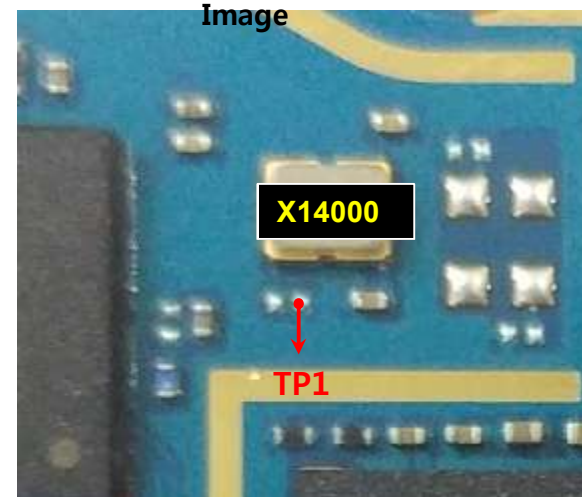
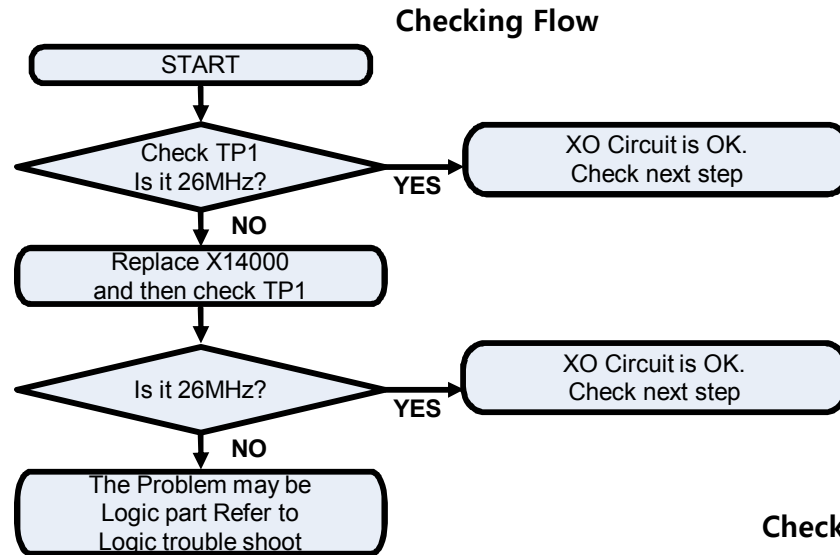


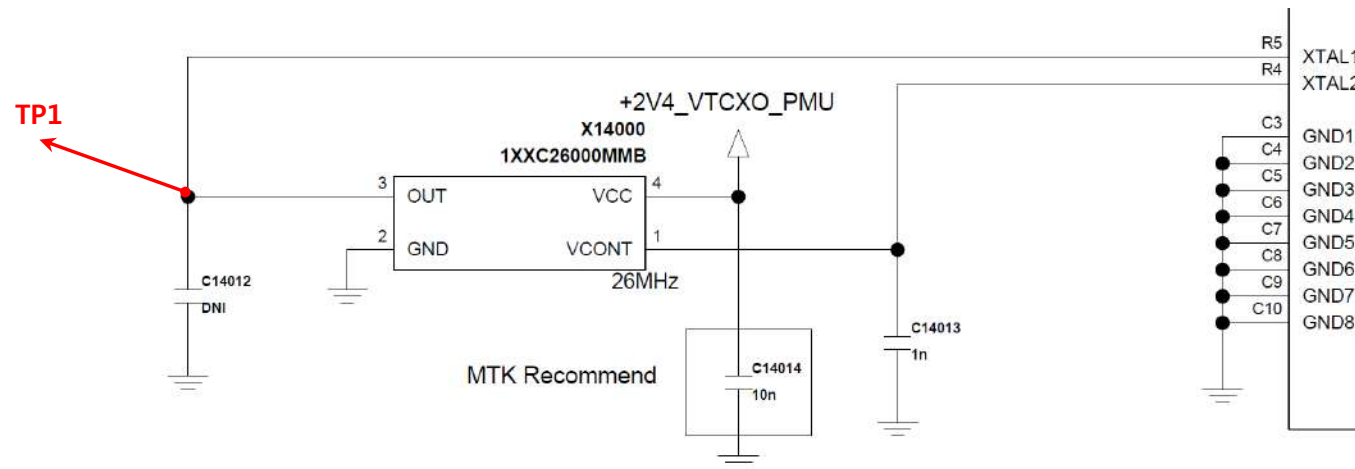
3. TROUBLE SHOOTING

3.1 Checking XO Block

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



Checking Flow

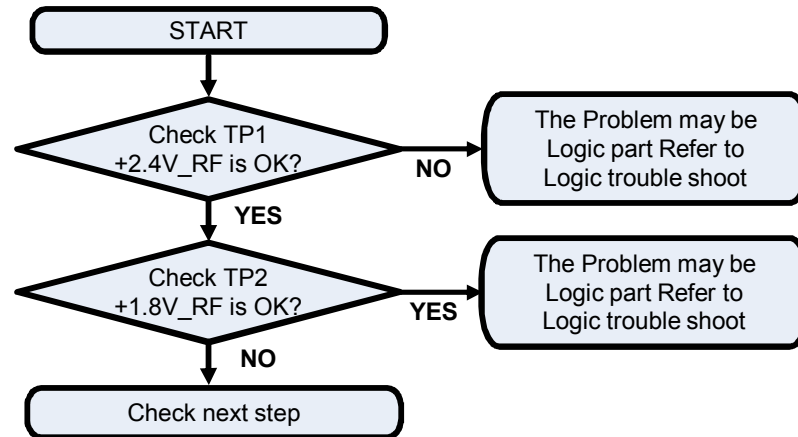


3. TROUBLE SHOOTING

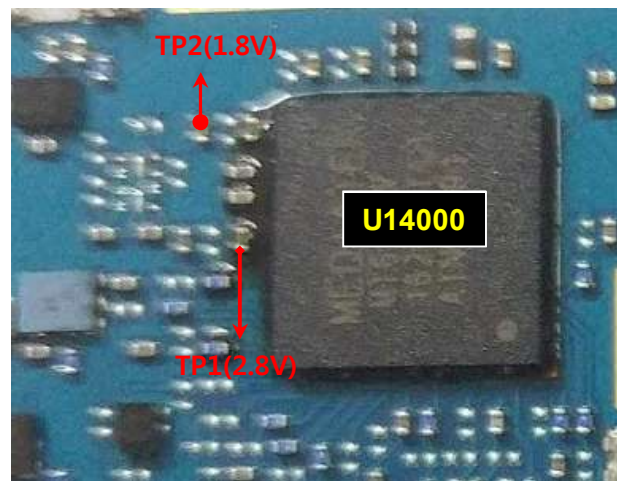
3.2 Checking Transceiver DC Power Supply Circuit Block

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

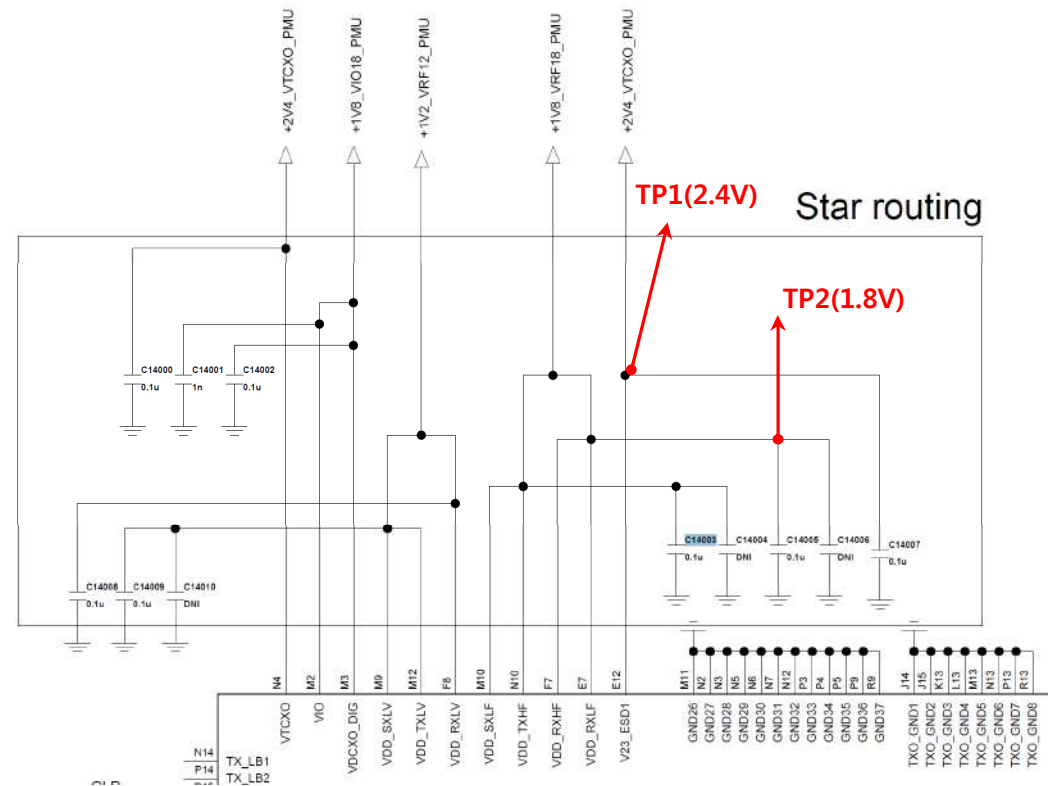
Checking Flow



Image



Circuit Diagram



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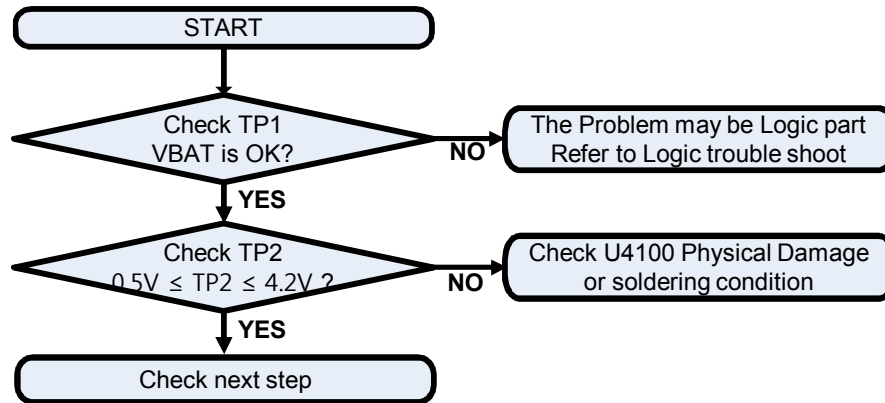
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3. TROUBLE SHOOTING

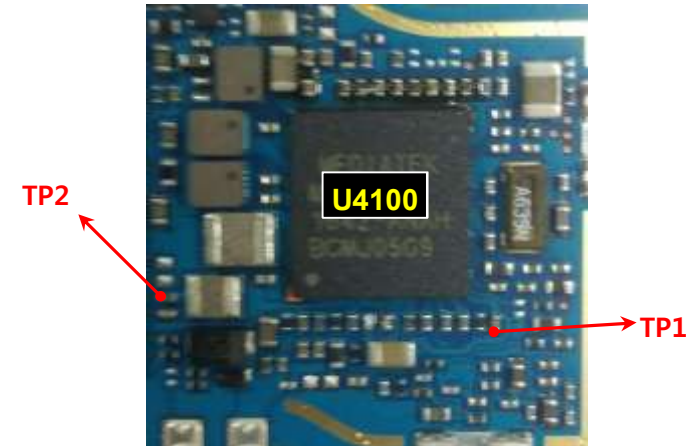
3.3 Checking DC-DC Block

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

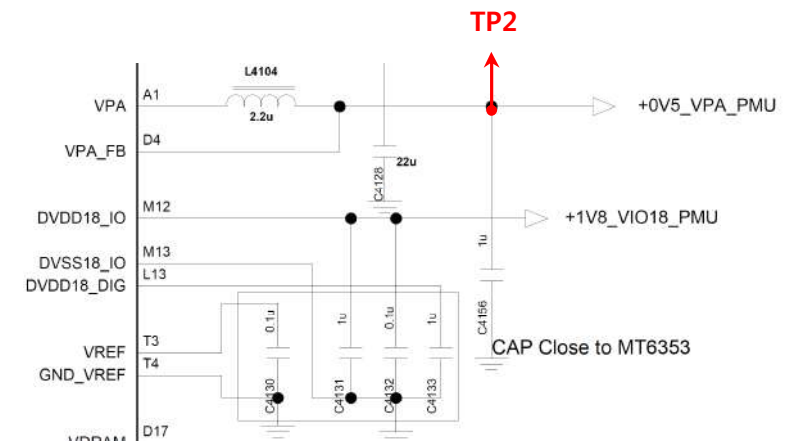
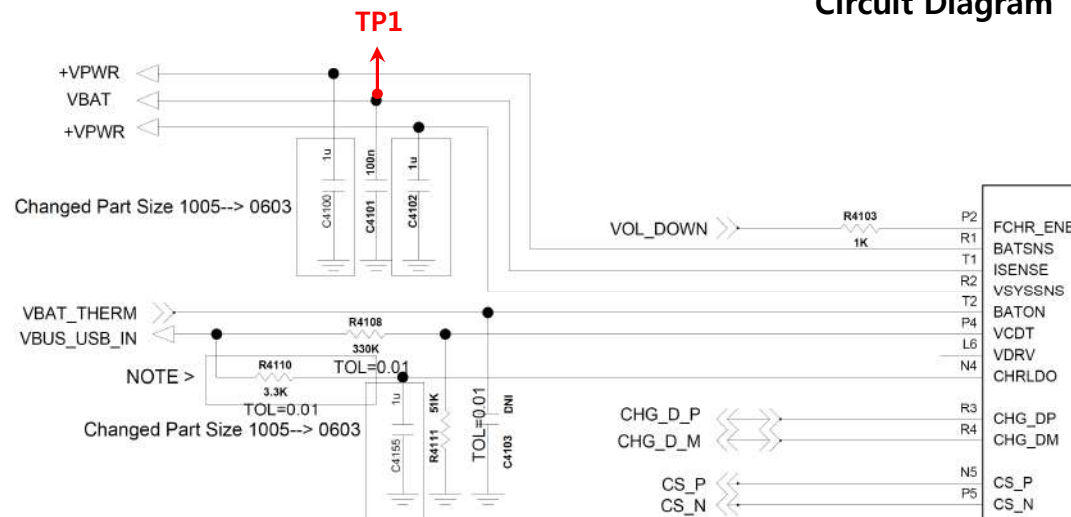
Checking Flow



Image



Circuit Diagram



LGE Internal Use Only

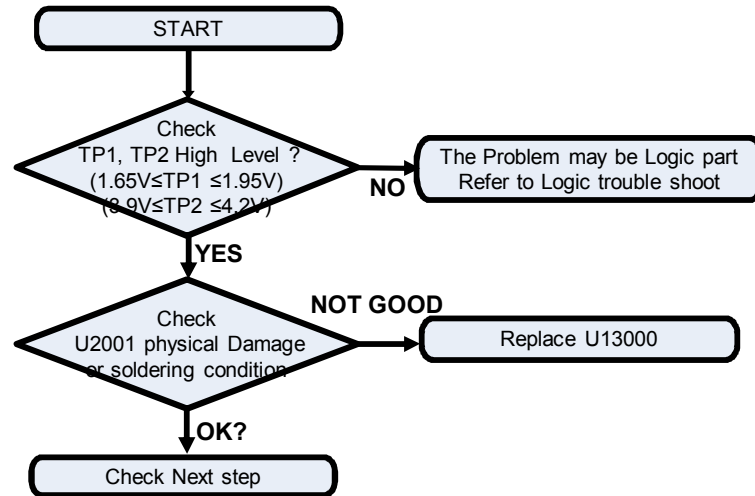
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3. TROUBLE SHOOTING

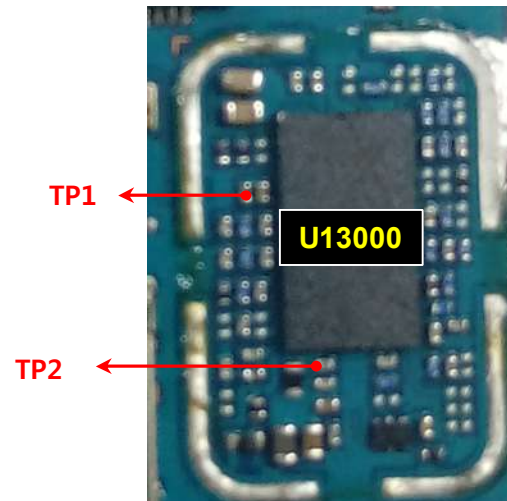
3.4 ASM(Antenna Switch Module) Block

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

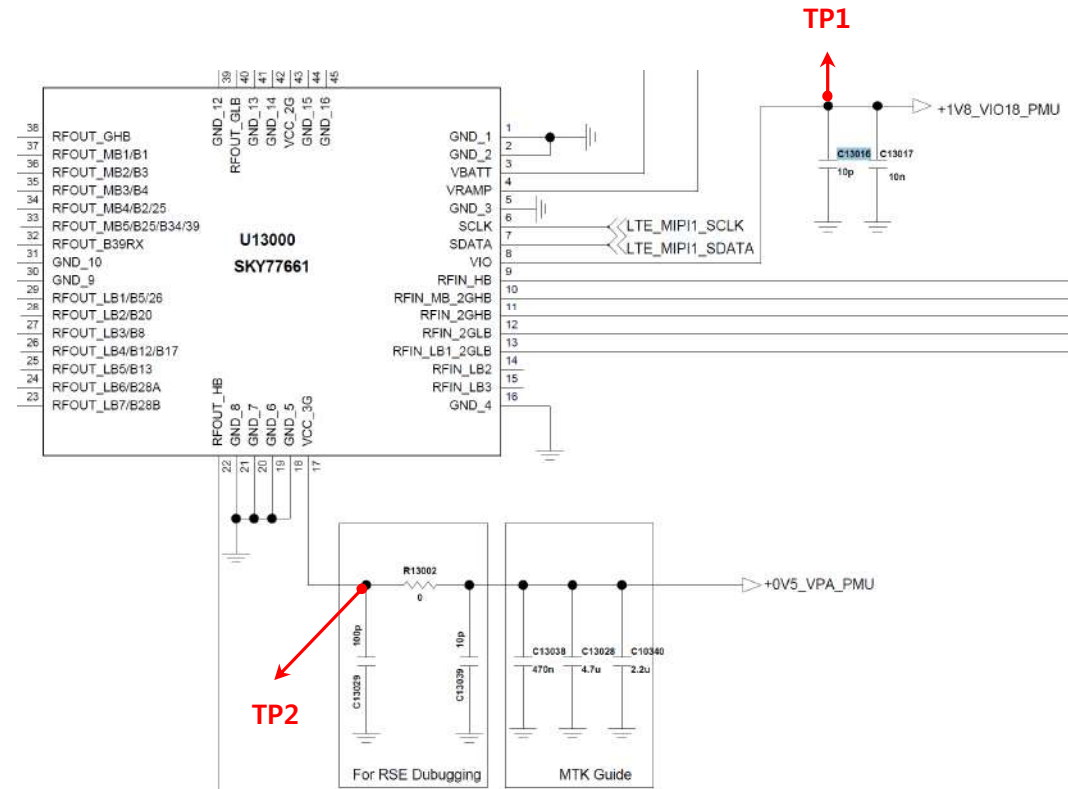
Checking Flow



Image



Circuit Diagram



LGE Internal Use Only

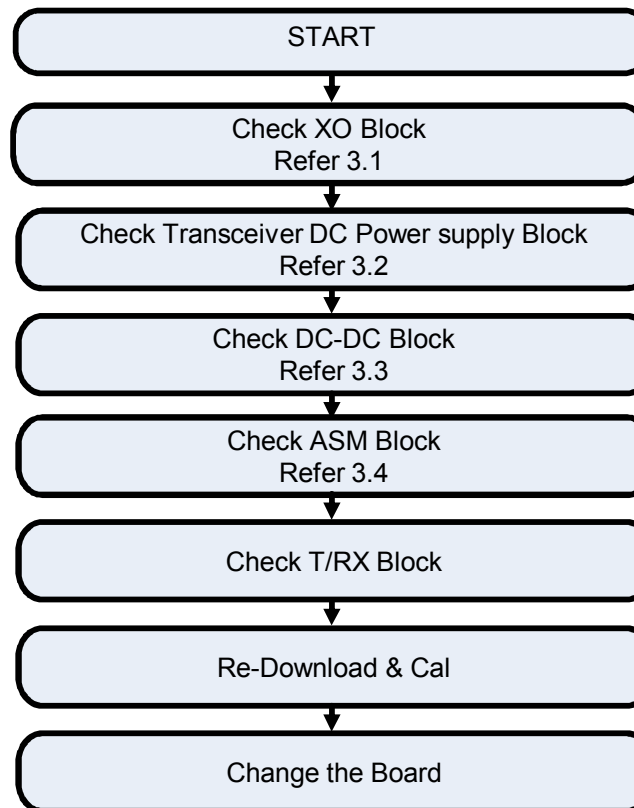
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3. TROUBLE SHOOTING

3.5 GSM RF PART

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

Checking Flow

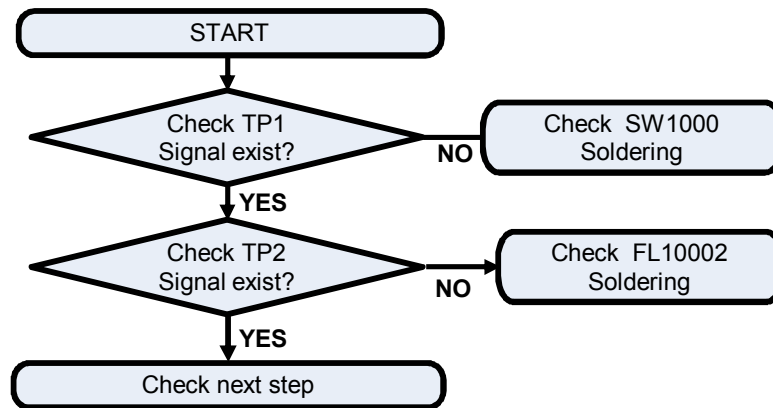


3. TROUBLE SHOOTING

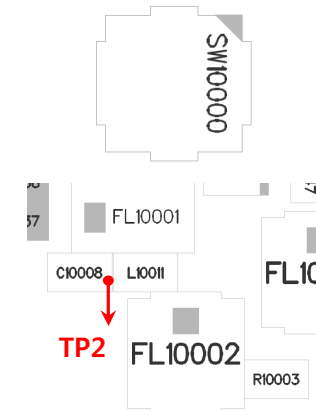
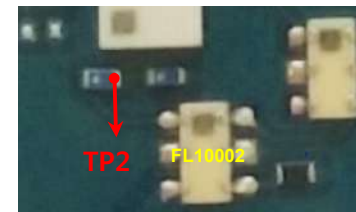
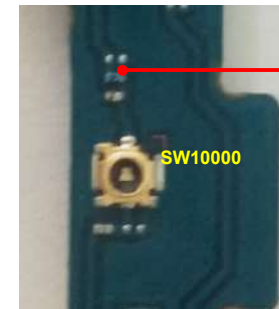
3.5 GSM RF PART

