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3.XX Checking Main Camera Block

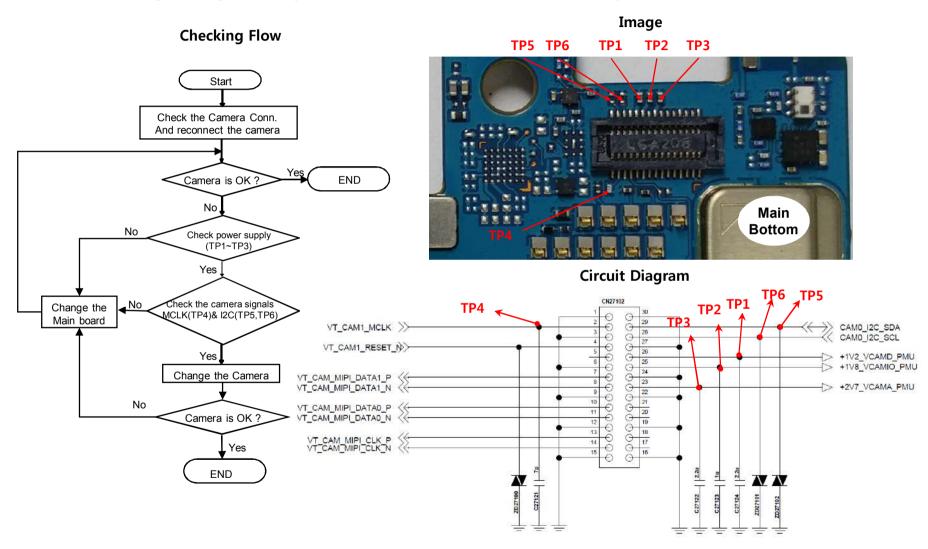
13M camera control signals are generated by MT650 (U21000: Main Chipset). And powered by MT6353 (U4100: PMIC)



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3.XX Checking Front Camera Block

5M camera control signals are generated by MT650 (U21000 : Main Chipset). And powered by MT6353 (U4100 : PMIC)

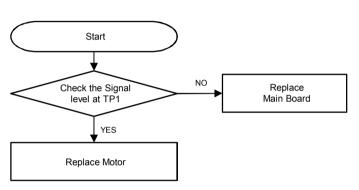


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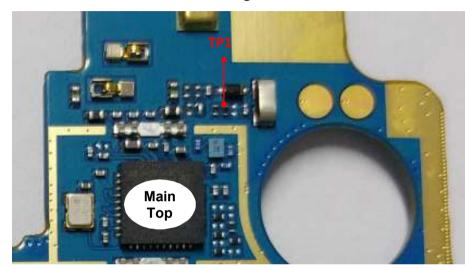
3.xx Checking Motor Block

Motor control signals are generated by MT6353 (U4100 : PMIC)