3.5.2 Checking RF Signal RX path(SW, GSM850/900)

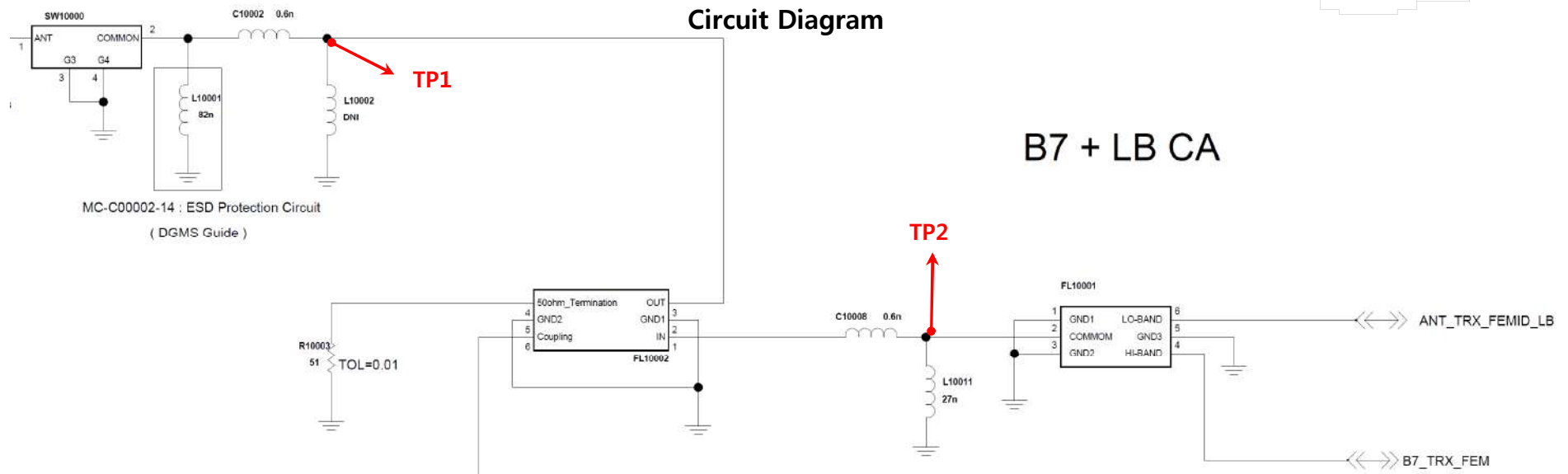
Checking Flow



Image



Circuit Diagram



B7 + LB CA

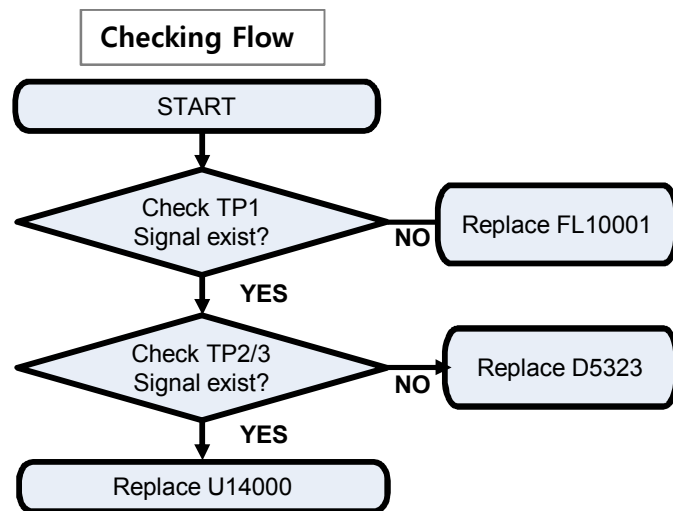
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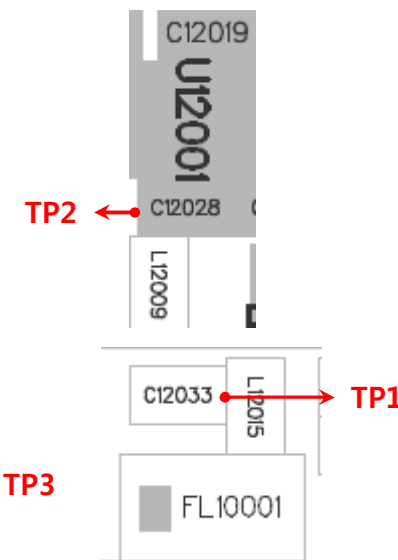
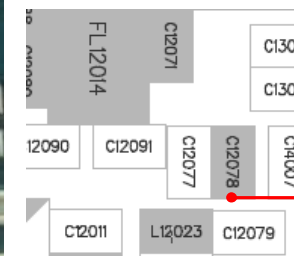
3. TROUBLE SHOOTING

3.5 GSM RF PART

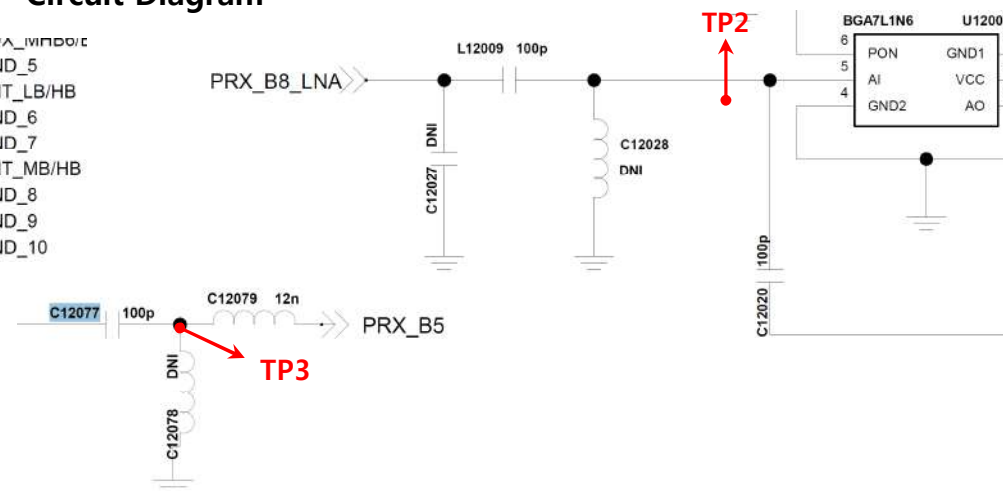
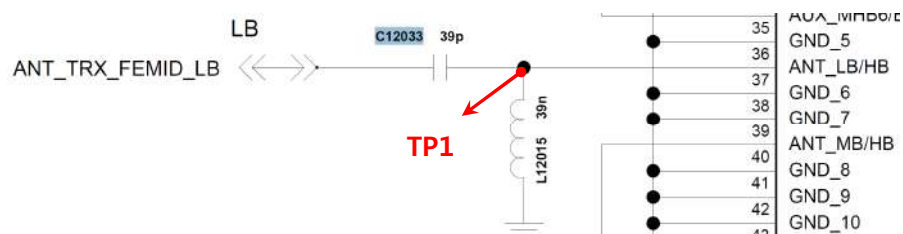
3.5.3 Checking RF Signal RX path(GSM850/900)



Image



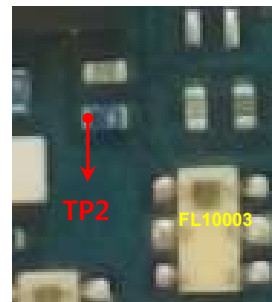
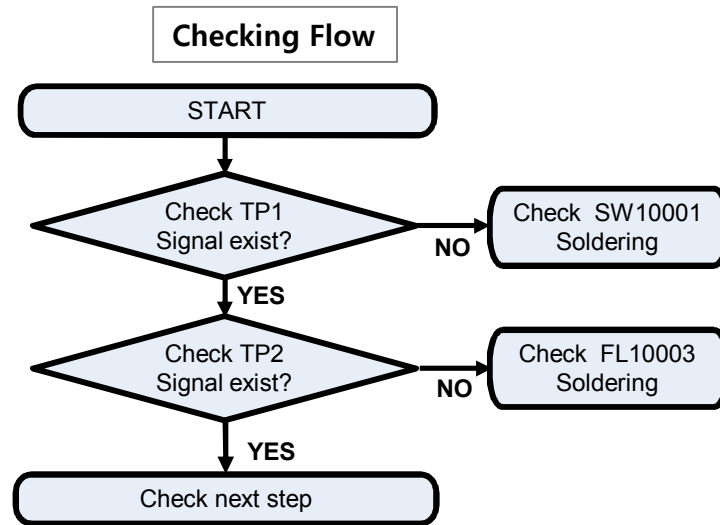
Circuit Diagram



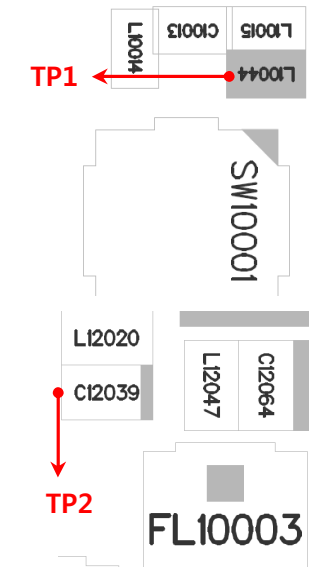
3. TROUBLE SHOOTING

3.5 GSM RF PART

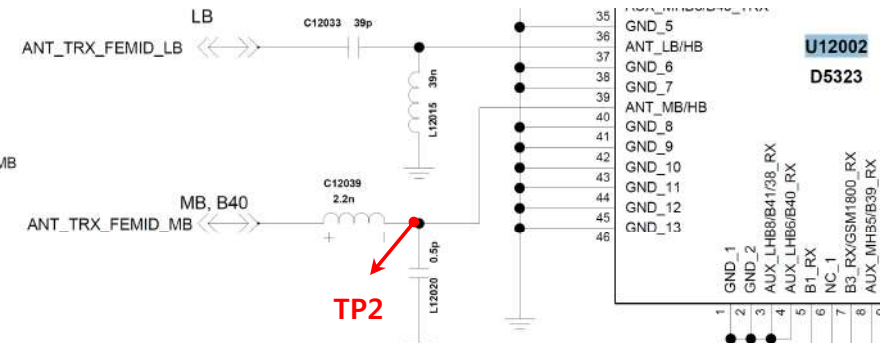
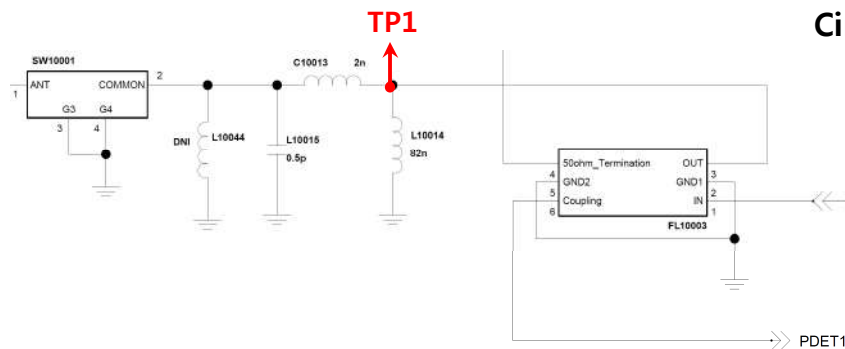
3.5.4 Checking RF Signal RX path(GSM1800/1900)



Image



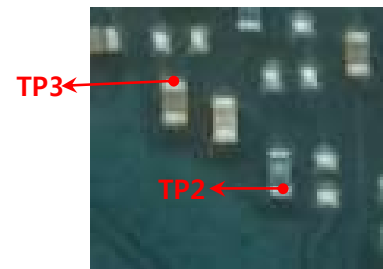
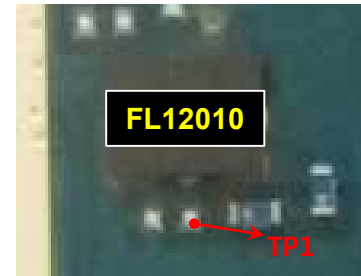
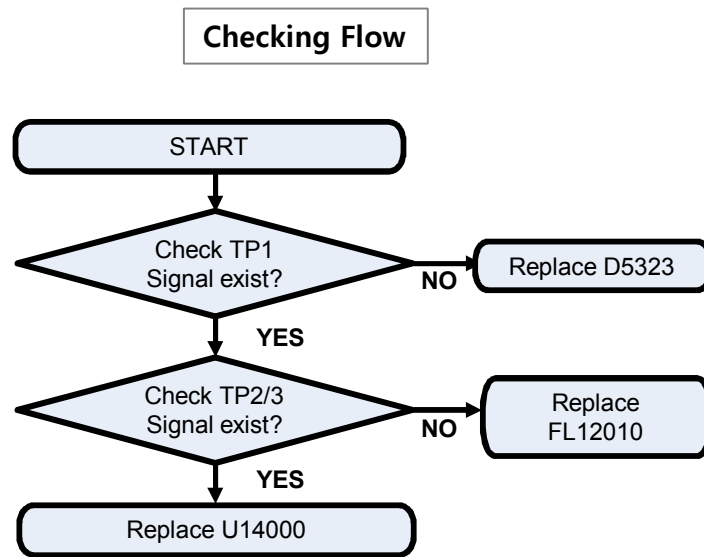
Circuit Diagram



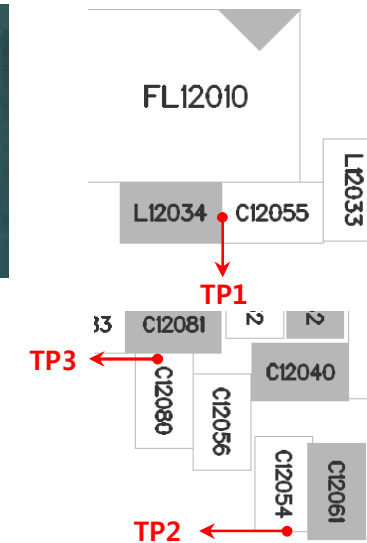
3. TROUBLE SHOOTING

3.5 GSM RF PART

3.5.5 Checking RF Signal RX path(GSM1800/1900)

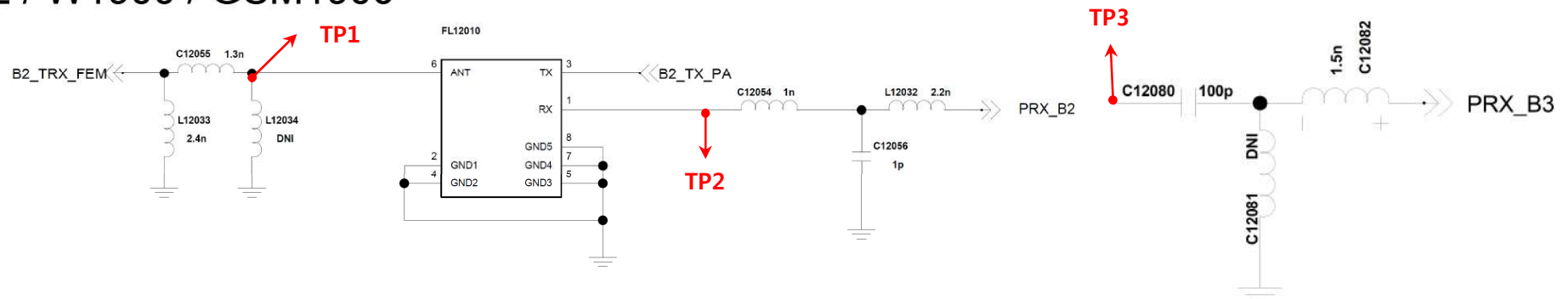


Image



Circuit Diagram

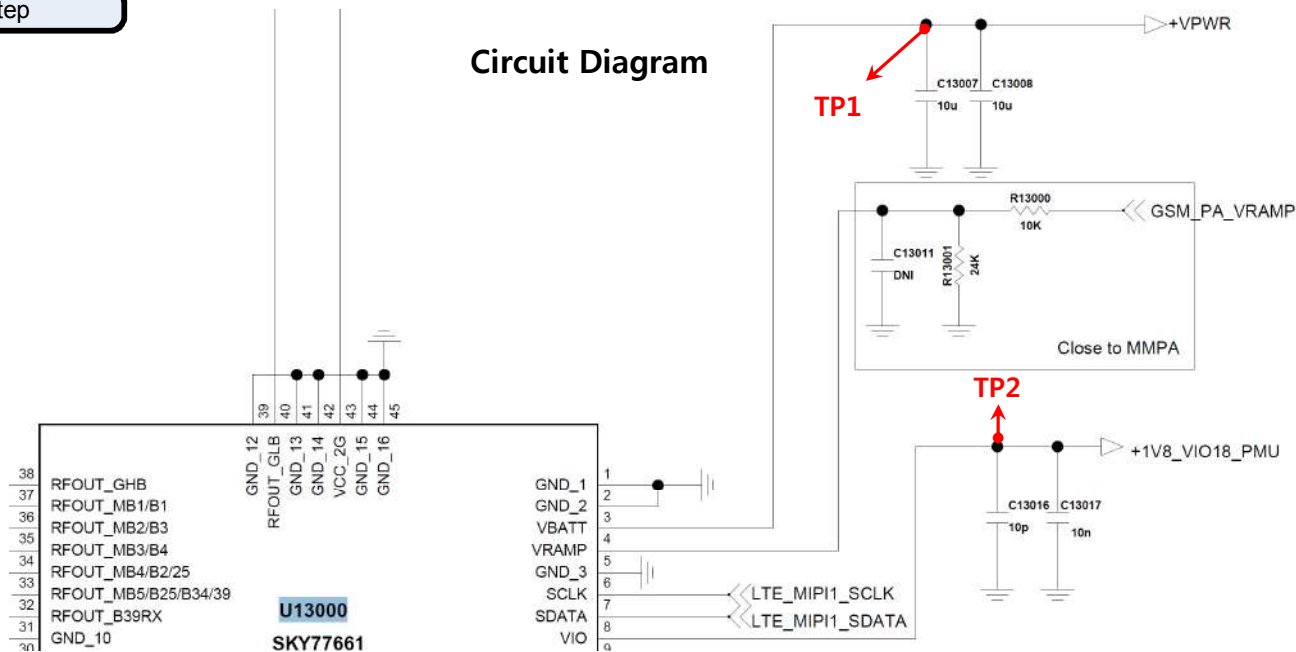
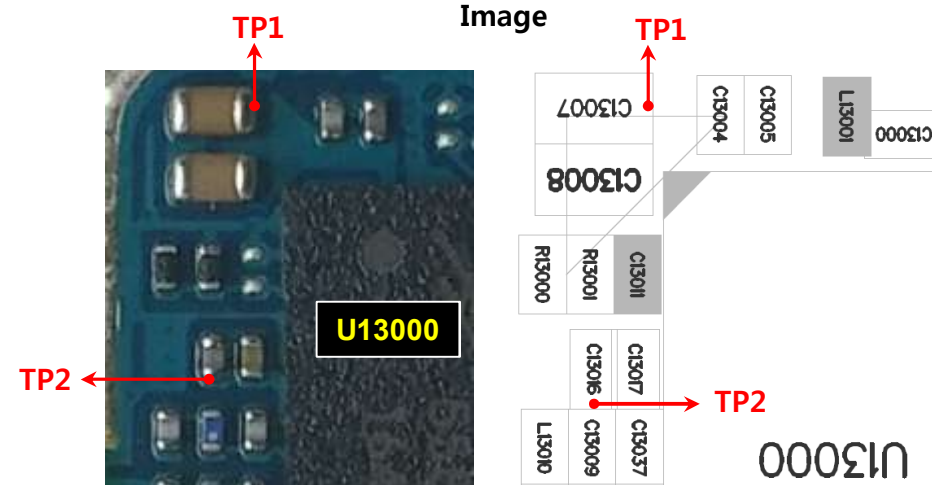
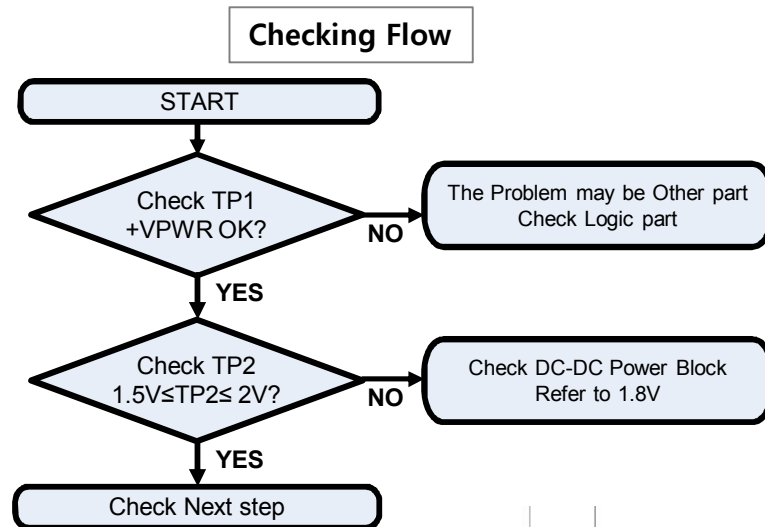
B2 / W1900 / GSM1900



3. TROUBLE SHOOTING

3.5 GSM RF PART

3.5.7 Checking GSM PAM DC Power Circuit



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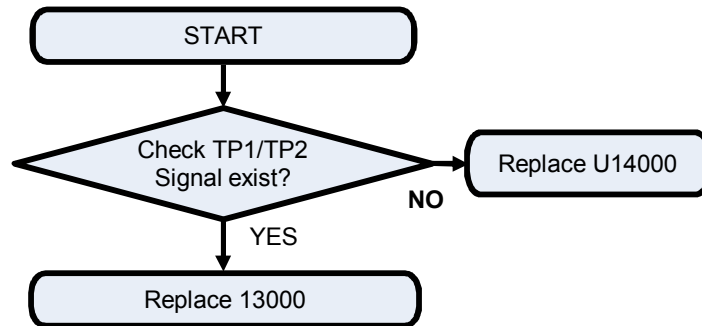
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3. TROUBLE SHOOTING

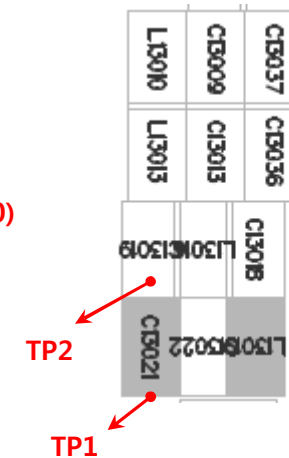
3.5 GSM RF PART

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

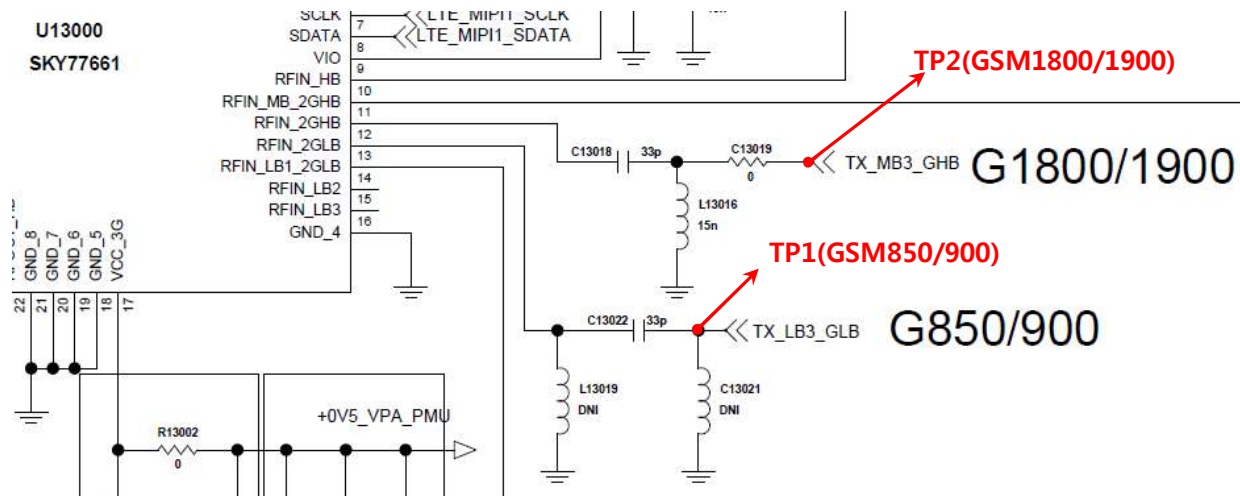
Checking Flow



Image



Circuit Diagram

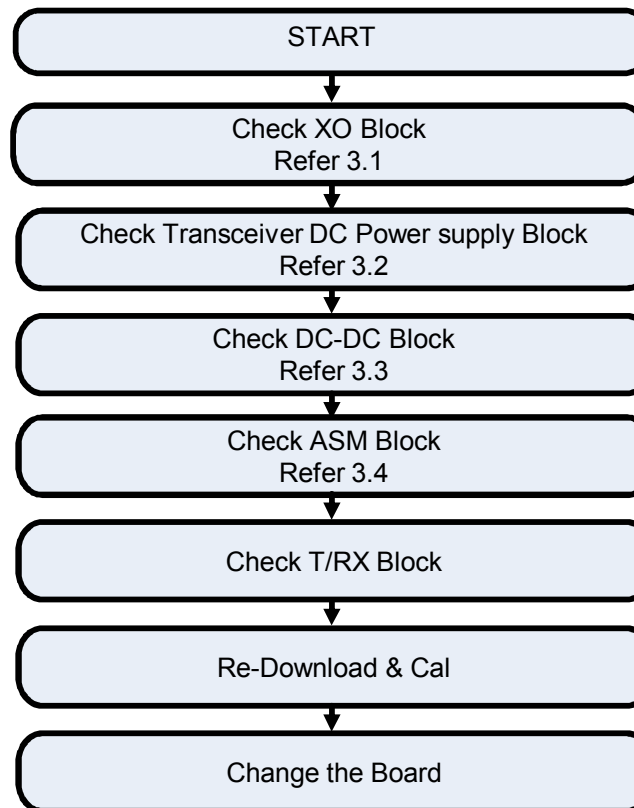


3. TROUBLE SHOOTING

3.6 WCDMA RF PART

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

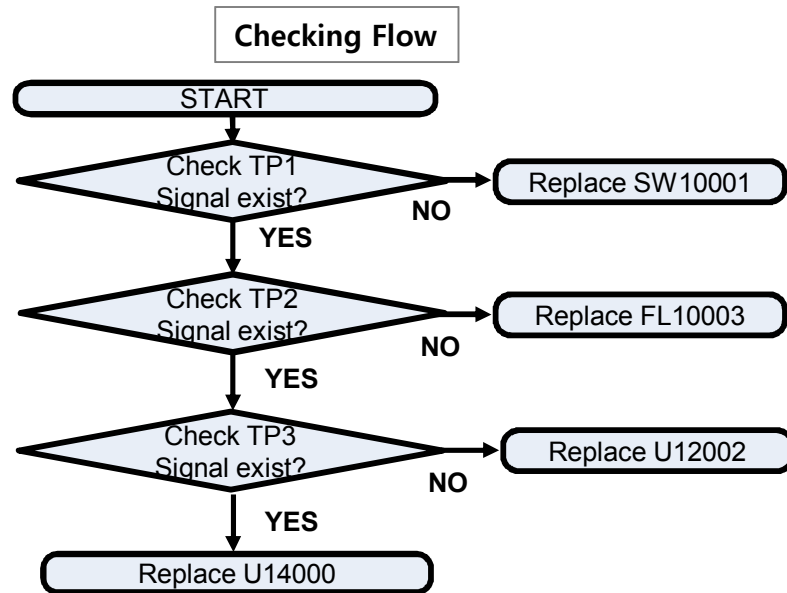
Checking Flow



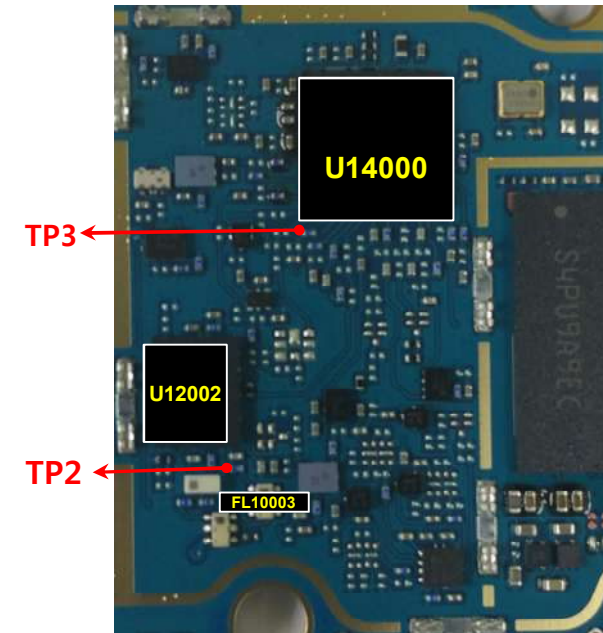
3. TROUBLE SHOOTING

3.6 WCDMA RF PART

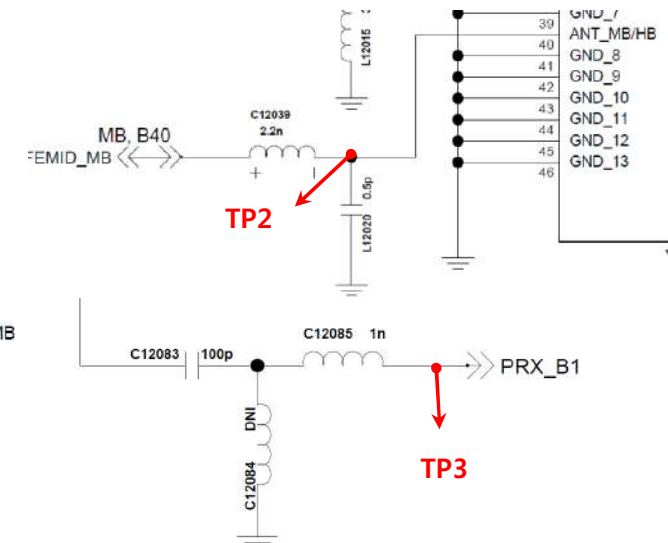
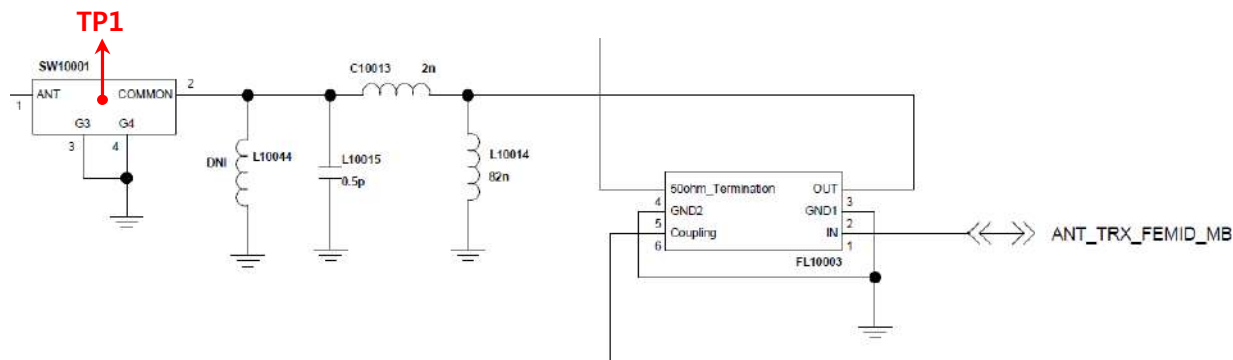
3.6.2 Checking RF Signal RX path(WCDMA B1)



Image



Circuit Diagram



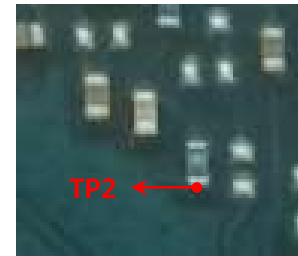
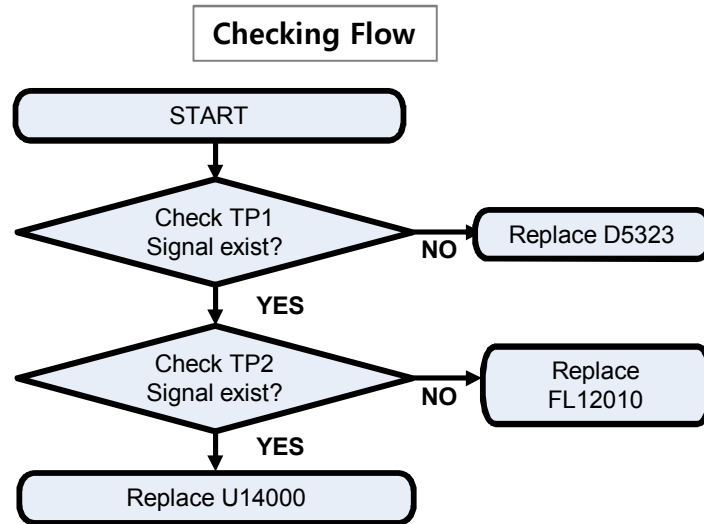
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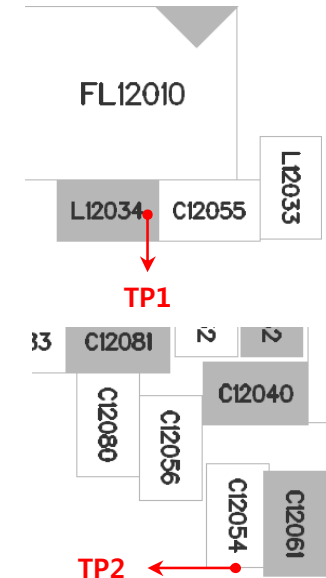
3. TROUBLE SHOOTING

3.6 WCDMA RF PART

3.6.2 Checking RF Signal RX path(WCDMA B2)

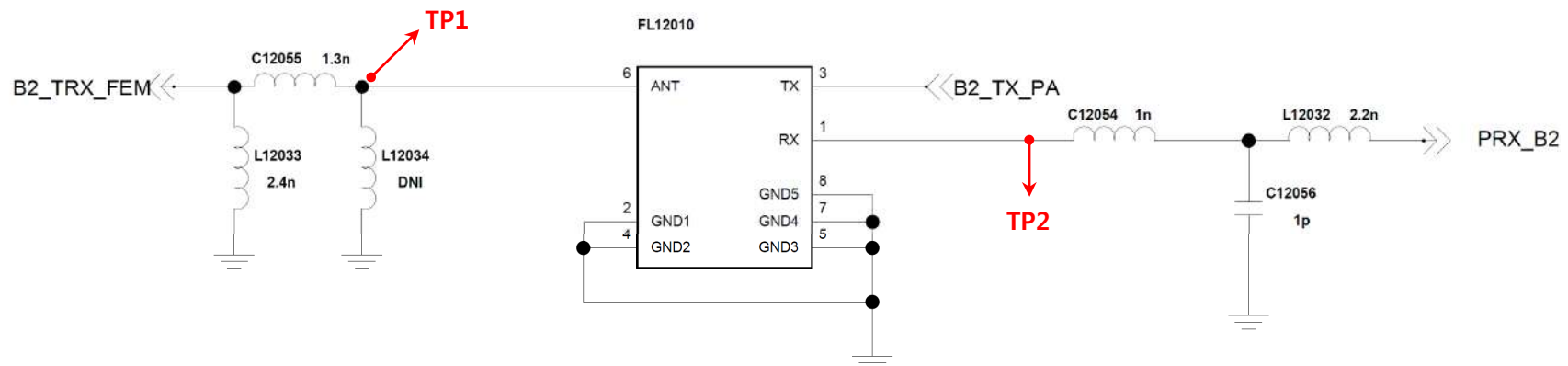


Image



B2 / W1900 / GSM1900

Circuit Diagram



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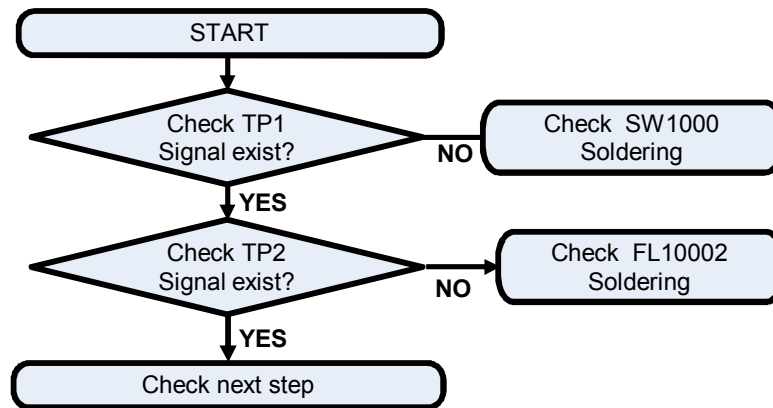
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3. TROUBLE SHOOTING

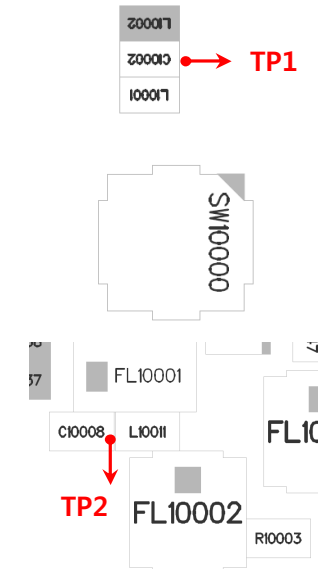
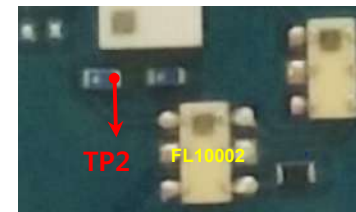
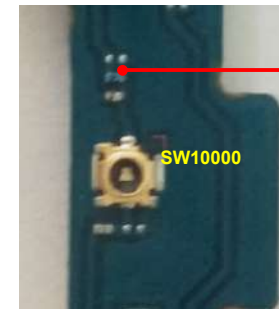
3.6 WCDMA RF PART

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

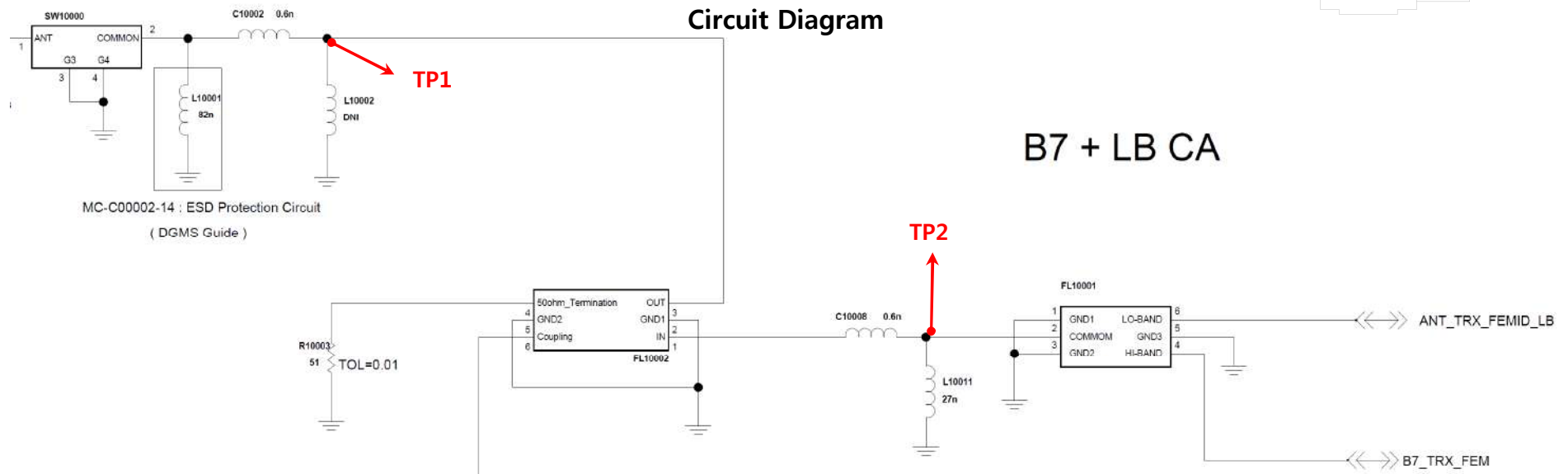
Checking Flow



Image



Circuit Diagram



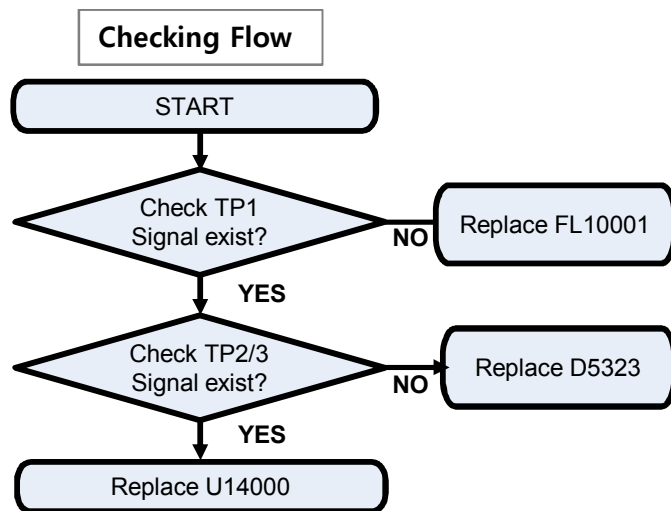
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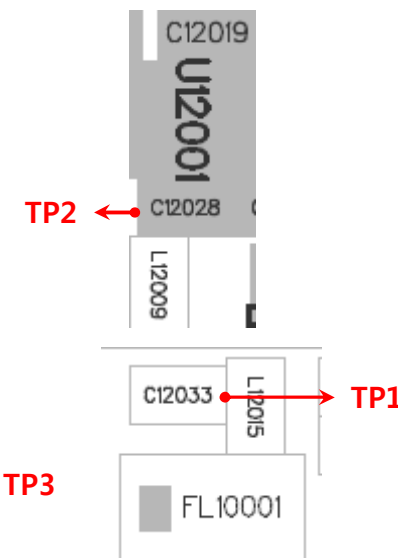
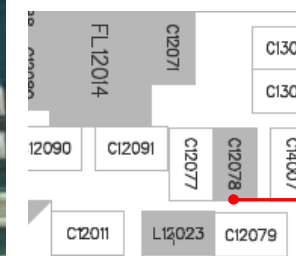
3. TROUBLE SHOOTING

3.6 WCDMA RF PART

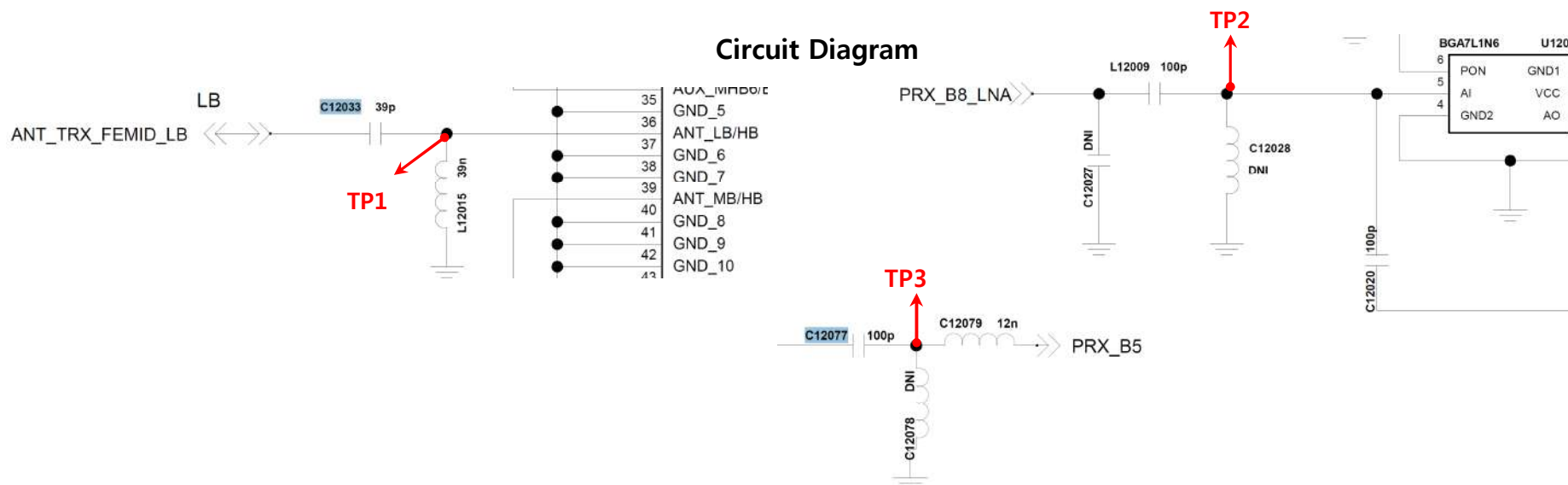
3.6.2 Checking RF Signal RX path(WCDMA B5/B8)



Image

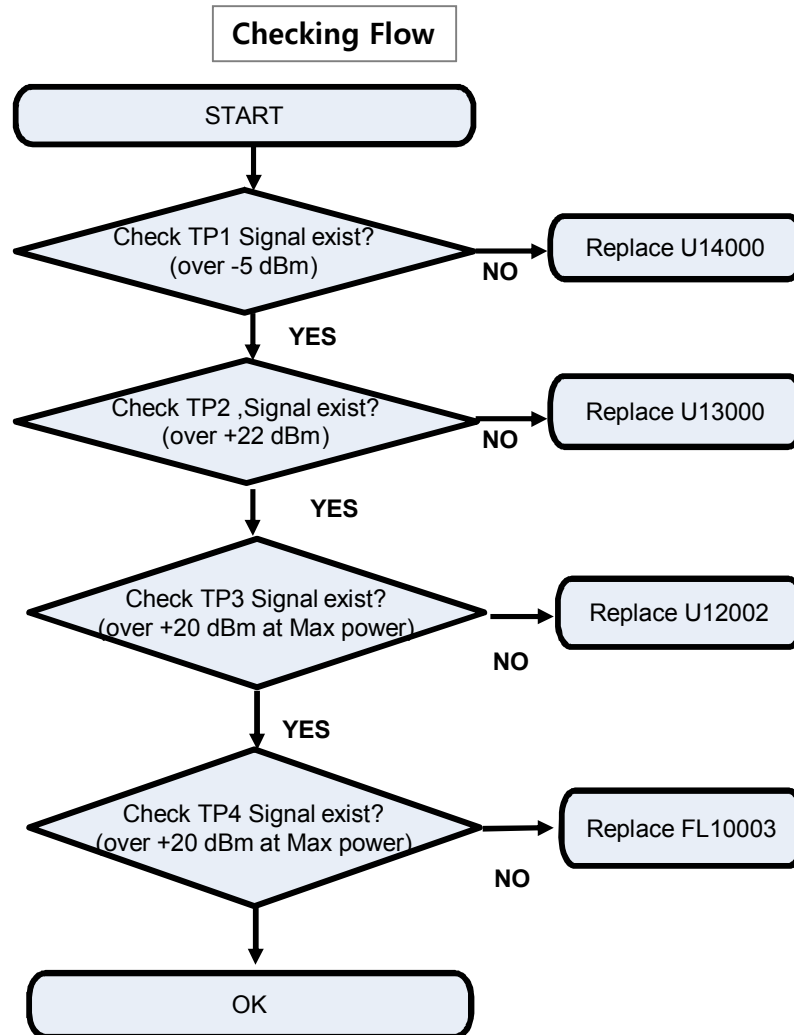


Circuit Diagram



3.6 WCDMA RF PART

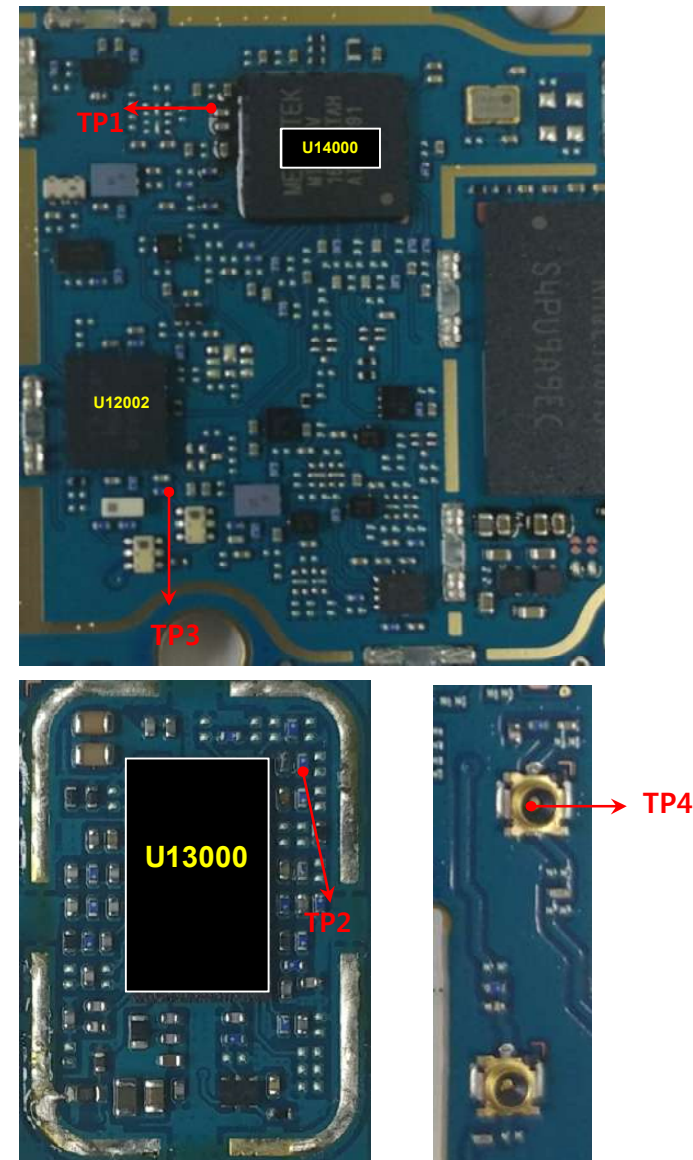
3.6.5 Checking RF Signal TX path(WCDMA B1/B2)