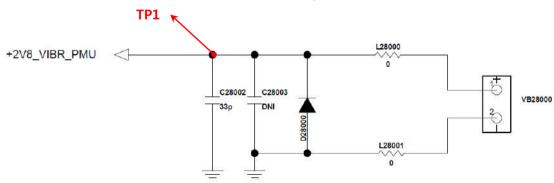
Checking Flow



Image

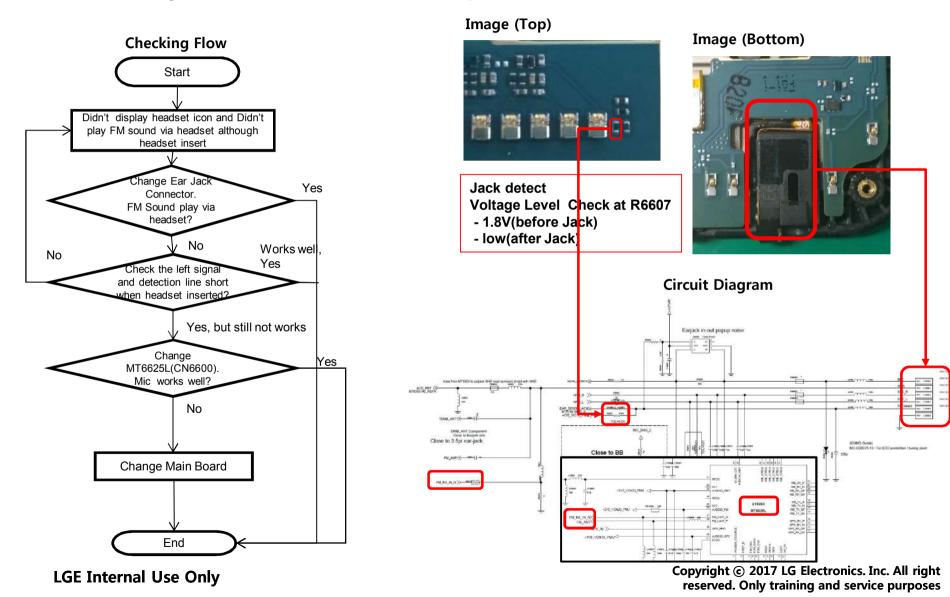


Circuit Diagram



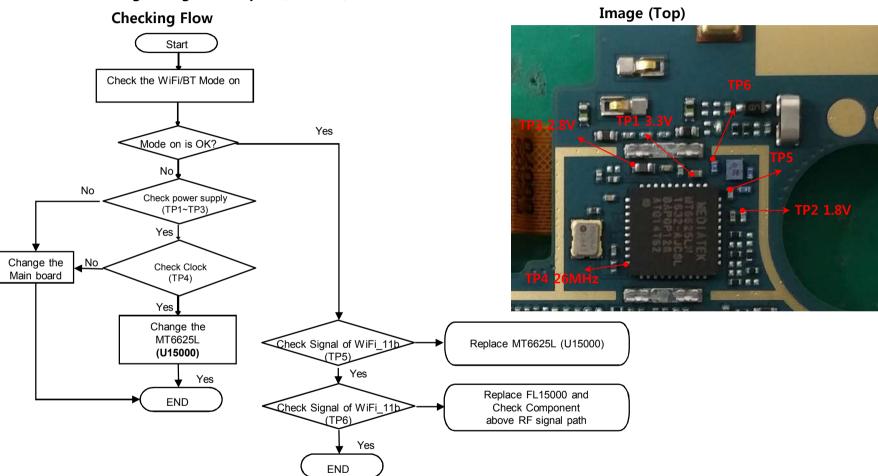
3.10.5 FM_Radio

Disable detecting headset insert or No FM sound from Earphone, Check the Ear Mic and MT6625L



3.16 Connectivity RF PART

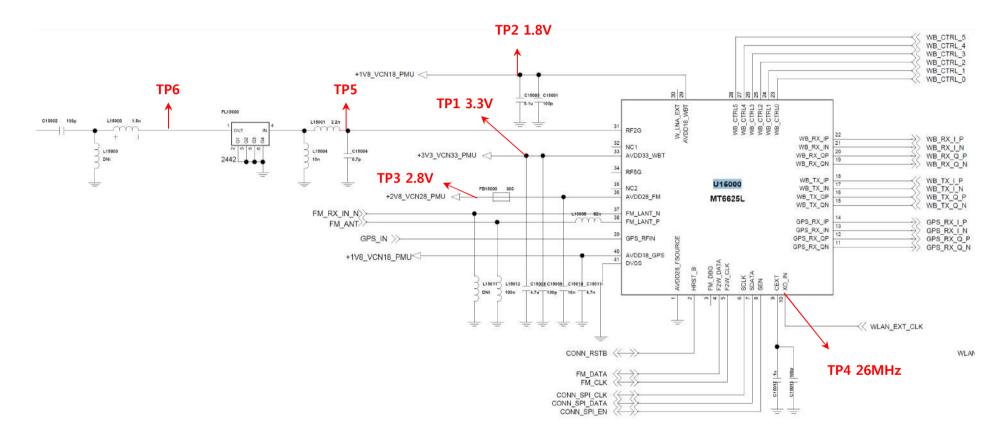
3.16.1 Checking RF Signal TRX path(WiFi, BT)



3.16 Connectivity RF PART

3.16.1 Checking RF Signal TRX path(WiFi, BT)

Circuit Diagram

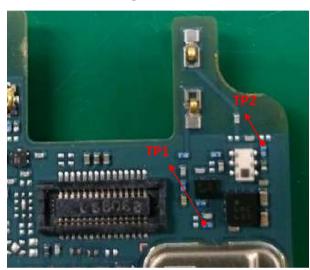


3.16 Connectivity RF PART

3.16.2 Checking RF Signal TRX path(GPS)

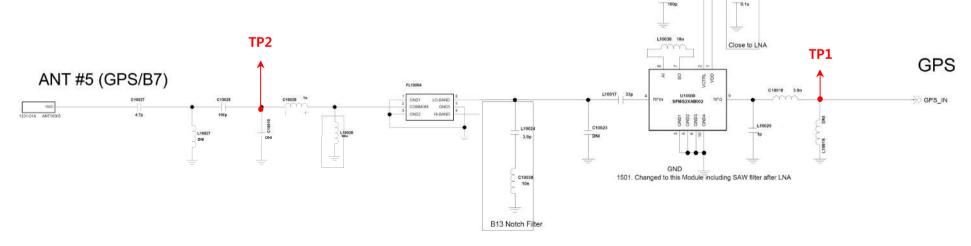
Checking Flow START Replace MT6625L Check TP1 And Check voltage of Signal exist? **GPS 2.8V** NO YES Replace U10000 and Check FL10004 Check TP2 Component Signal exist? NO above RF signal path YES Check next step

Image (Bottom)



GPS LNA EN

Circuit Diagram



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-> +2V8_VCN28_PMU