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3. TROUBLE SHOOTING

Image



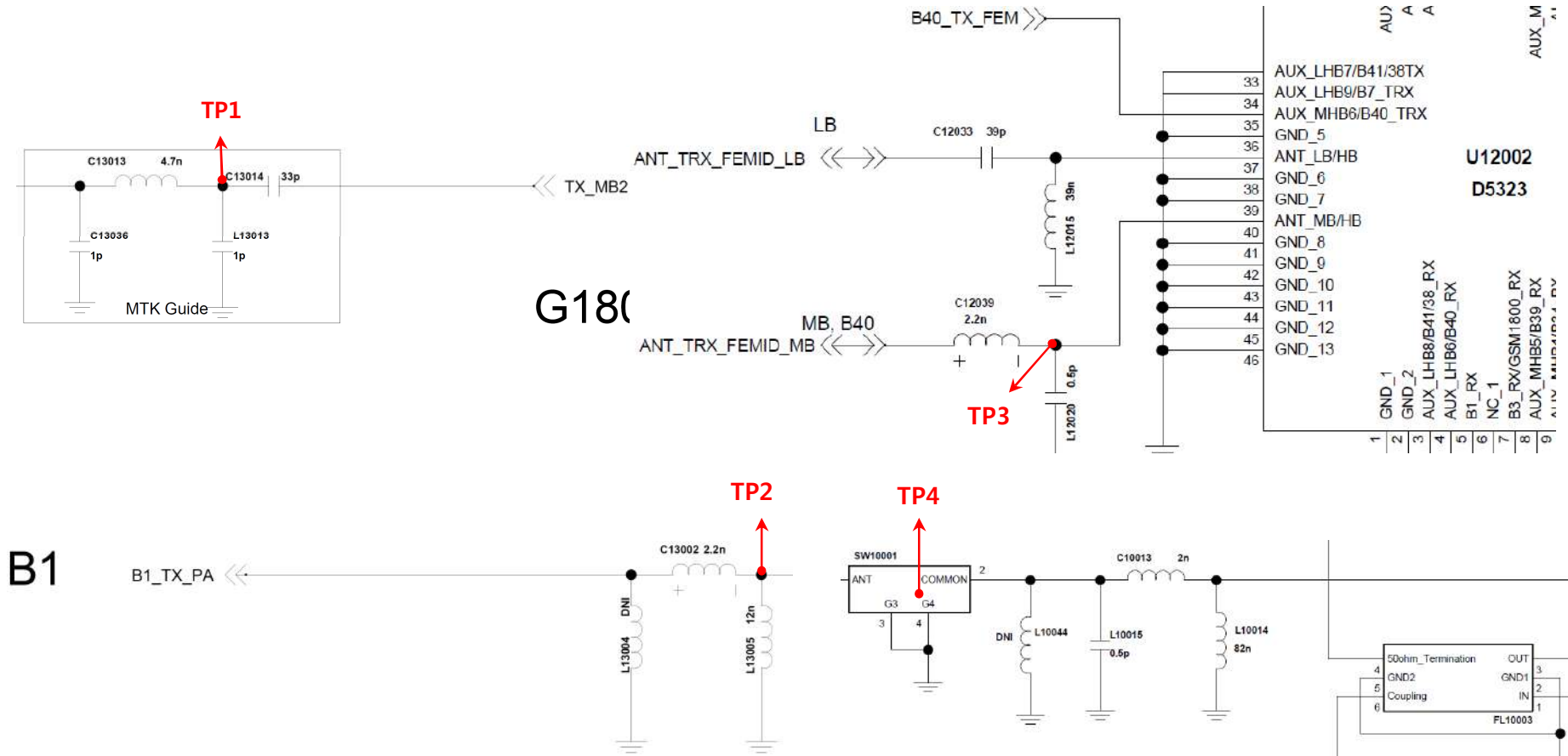
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3.6 WCDMA RF PART

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

3. TROUBLE SHOOTING

Circuit Diagram

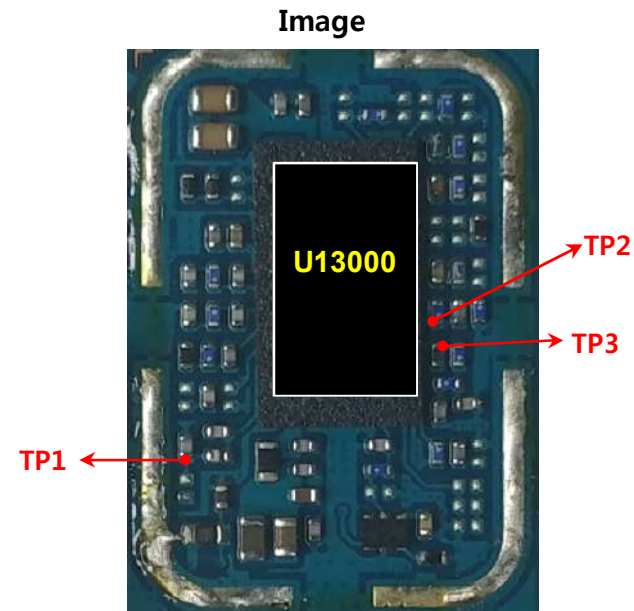
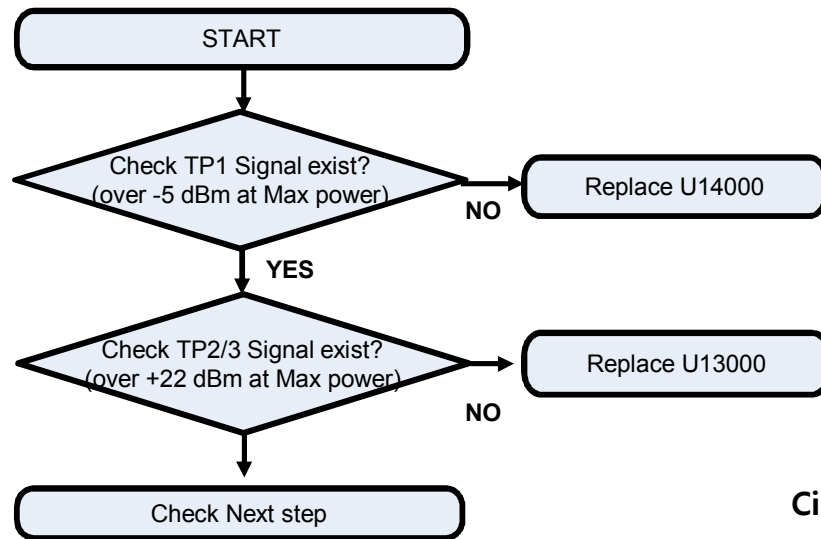


3. TROUBLE SHOOTING

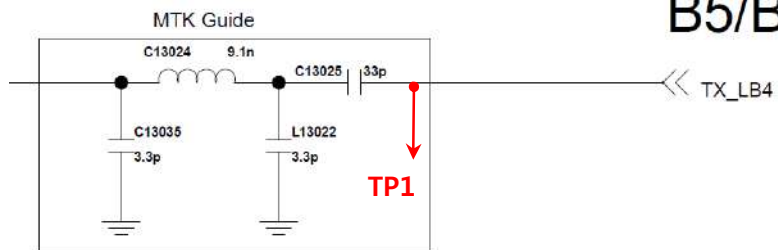
3.6 WCDMA RF PART

3.6.5 Checking RF Signal TX path(WCDMA B5/B8)

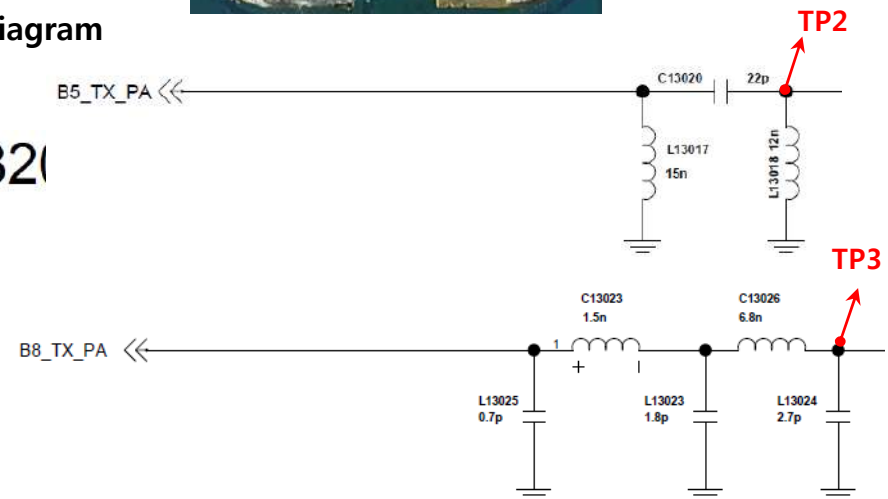
Checking Flow



Circuit Diagram



B5/B8/B17/B20



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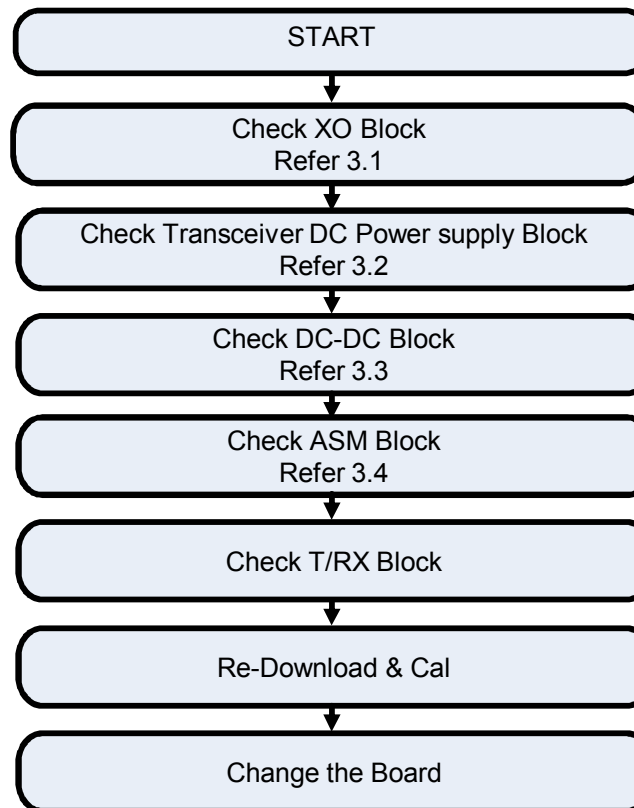
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3. TROUBLE SHOOTING

3.7 LTE RF PART

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

Checking Flow

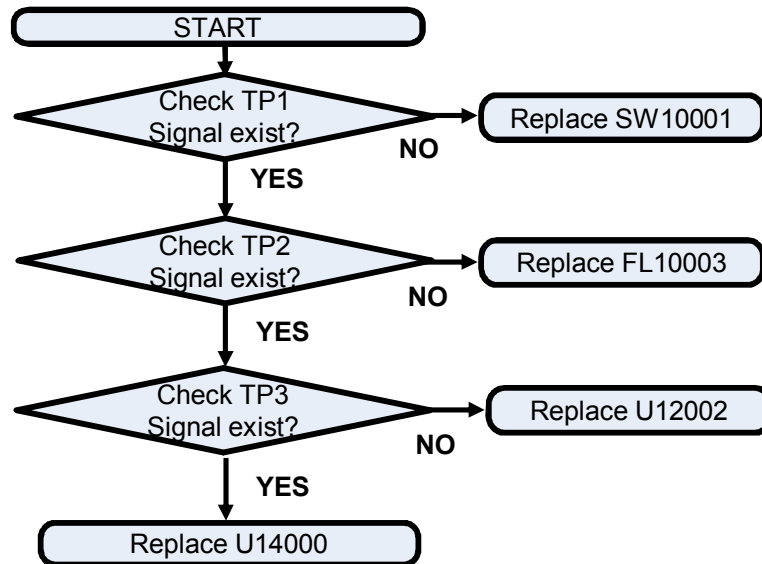


3. TROUBLE SHOOTING

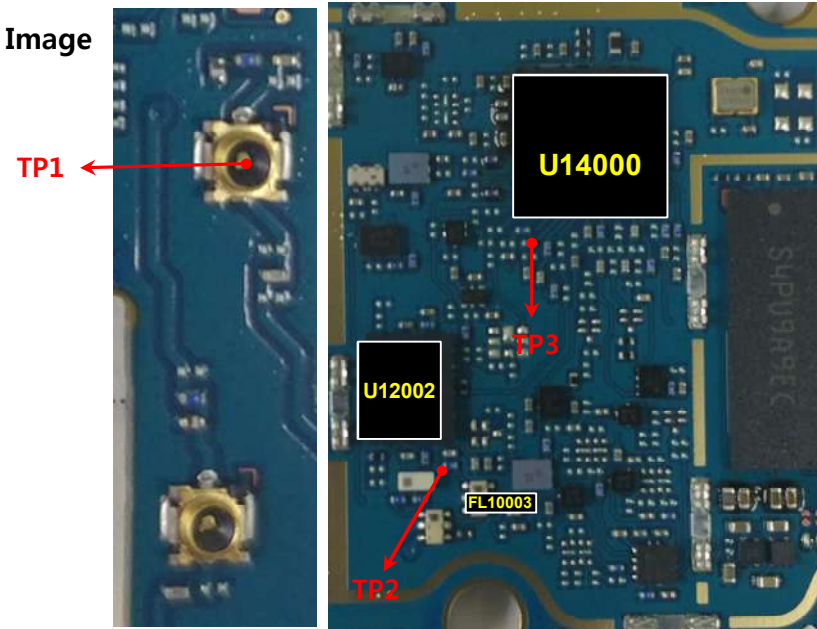
3.7 LTE RF PART

3.7.2 Checking RF Signal RX path(LTE B3)

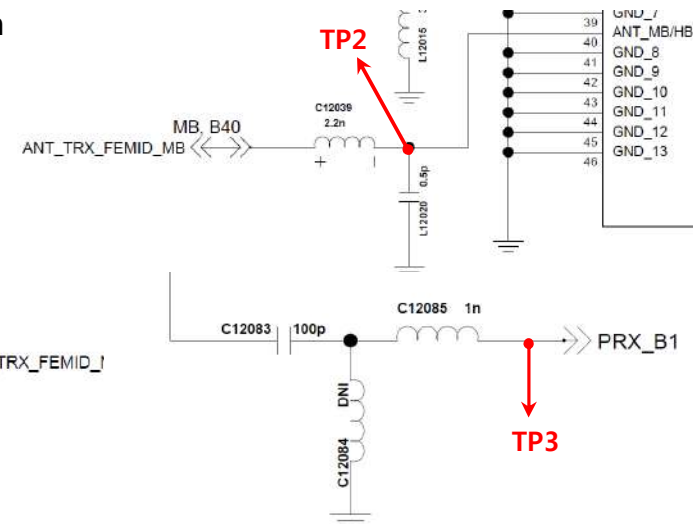
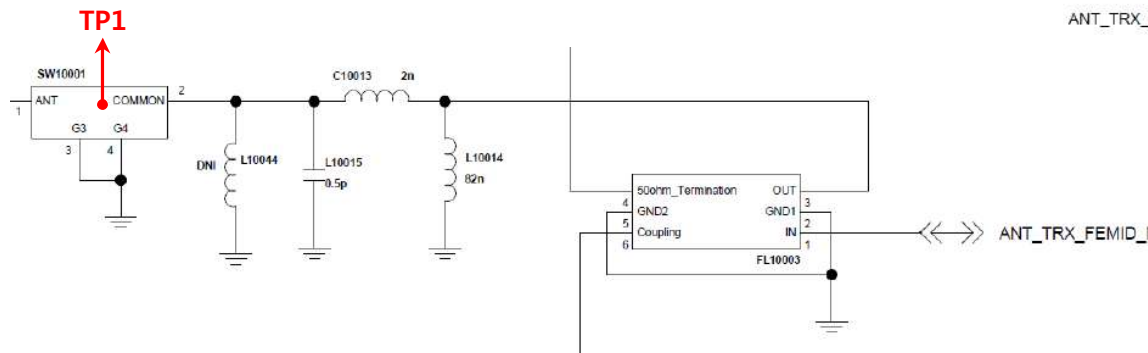
Checking Flow



Image



Circuit Diagram



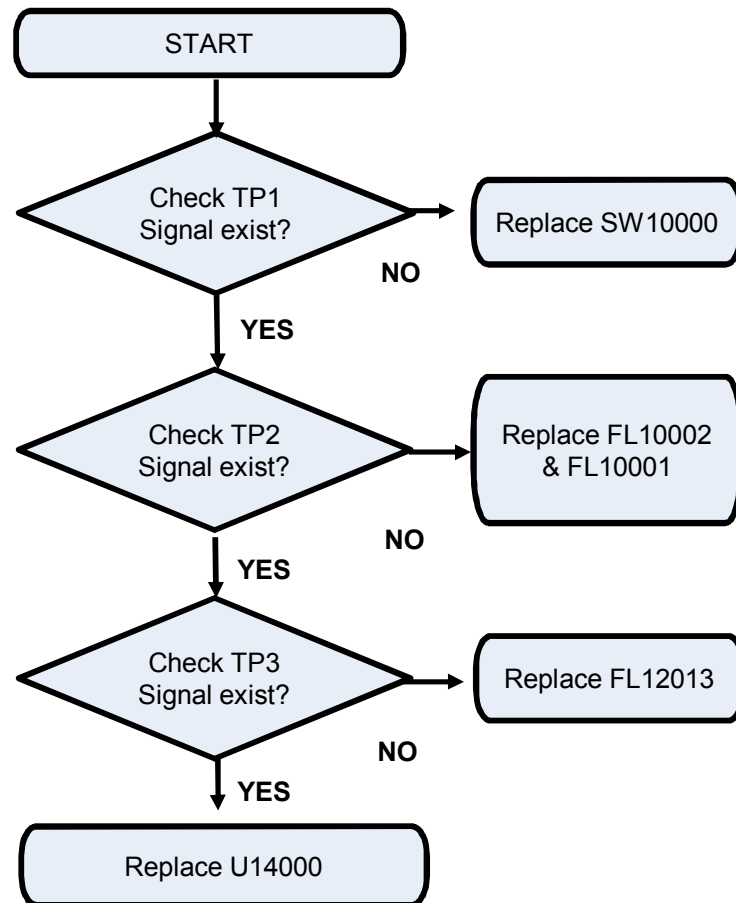
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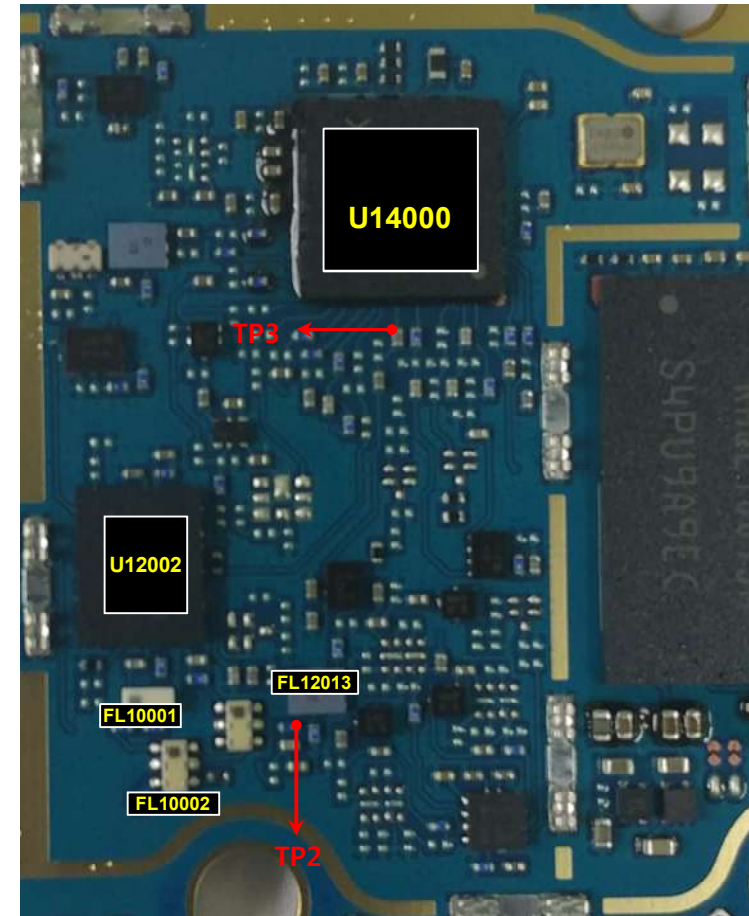
3. TROUBLE SHOOTING

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

Checking Flow



Image

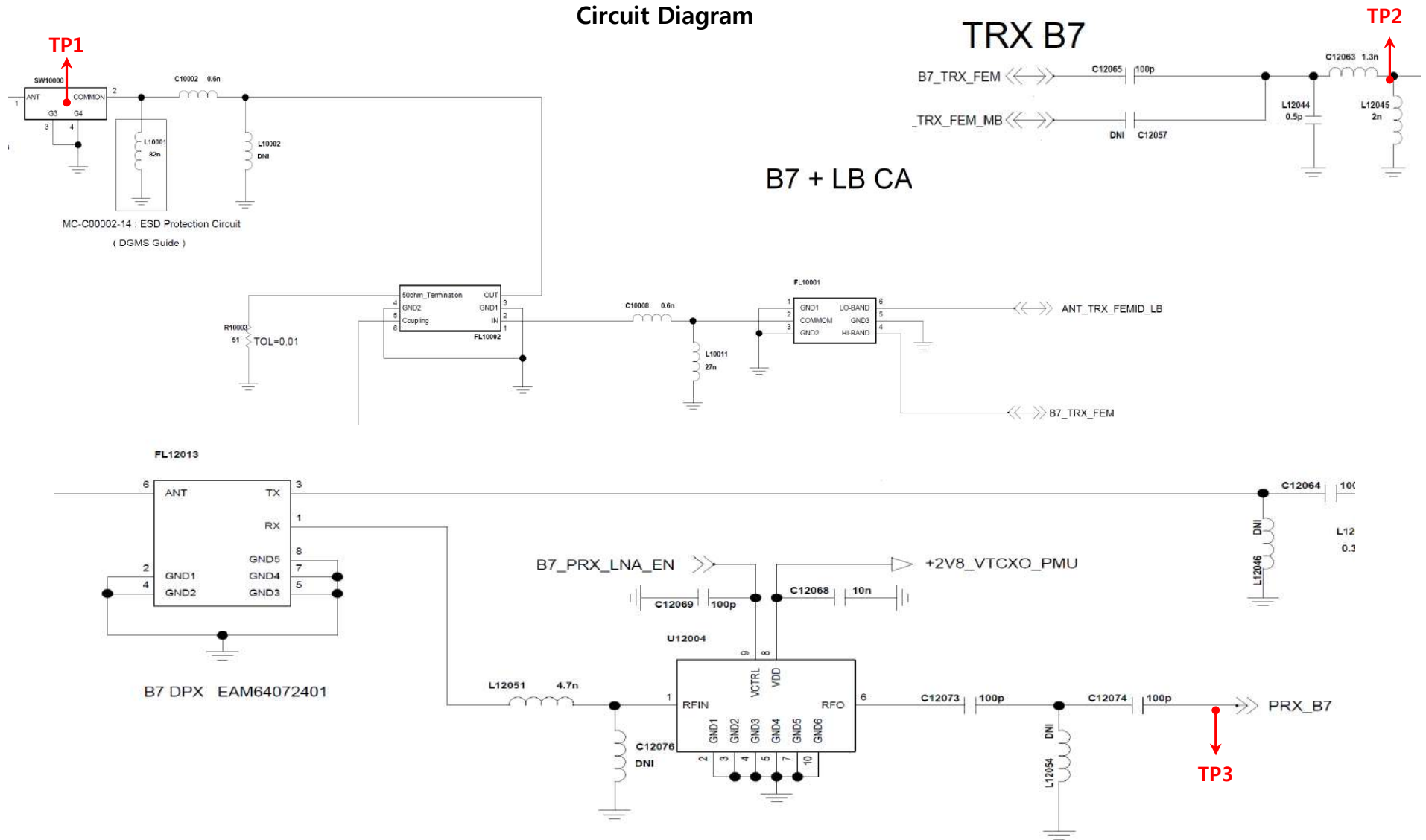


3. TROUBLE SHOOTING

3.7 LTE RF PART

3.7.2 Checking RF Signal RX path(LTE B7)

Circuit Diagram



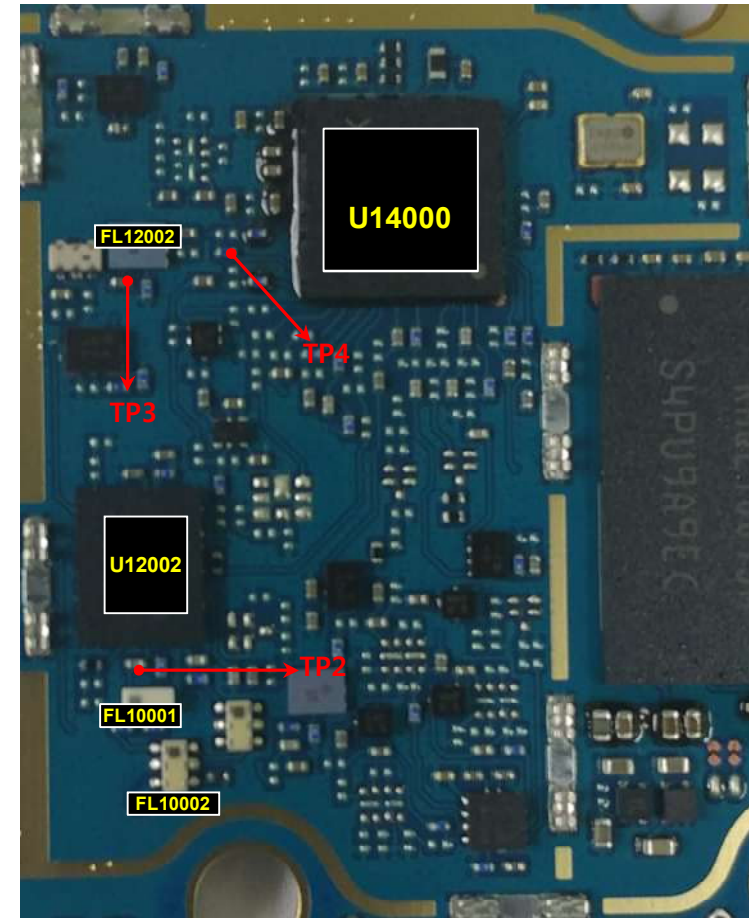
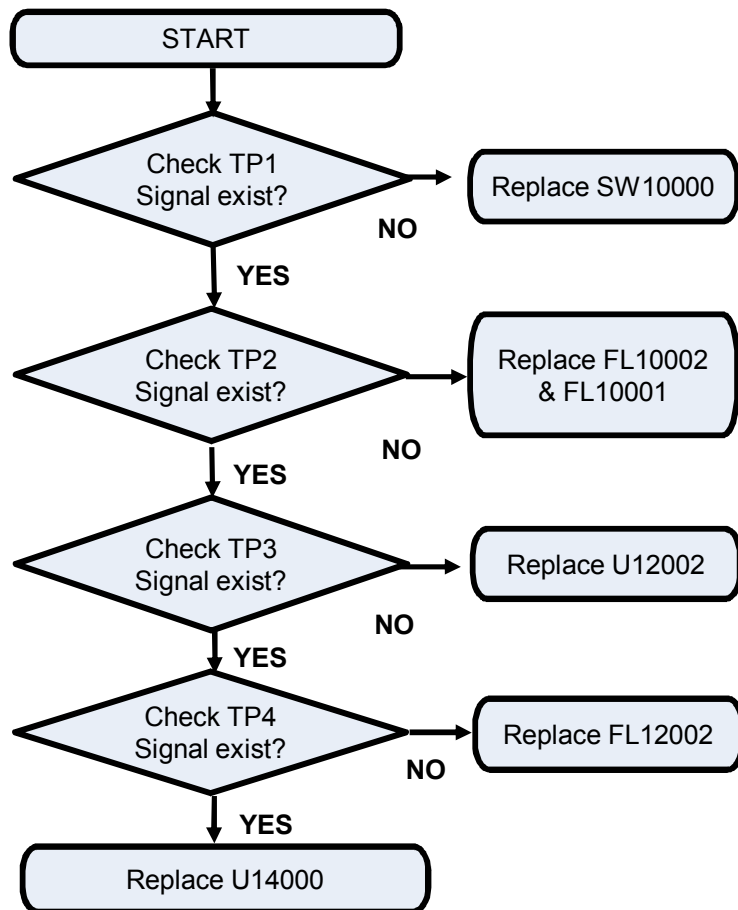
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3.7 LTE RF PART

3.7.2 Checking RF Signal RX path(LTE B28A)

Checking Flow



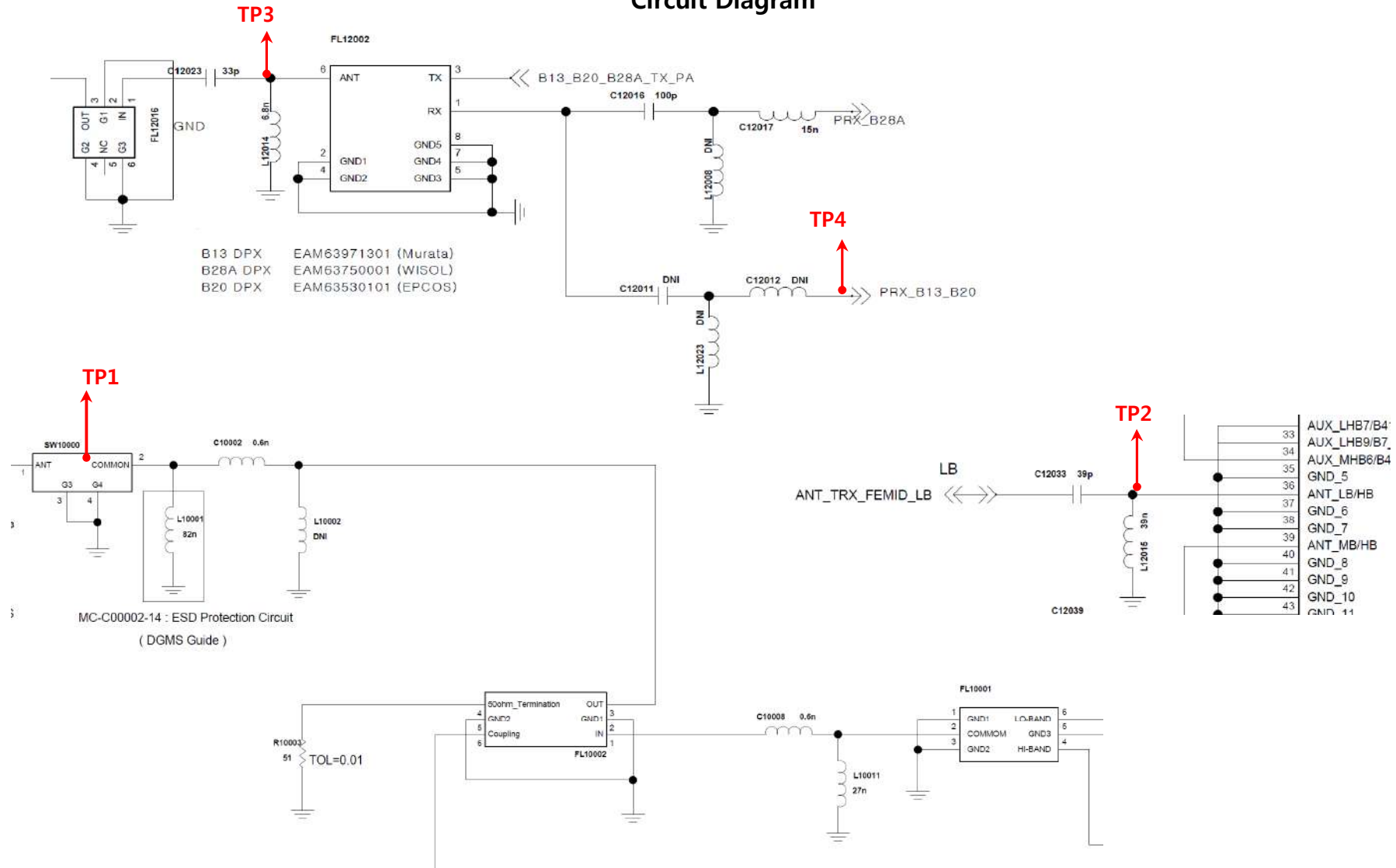
Image

3. TROUBLE SHOOTING

3.7 LTE RF PART

3.7.2 Checking RF Signal RX path(LTE B28A)

Circuit Diagram



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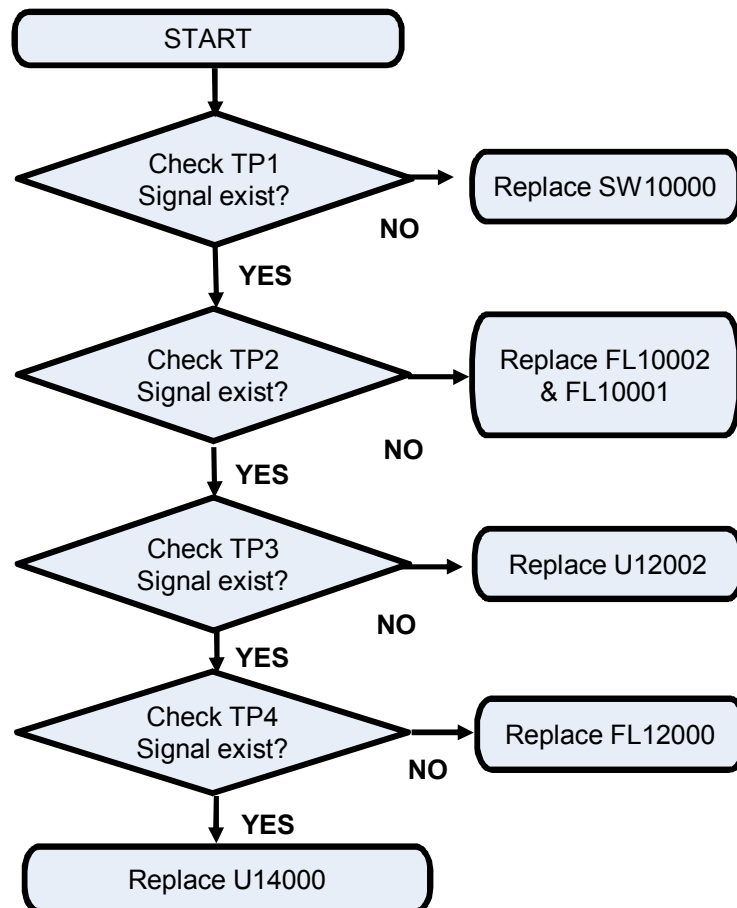
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3. TROUBLE SHOOTING

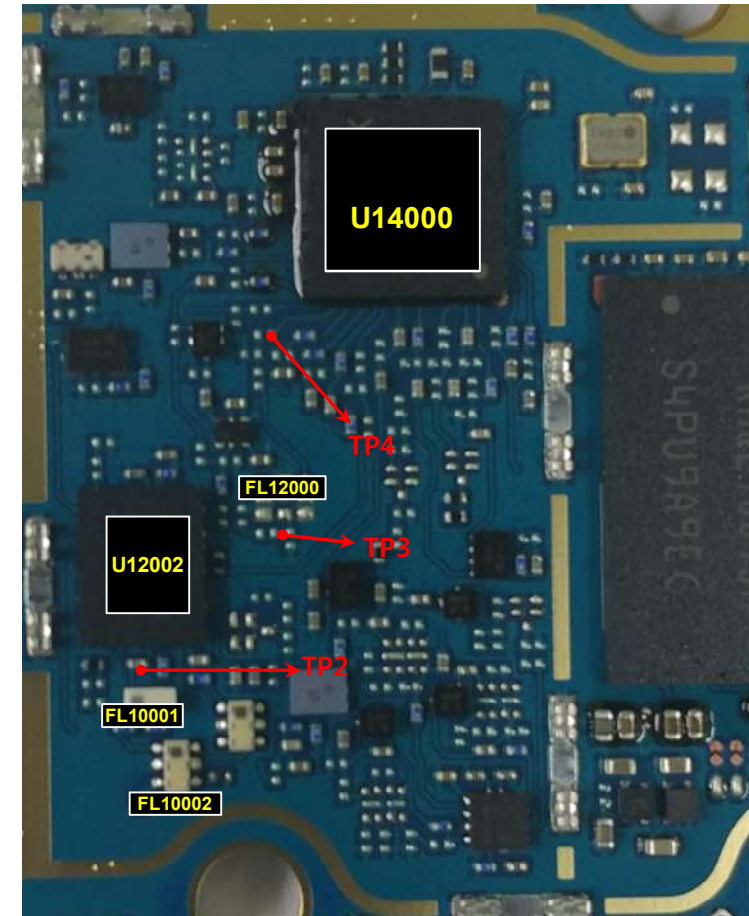
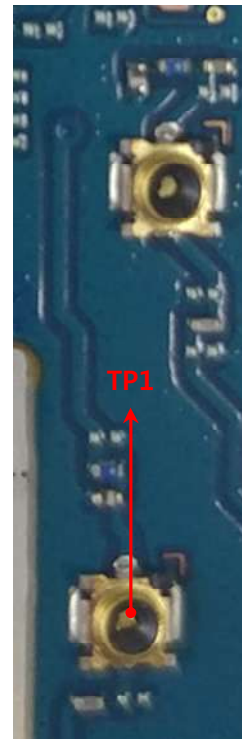
3.7 LTE RF PART

3.7.2 Checking RF Signal RX path(LTE B28B)

Checking Flow



Image

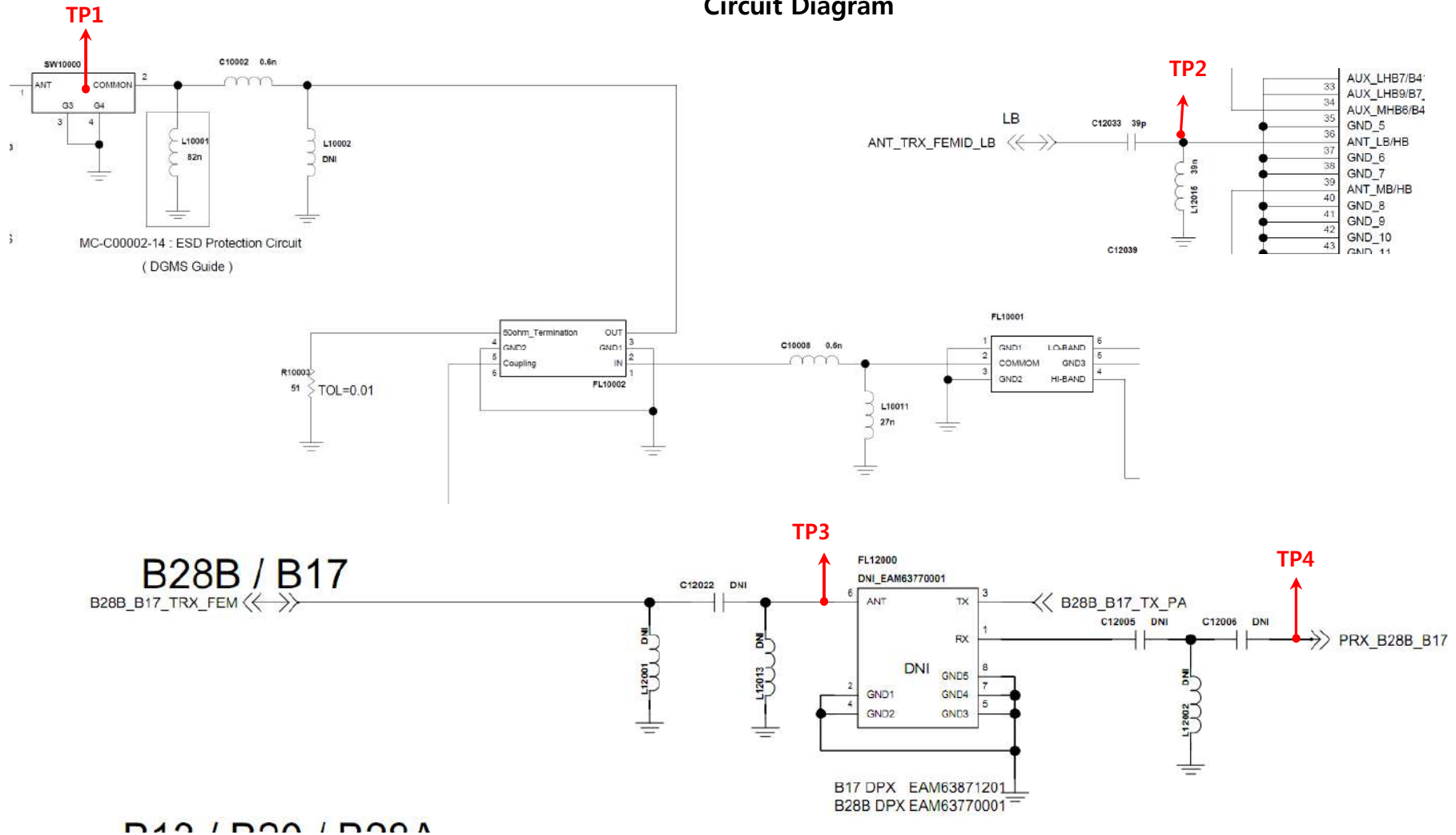


3. TROUBLE SHOOTING

3.7 LTE RF PART

3.7.2 Checking RF Signal RX path(LTE B28B)

Circuit Diagram

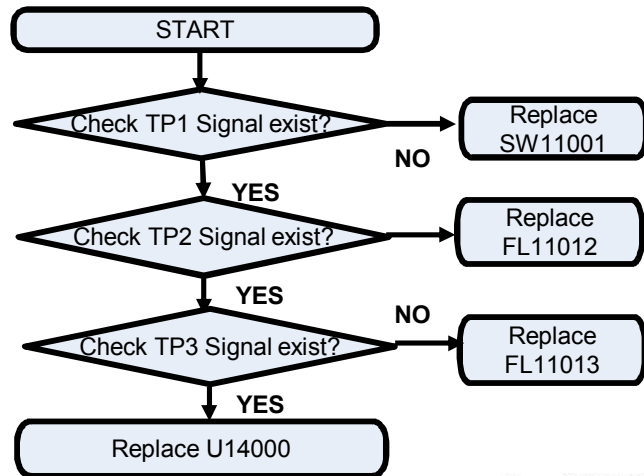


3. TROUBLE SHOOTING

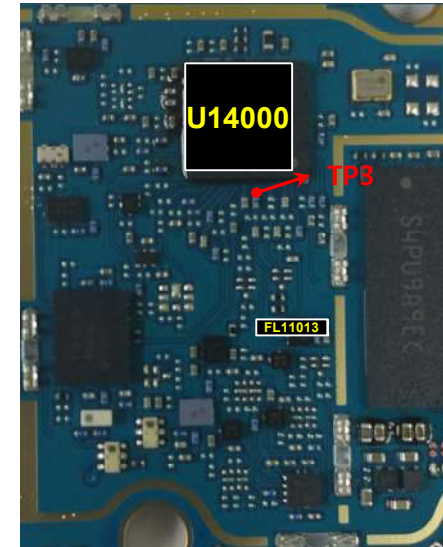
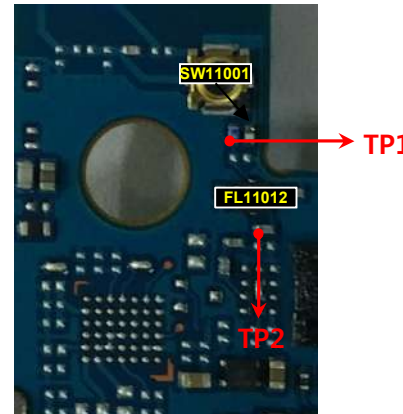
3.7 LTE RF PART

3.7.8 Checking RF Signal DRX path(LTE B3)

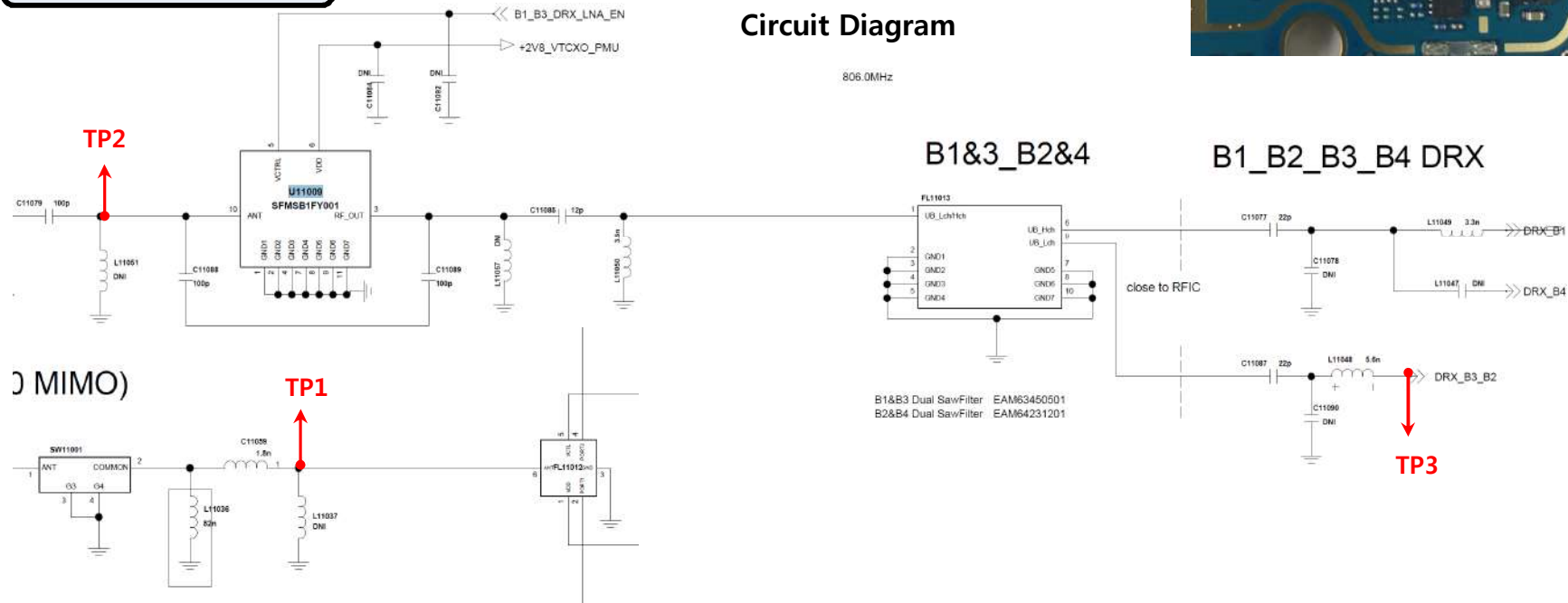
Checking Flow



Image



Circuit Diagram



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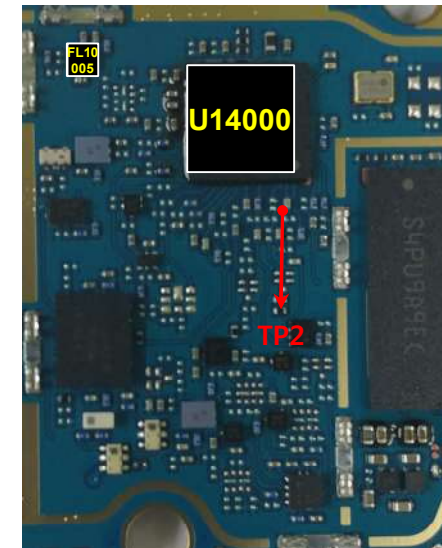
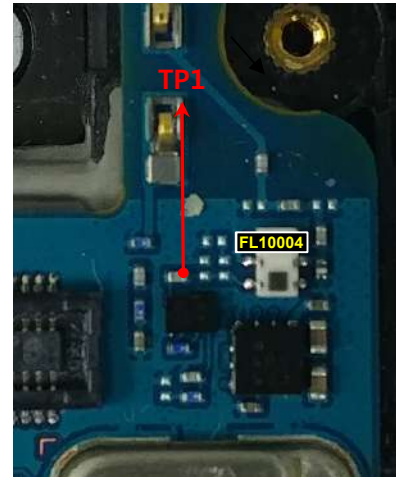
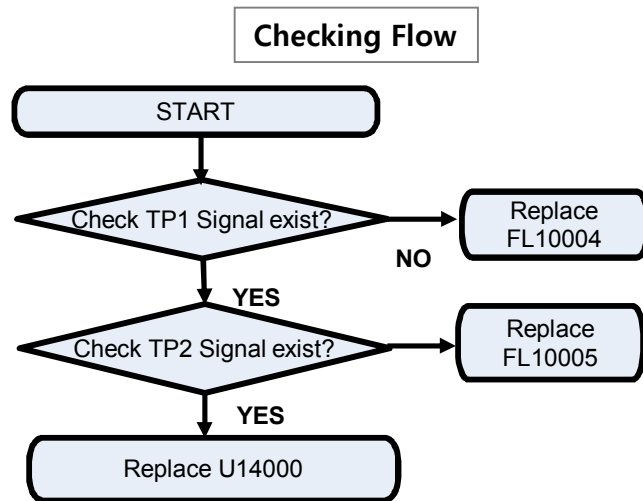
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3. TROUBLE SHOOTING

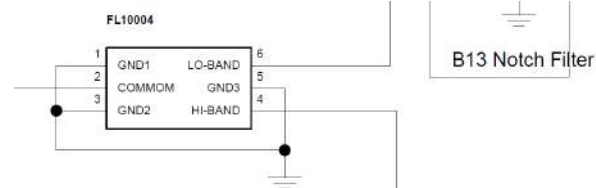
3.7 LTE RF PART

3.7.8 Checking RF Signal DRX path(LTE B7)

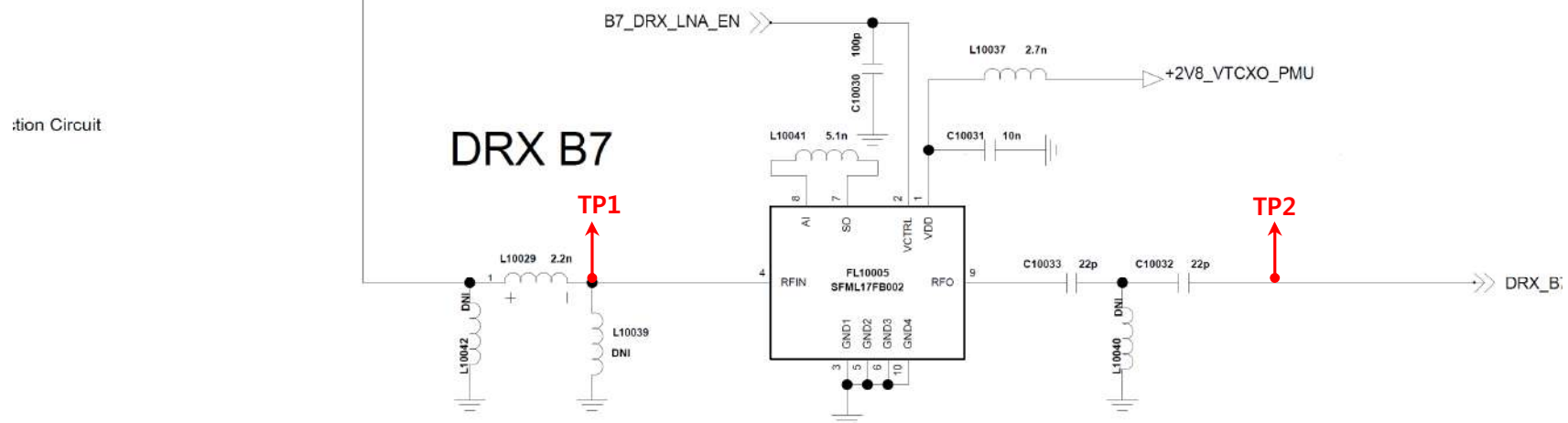
Image



Circuit Diagram



Circuit Diagram



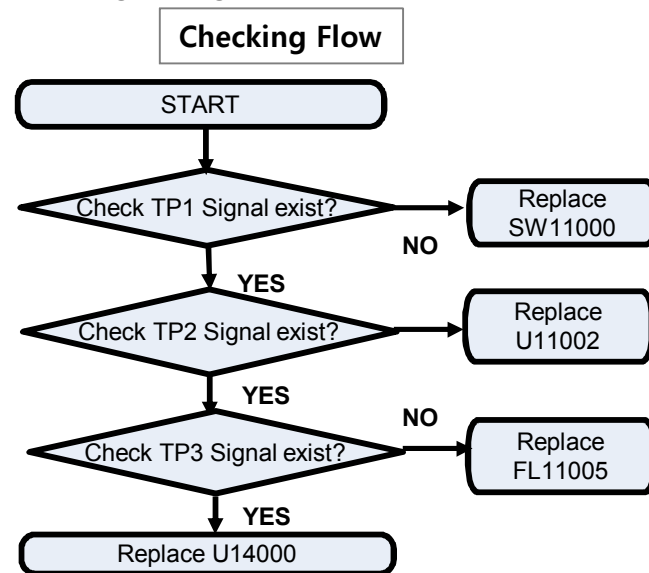
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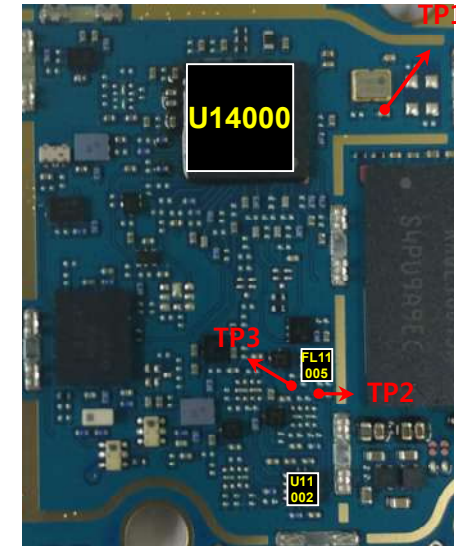
3. TROUBLE SHOOTING

3.7 LTE RF PART

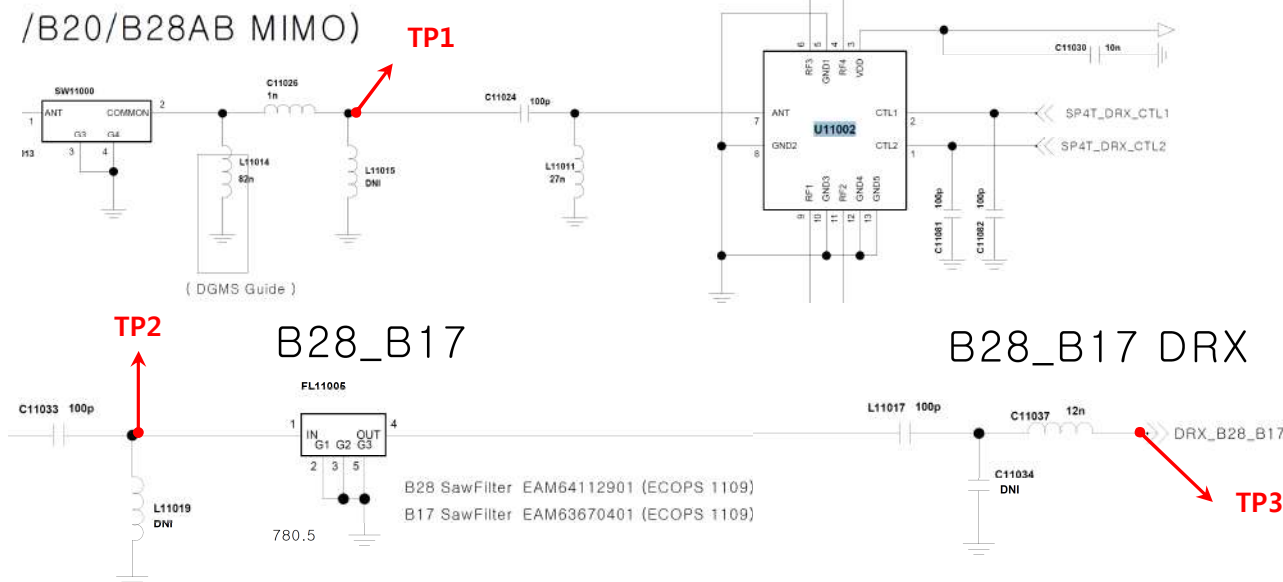
3.7.8 Checking RF Signal DRX path(LTE B28)



Image



Circuit Diagram



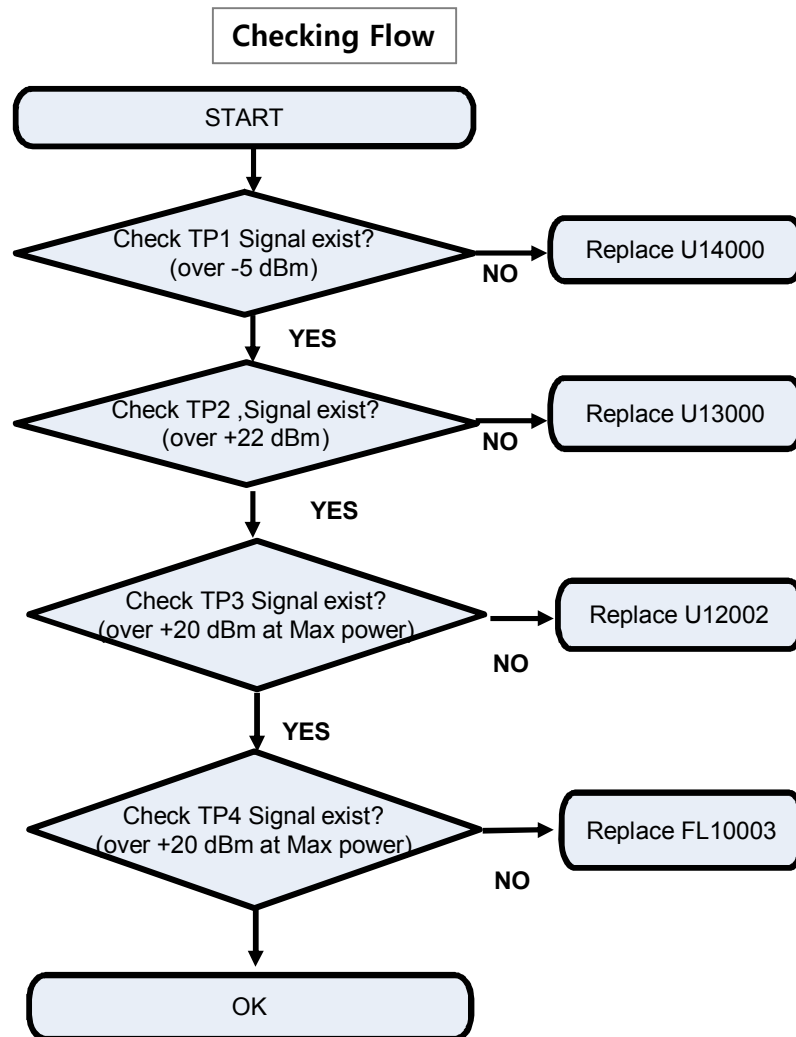
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3. TROUBLE SHOOTING

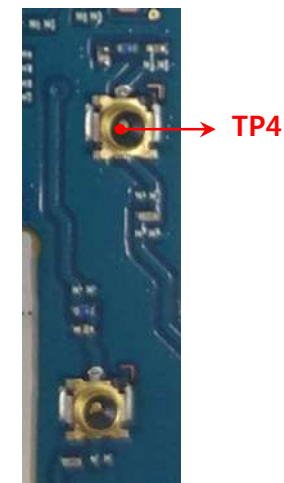
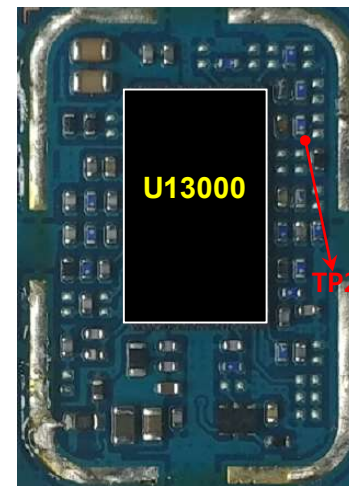
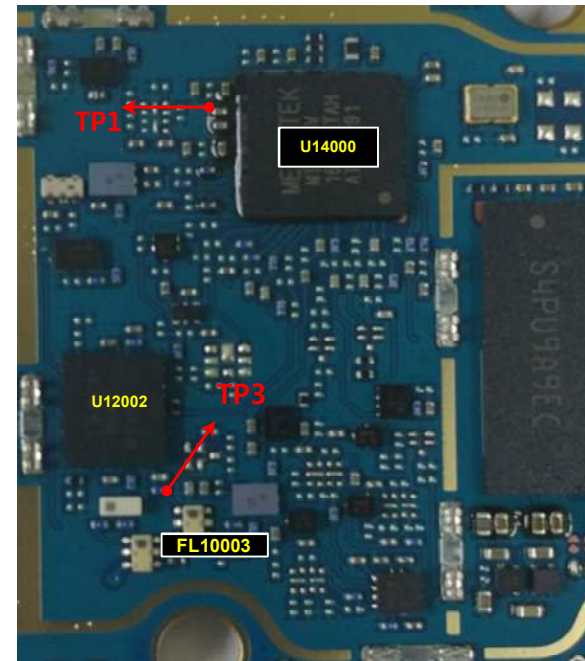
3.7 LTE RF PART

3.7.12 Checking RF Signal TX path(LTE B3)



LGE Internal Use Only

Image



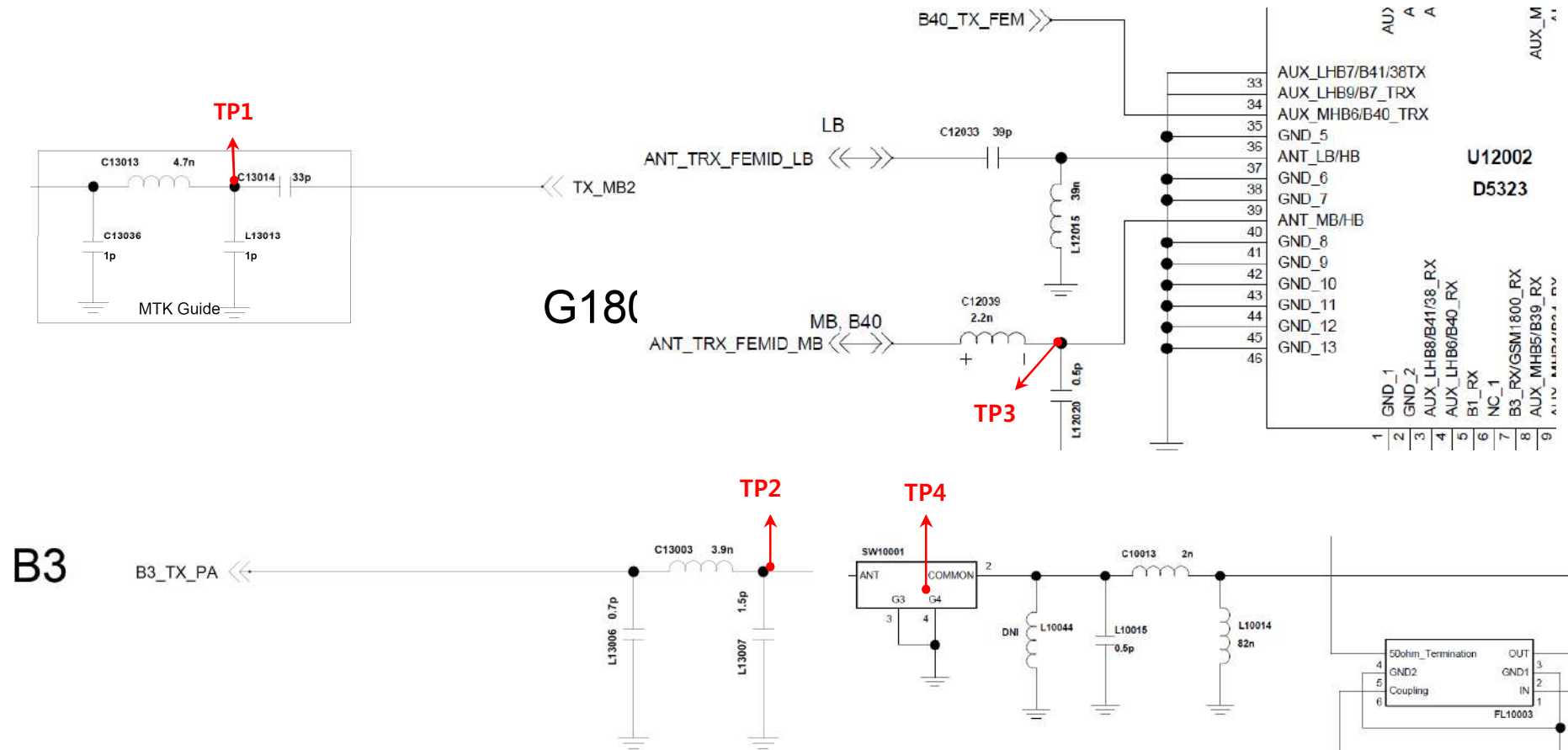
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3. TROUBLE SHOOTING

3.7 LTE RF PART

3.7.12 Checking RF Signal TX path(LTE B3)

Circuit Diagram



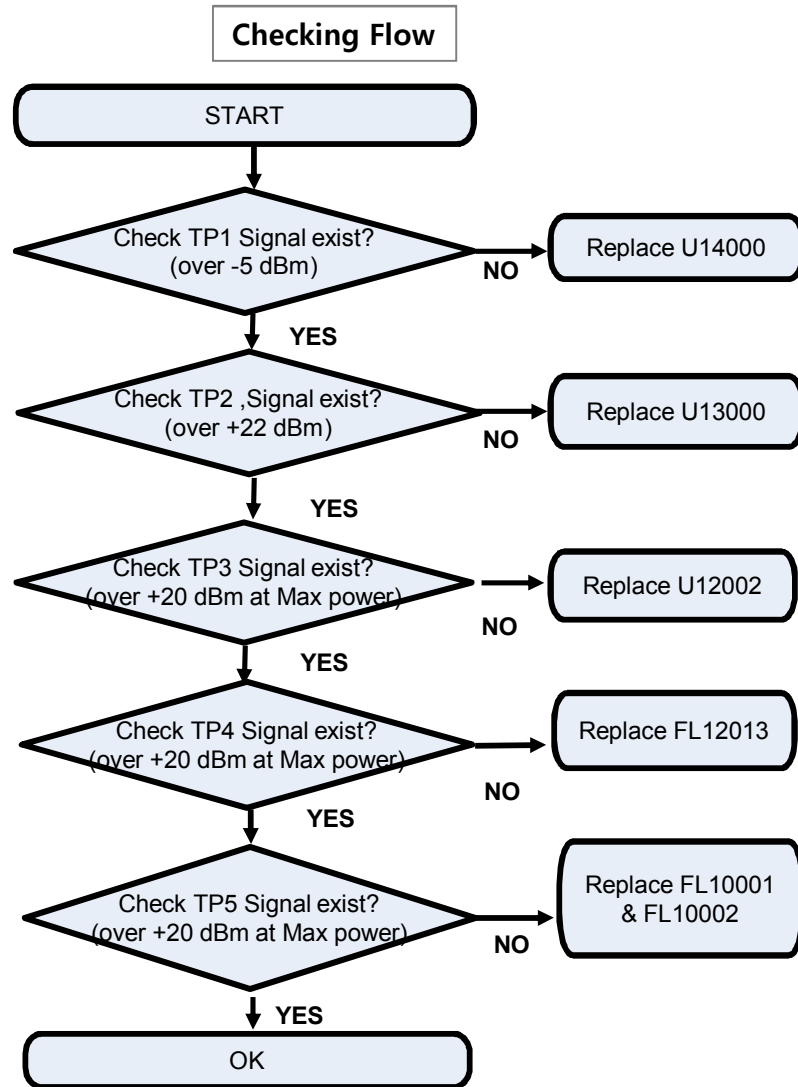
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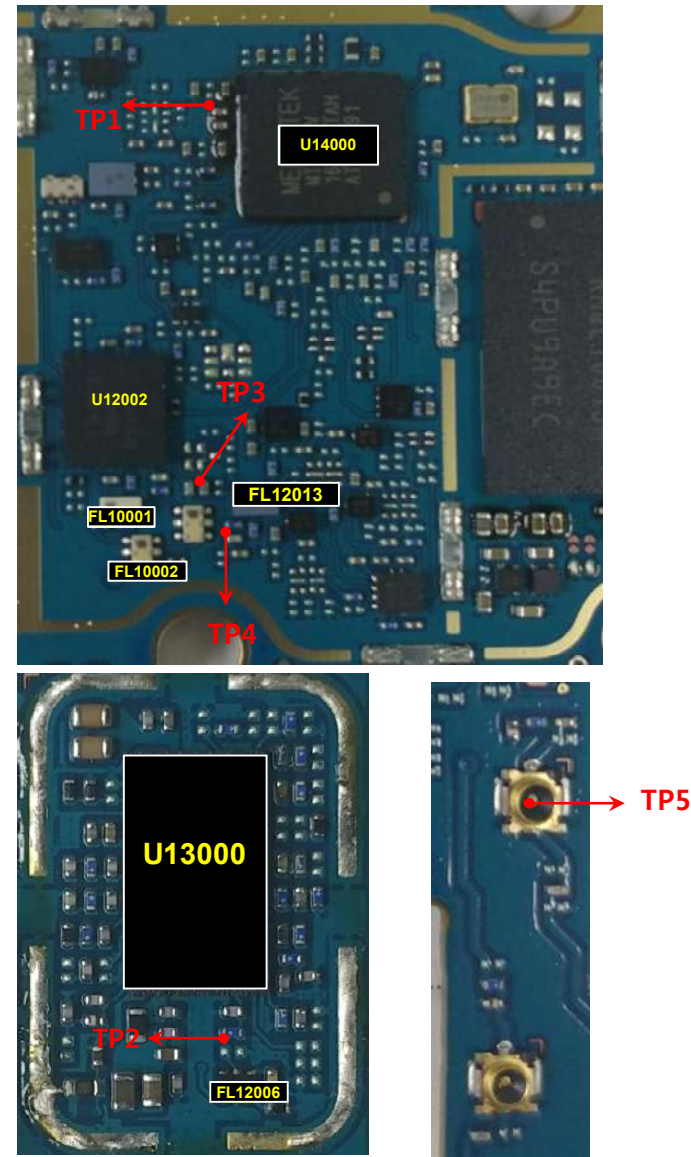
3. TROUBLE SHOOTING

3.7 LTE RF PART

3.7.12 Checking RF Signal TX path(LTE B7)



Image



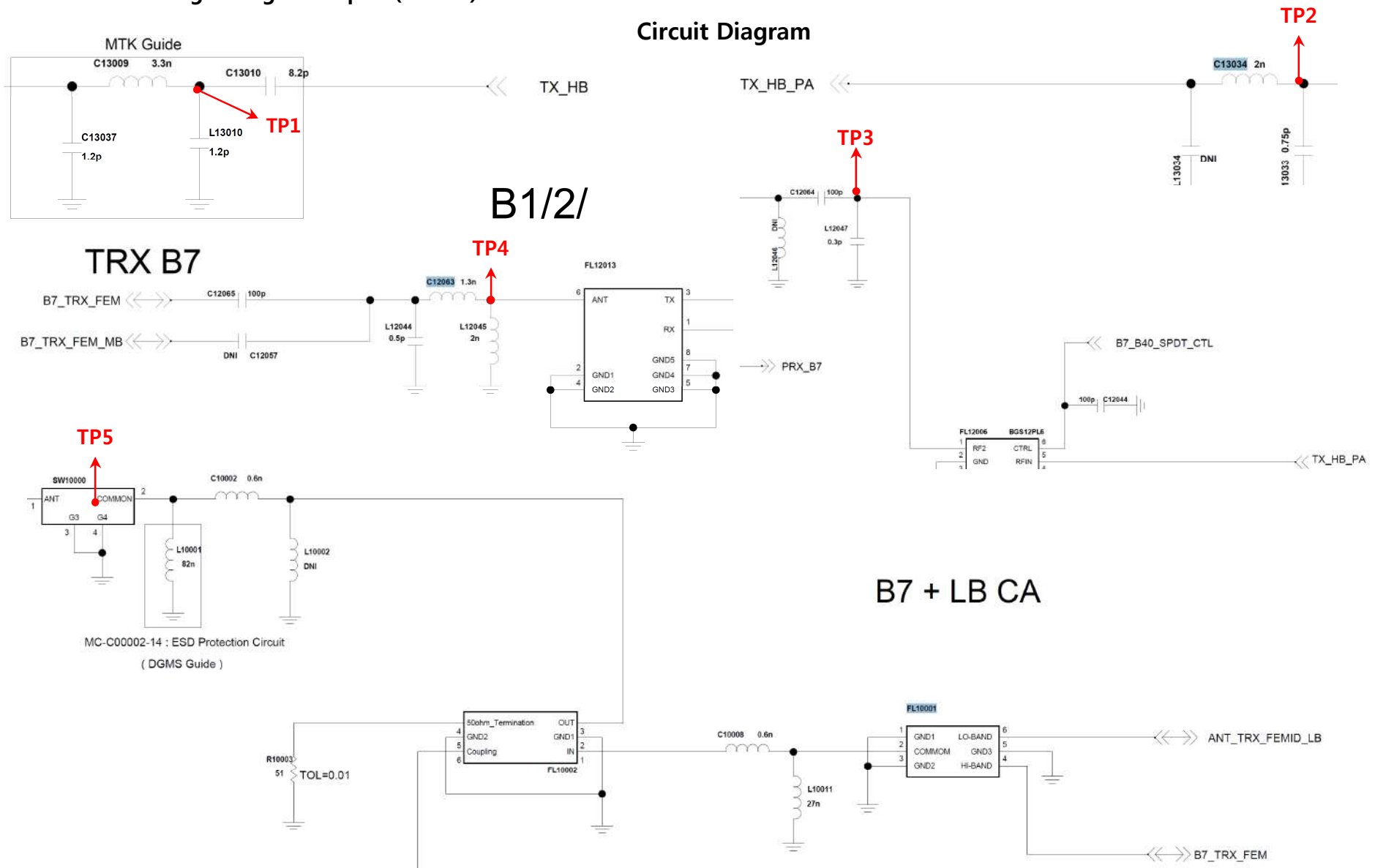
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3.7 LTE RF PART

3.7.12 Checking RF Signal TX path(LTE B7)

Circuit Diagram



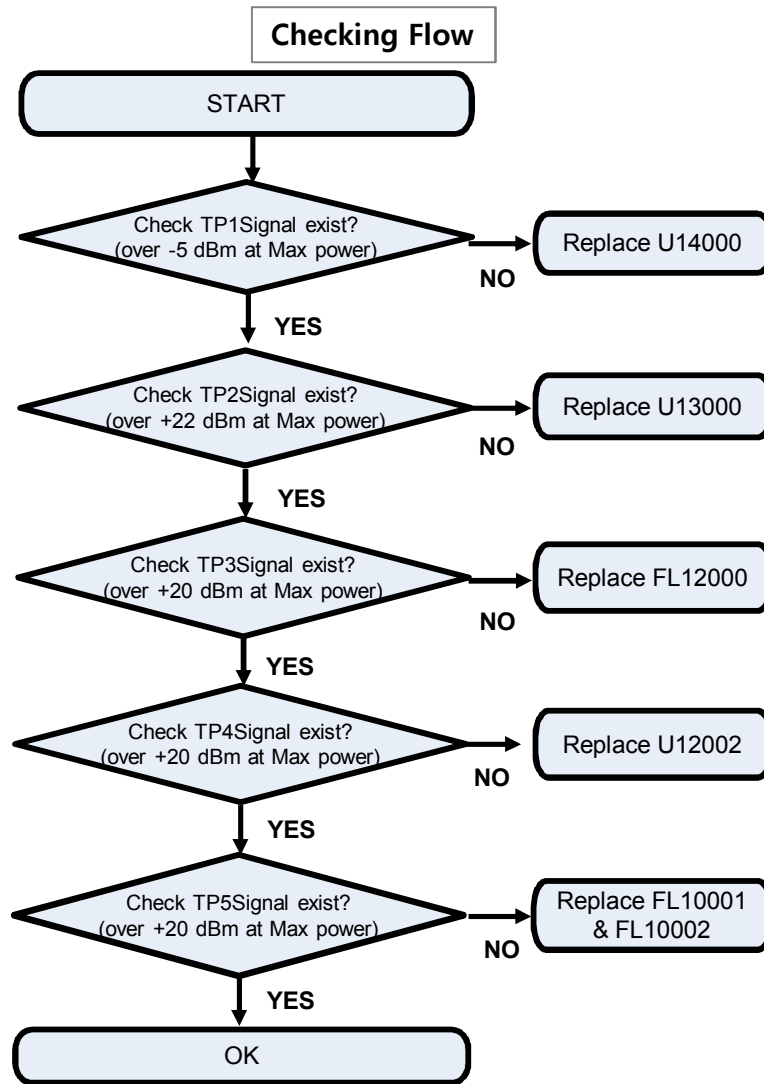
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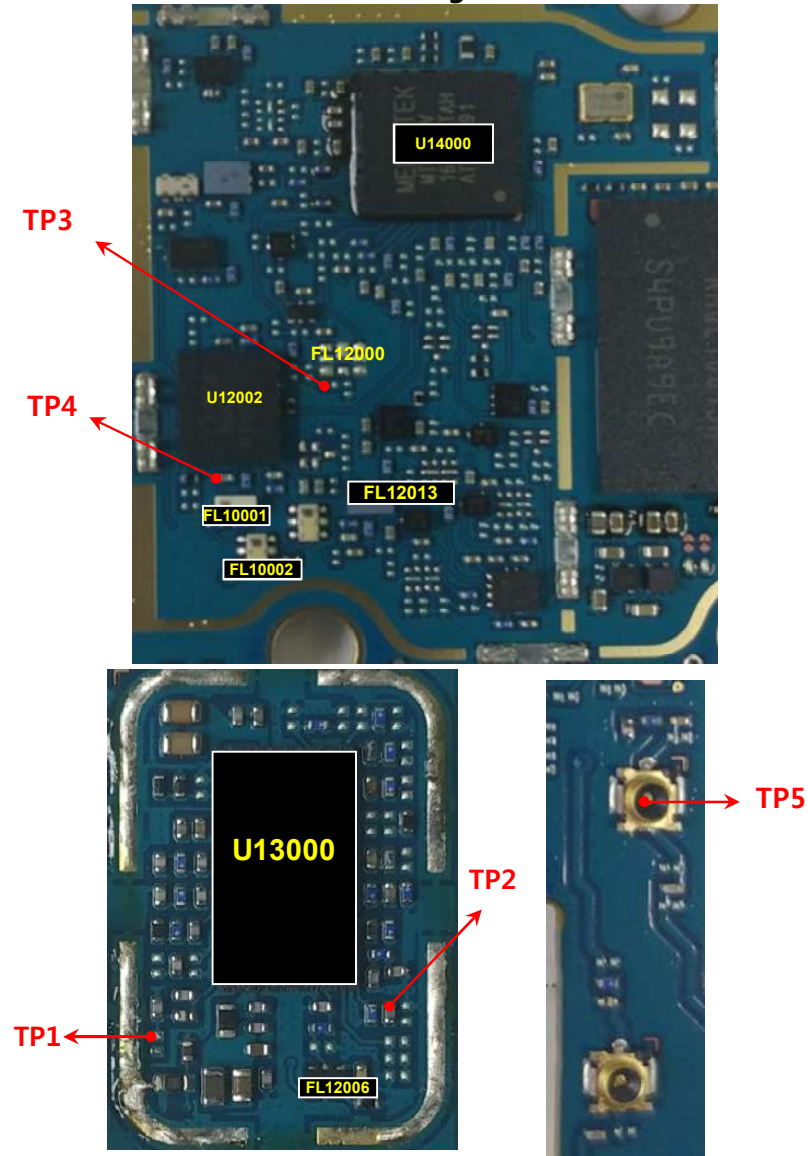
3. TROUBLE SHOOTING

3.7 LTE RF PART

3.7.12 Checking RF Signal TX path(LTE B28A)



Image



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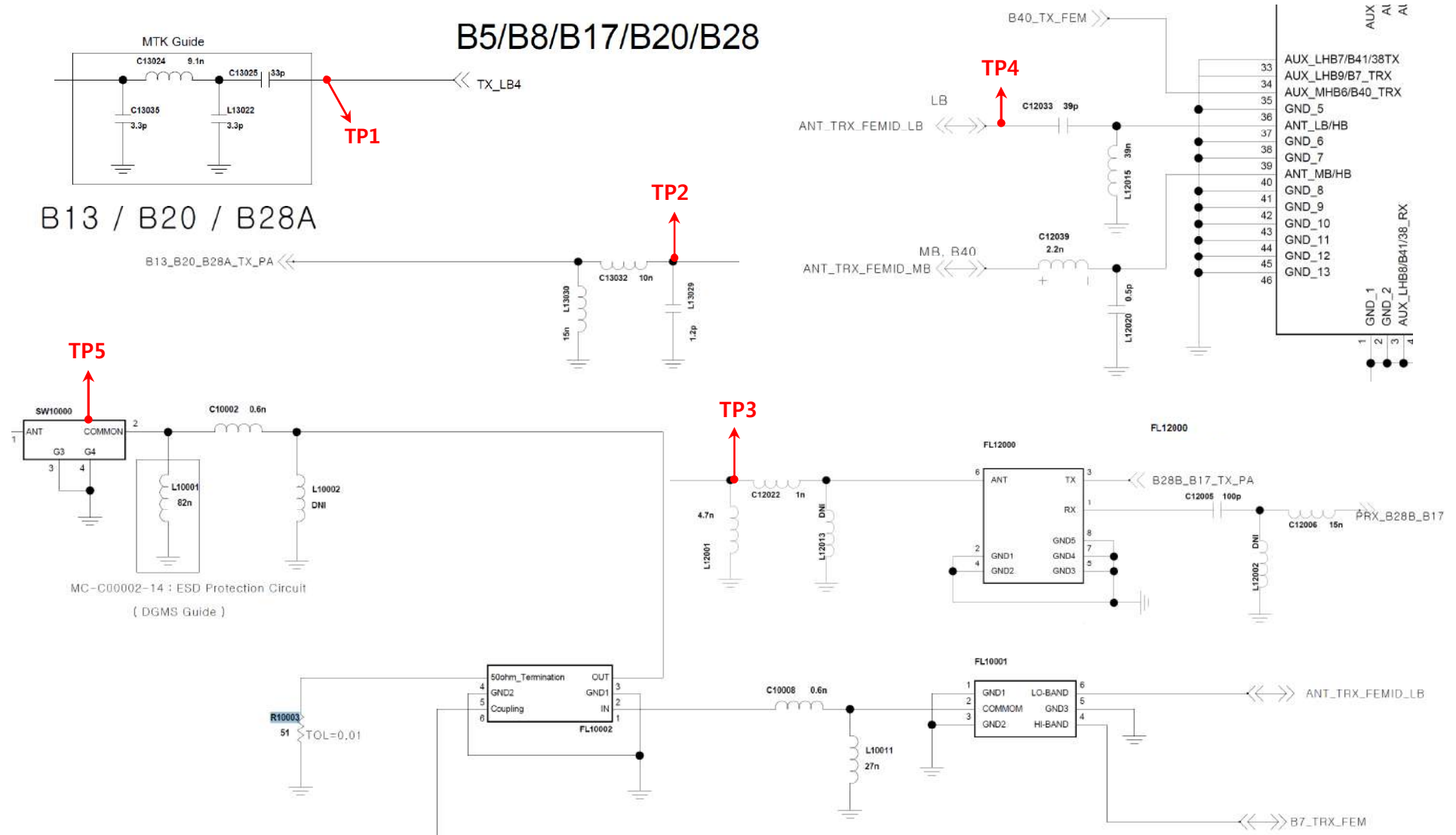
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3. TROUBLE SHOOTING

3.7 LTE RF PART

3.7.12 Checking RF Signal TX path(LTE B28A)

Circuit Diagram



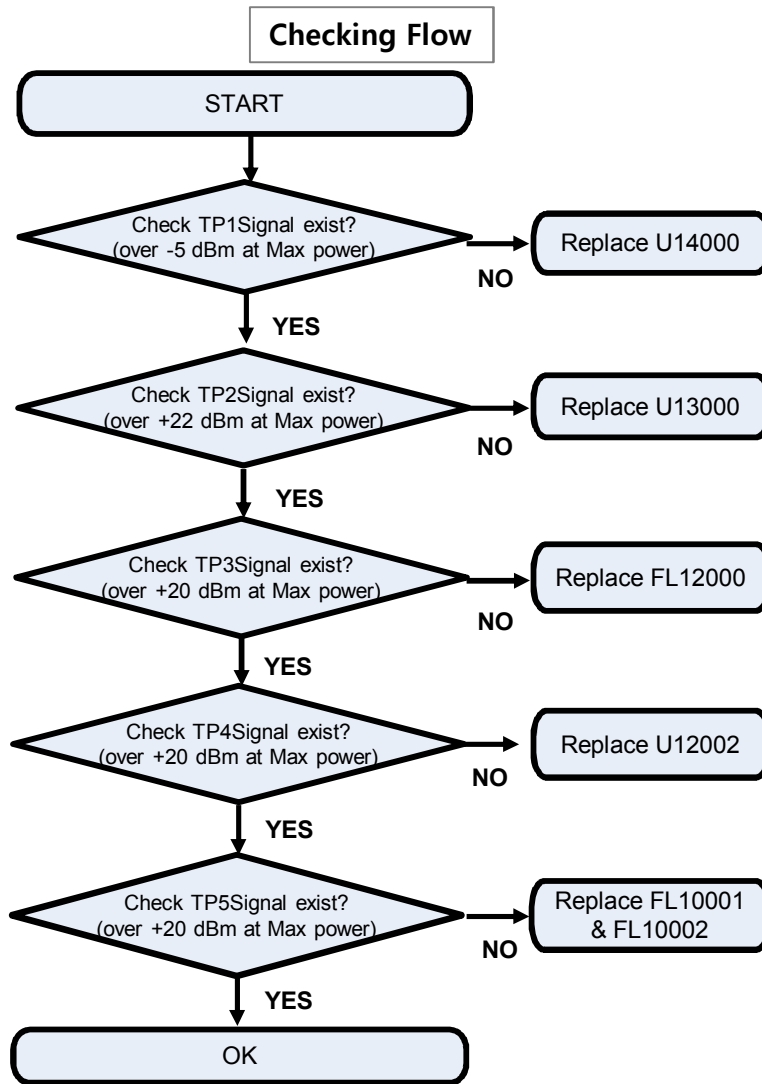
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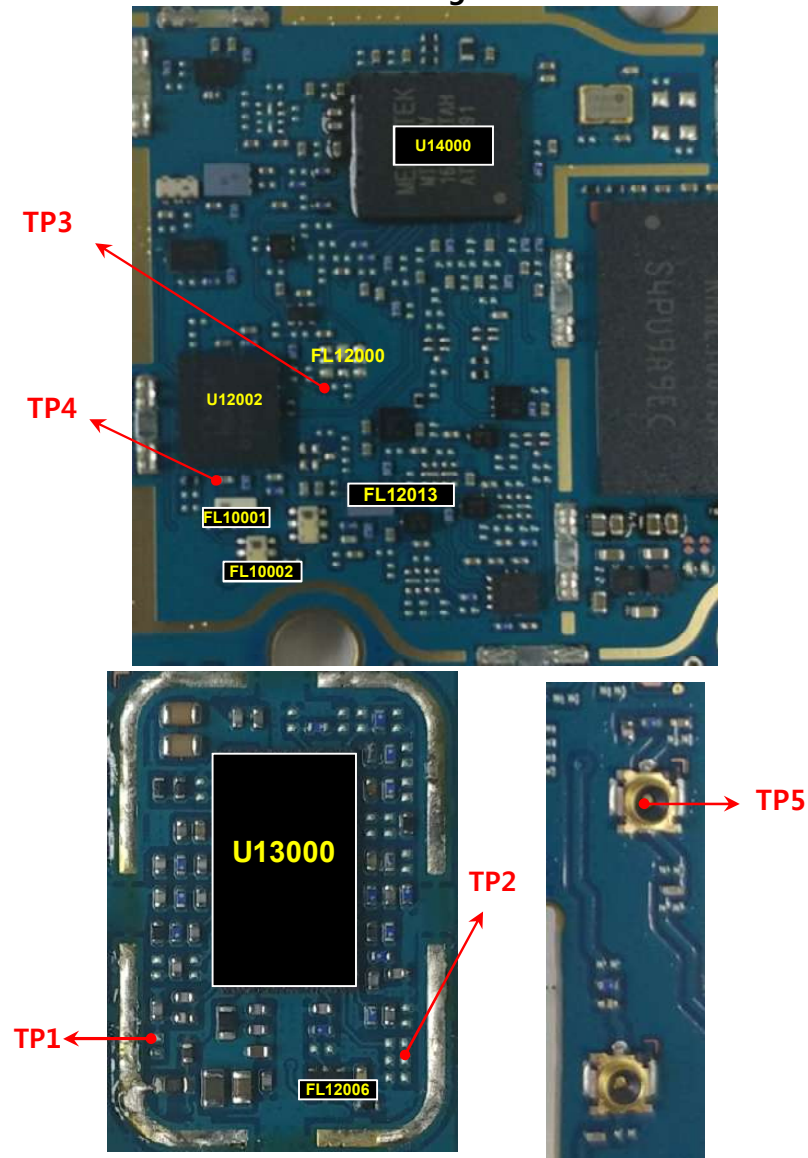
3. TROUBLE SHOOTING

3.7 LTE RF PART

3.7.12 Checking RF Signal TX path(LTE B28B)



Image



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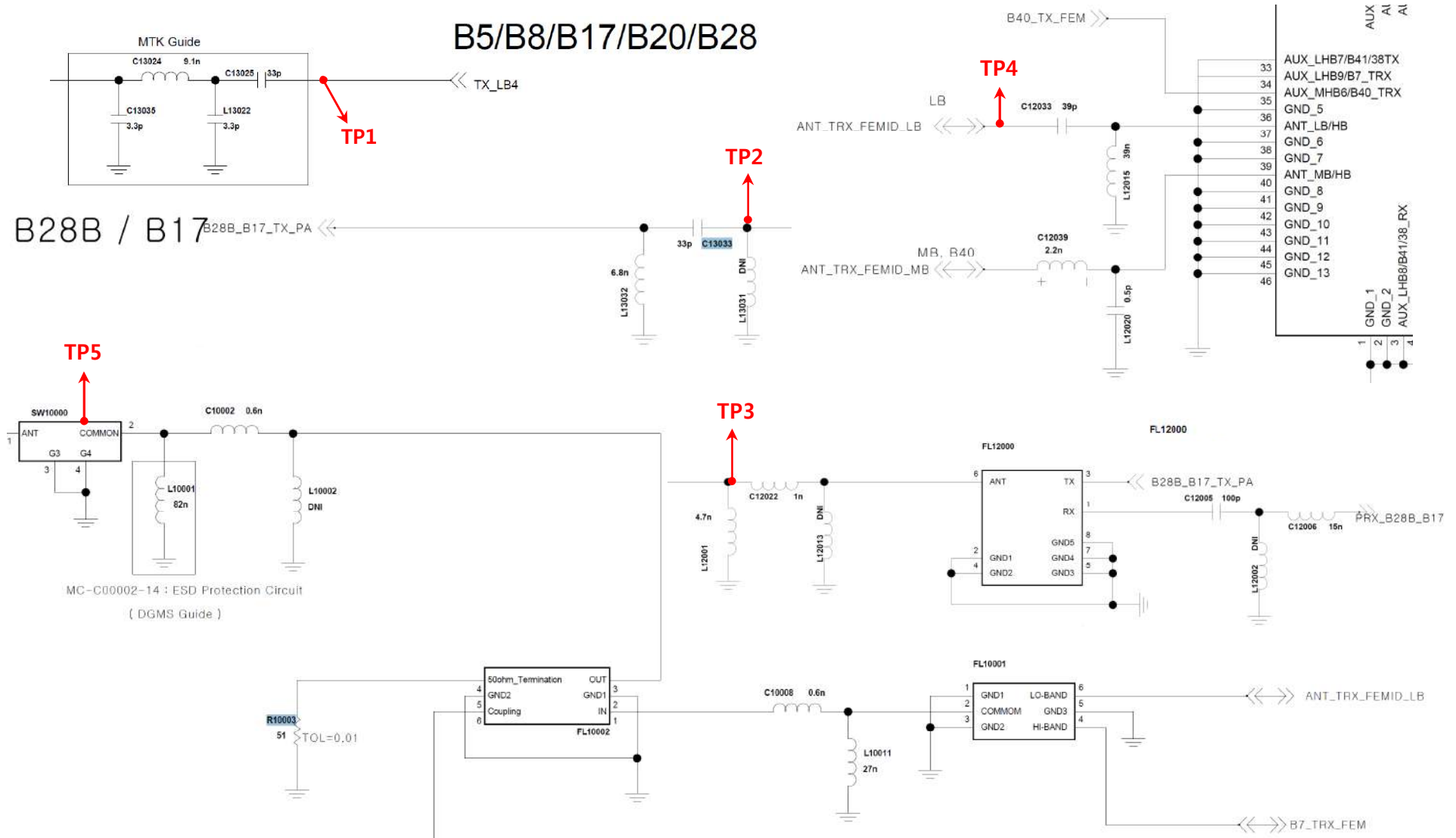
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3. TROUBLE SHOOTING

3.7 LTE RF PART

3.7.12 Checking RF Signal TX path(LTE B28B)

Circuit Diagram



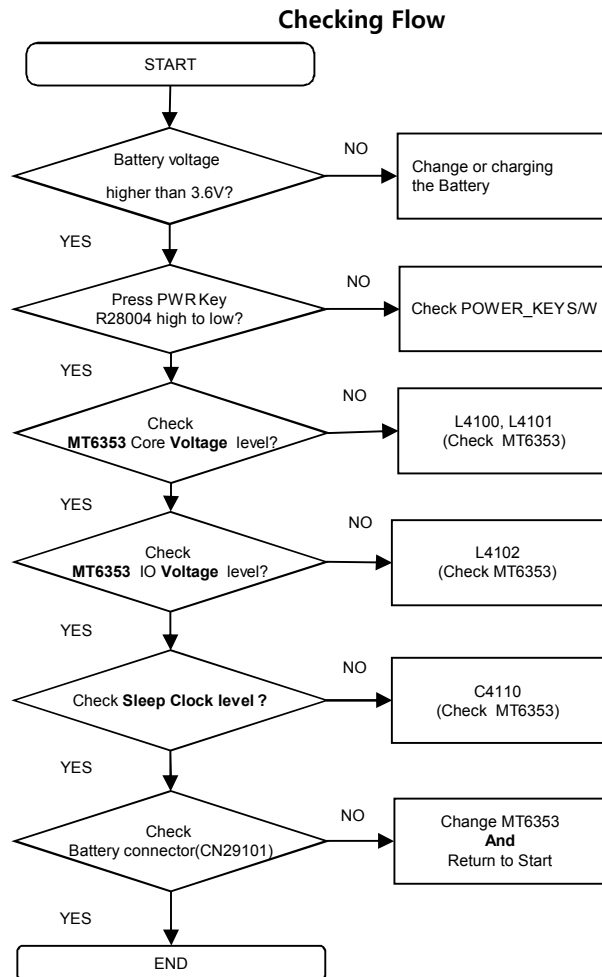
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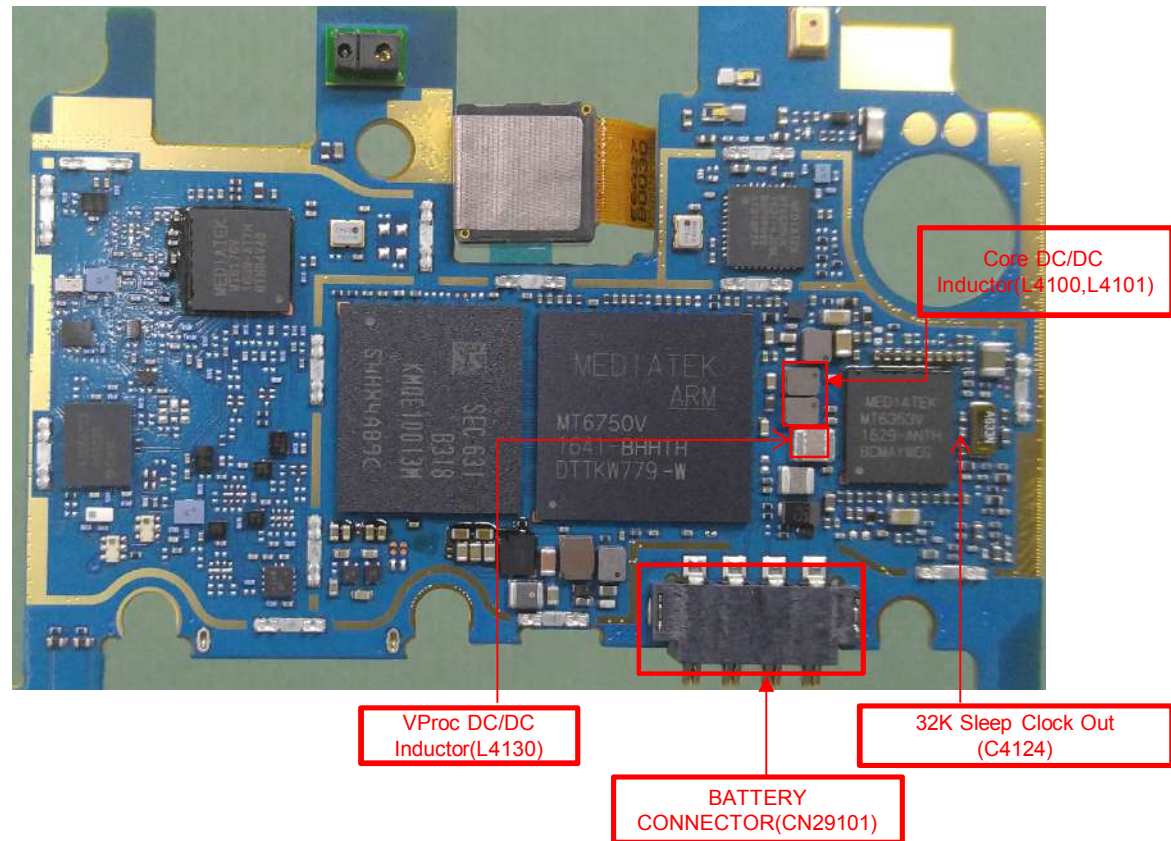
3. TROUBLE SHOOTING

3.8 Power

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



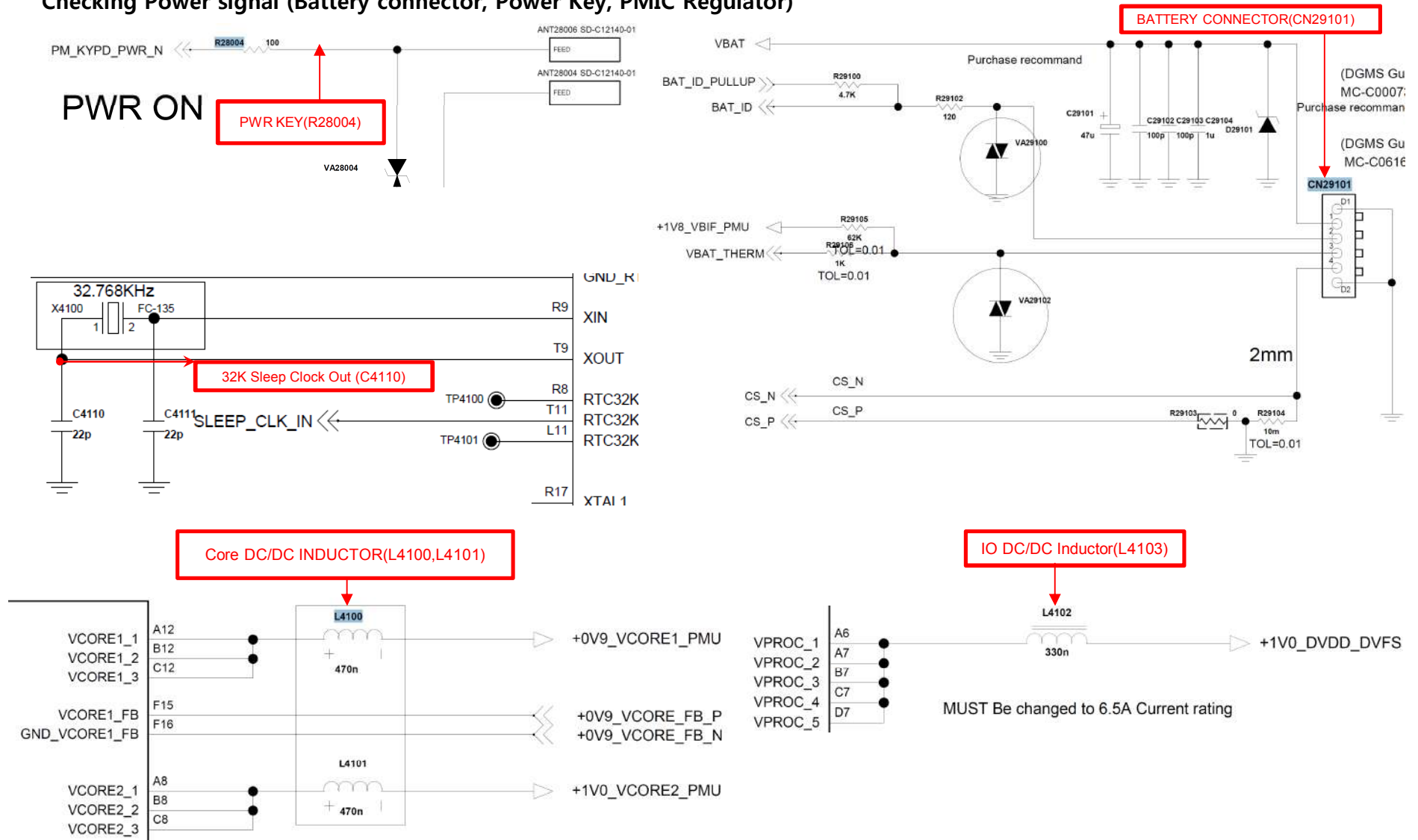
Image



3. TROUBLE SHOOTING

3.8 Power

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



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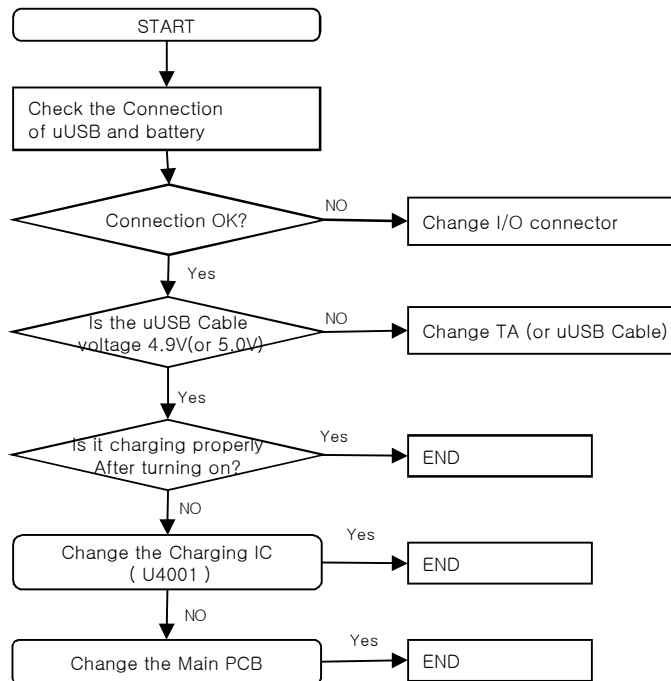
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3. TROUBLE SHOOTING

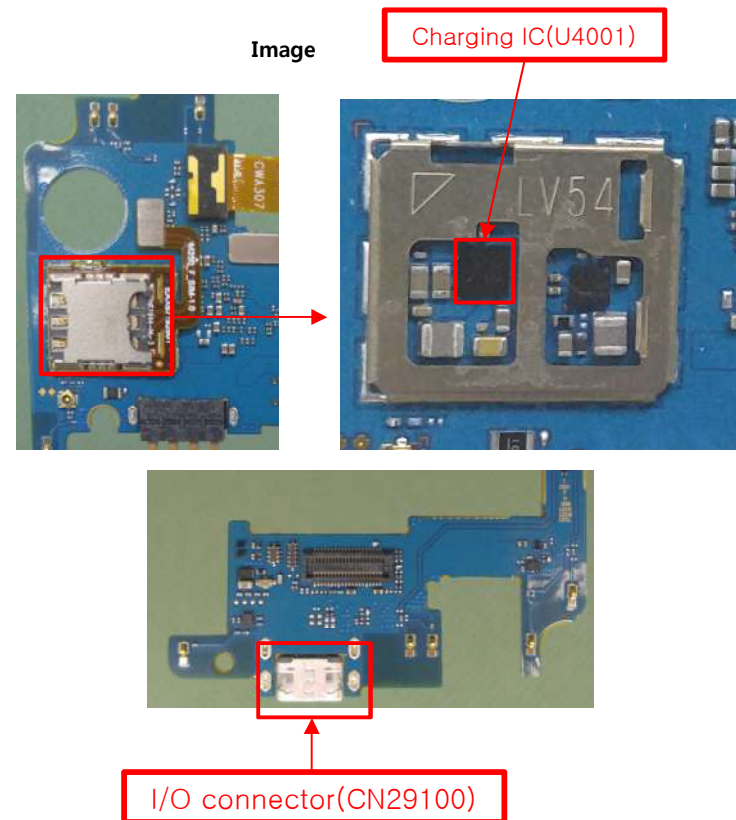
3.9 Charger

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

Checking Flow



Image

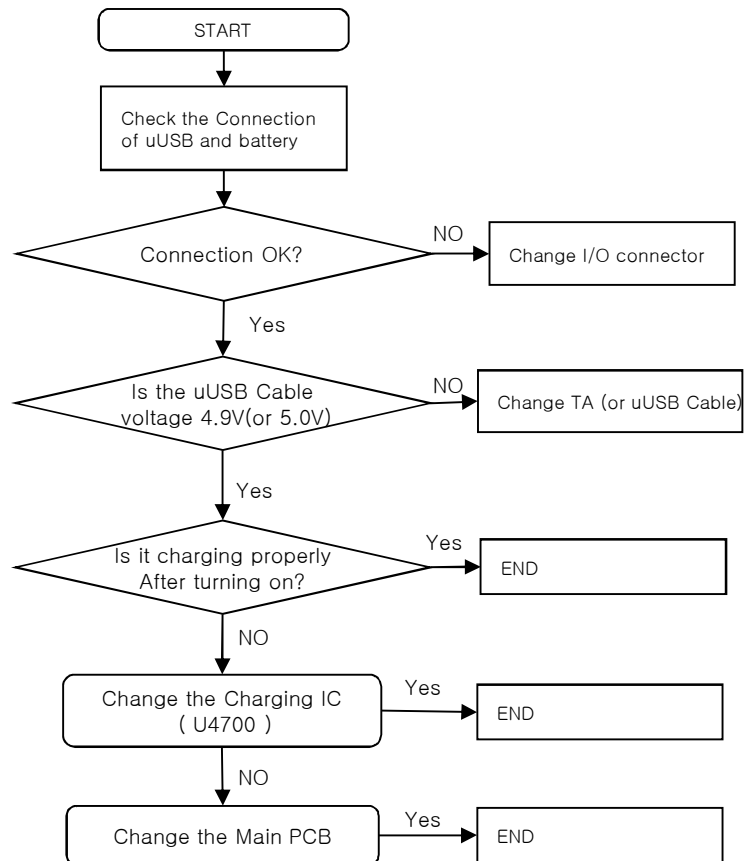


3. TROUBLE SHOOTING

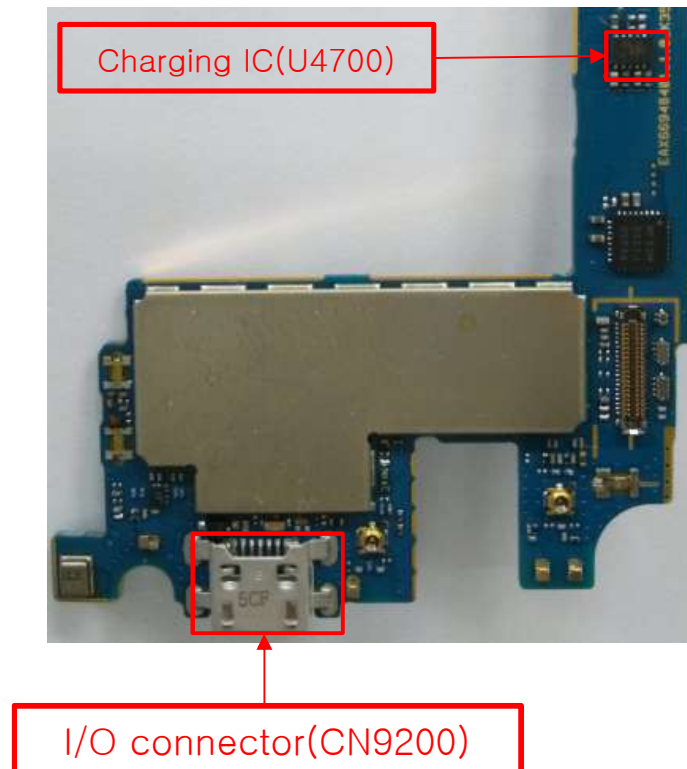
3.9 Charger

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

Checking Flow



Image

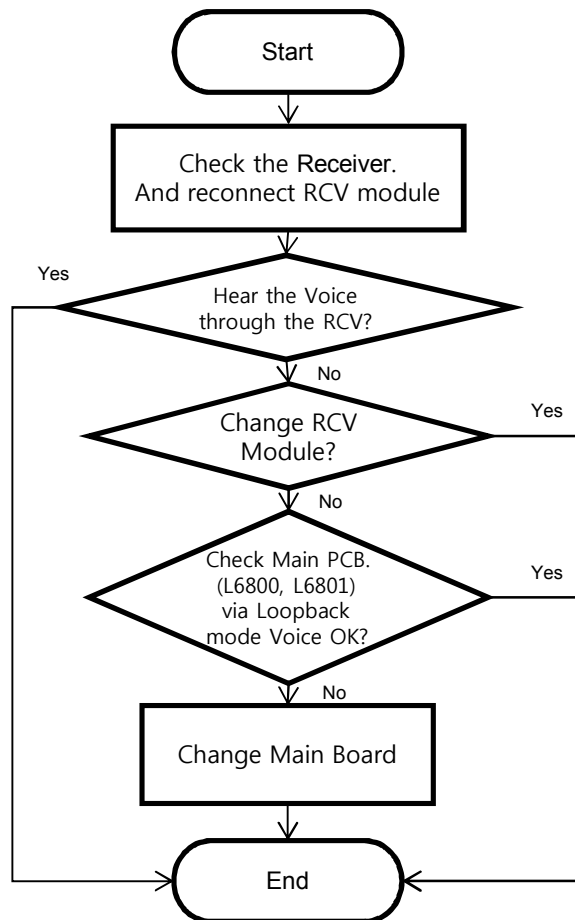


3. TROUBLE SHOOTING

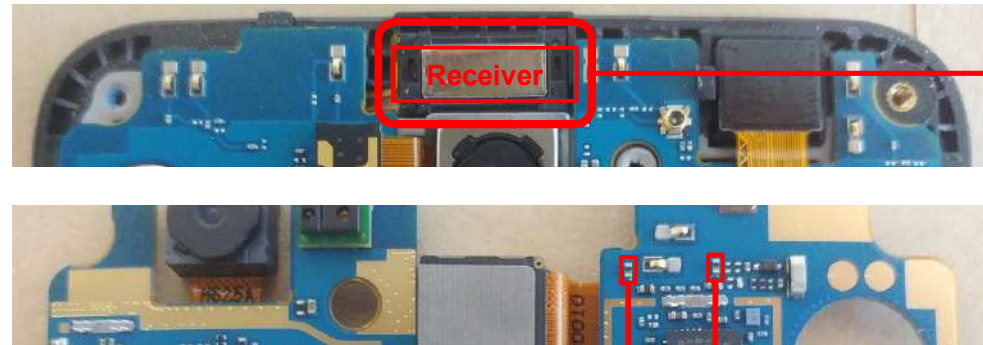
3.10 Audio Block(3.10.1 Audio receiver)

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

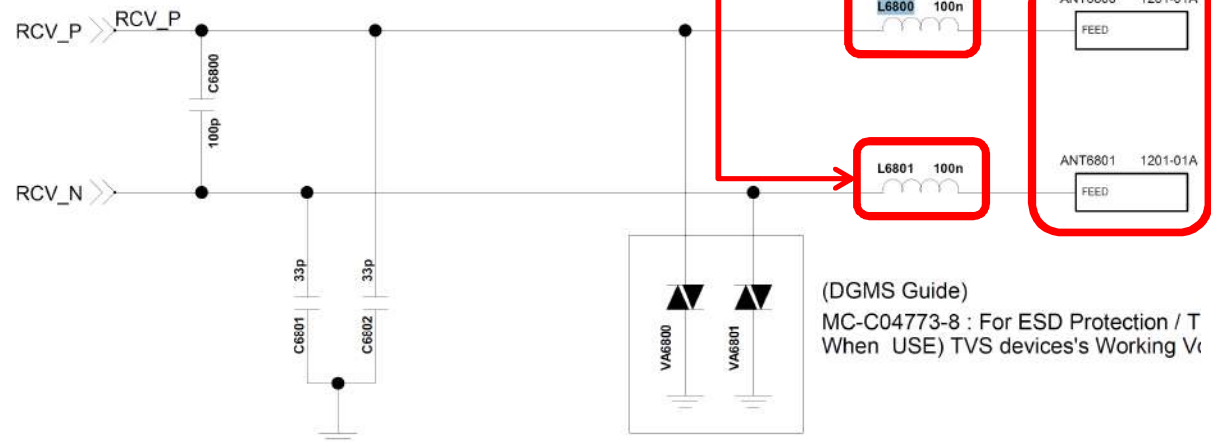
Checking Flow



Image



Circuit Diagram

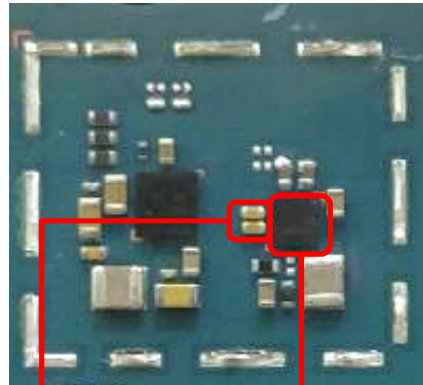


3. TROUBLE SHOOTING

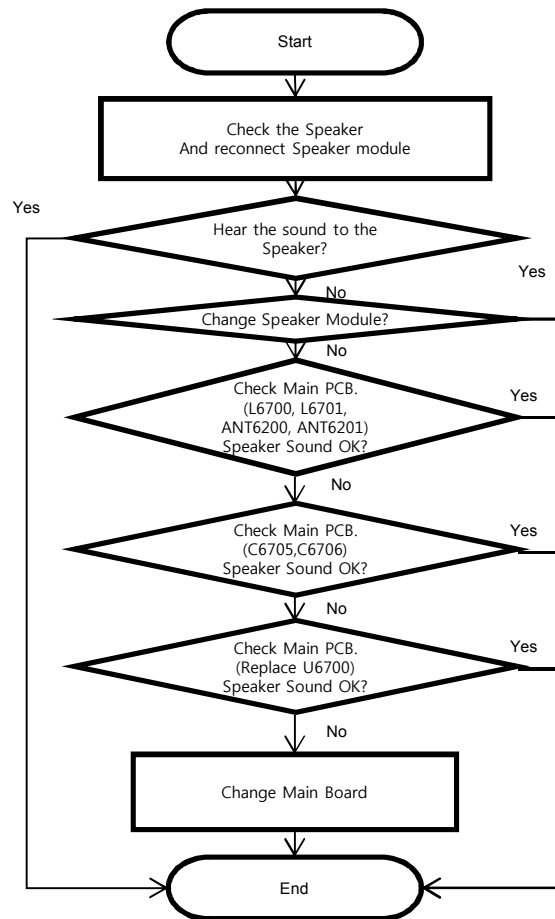
3.10.1 Audio_speaker

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

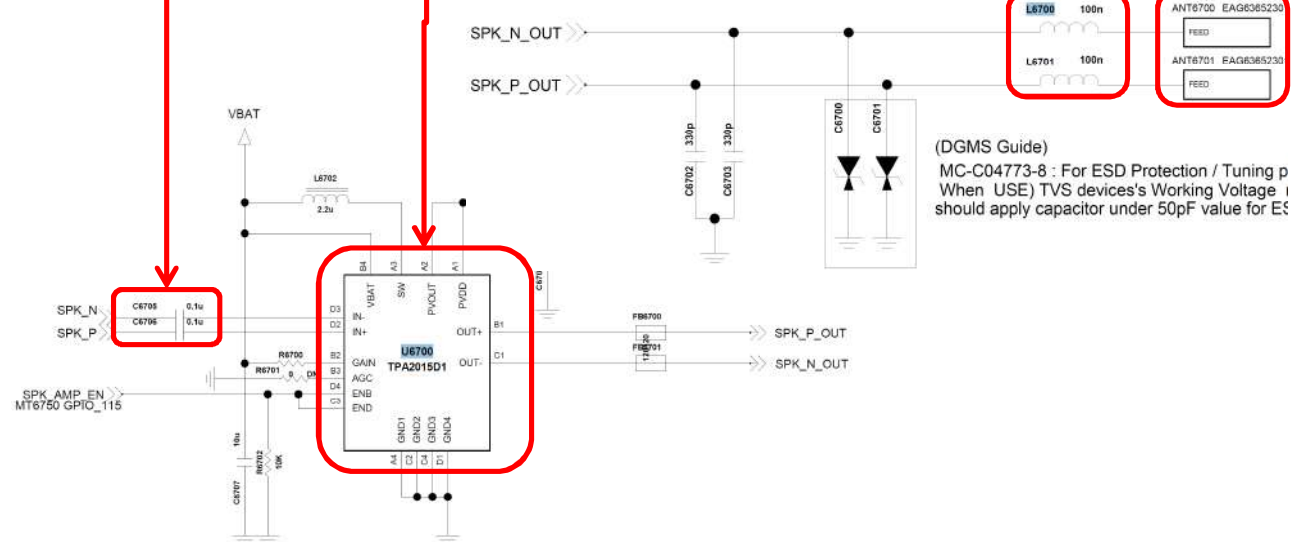
Image



Checking Flow



Circuit Diagram



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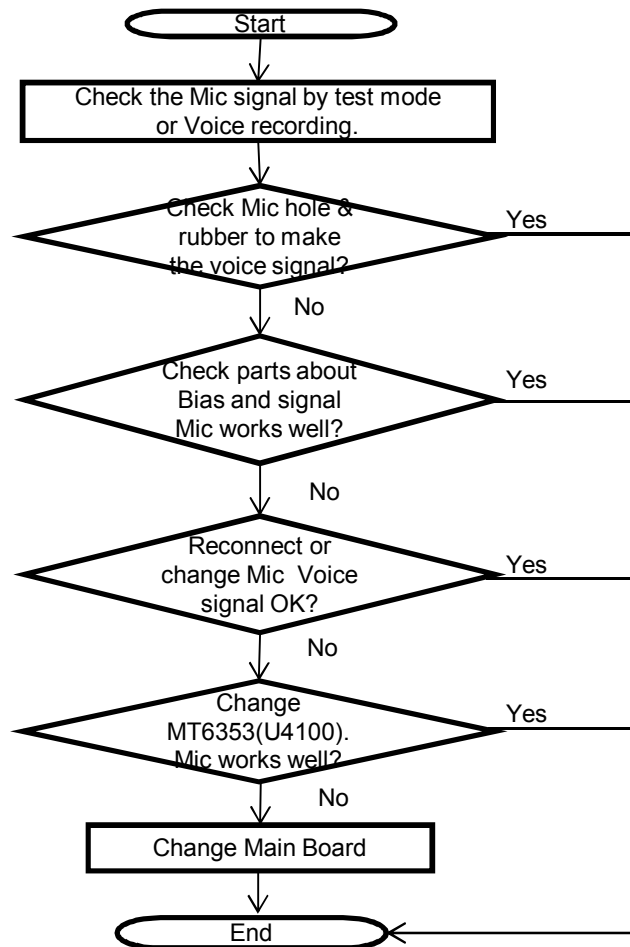
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3. TROUBLE SHOOTING

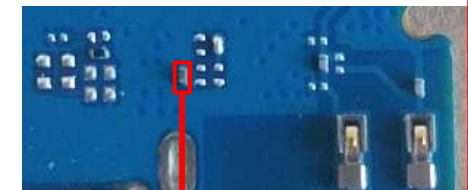
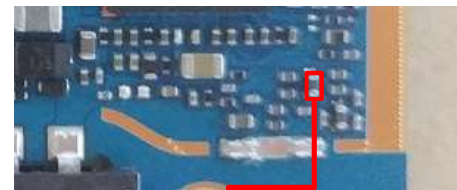
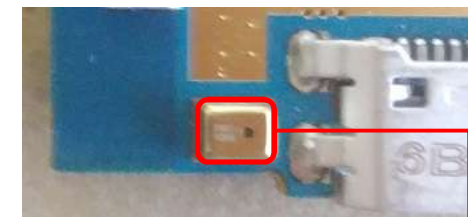
3.10.2 Audio_Main MIC

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

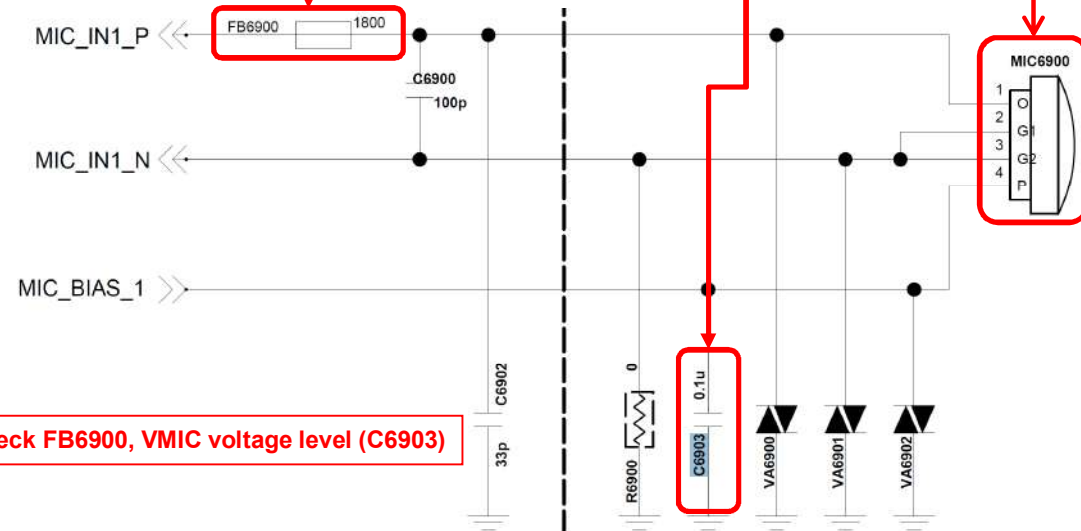
Checking Flow



Image



Circuit Diagram



Check FB6900, VMIC voltage level (C6903)

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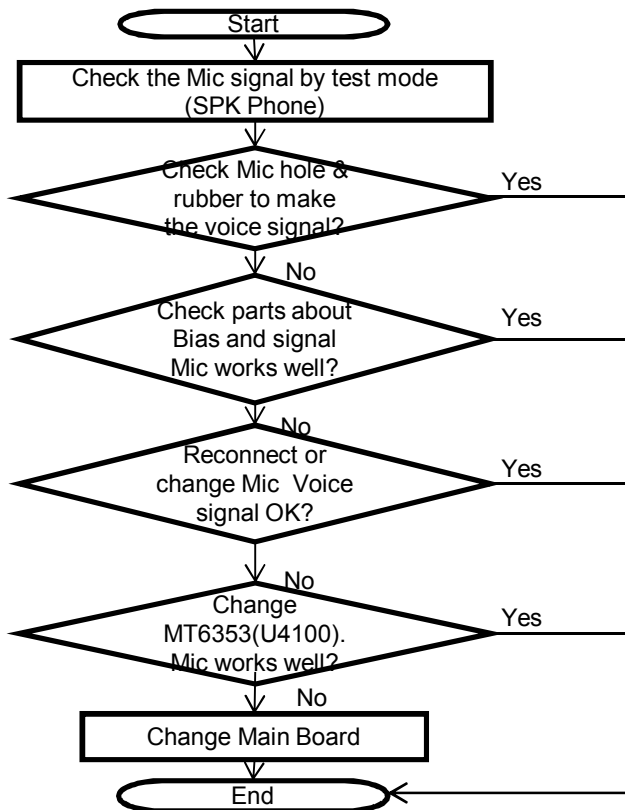
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3. TROUBLE SHOOTING

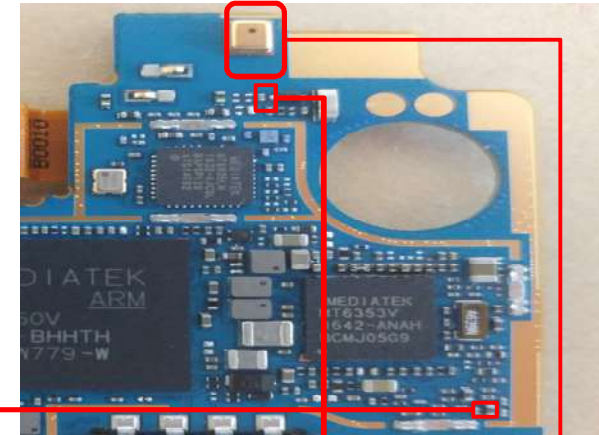
3.10.3 Audio_sub MIC

It's operating Speakerphone call.

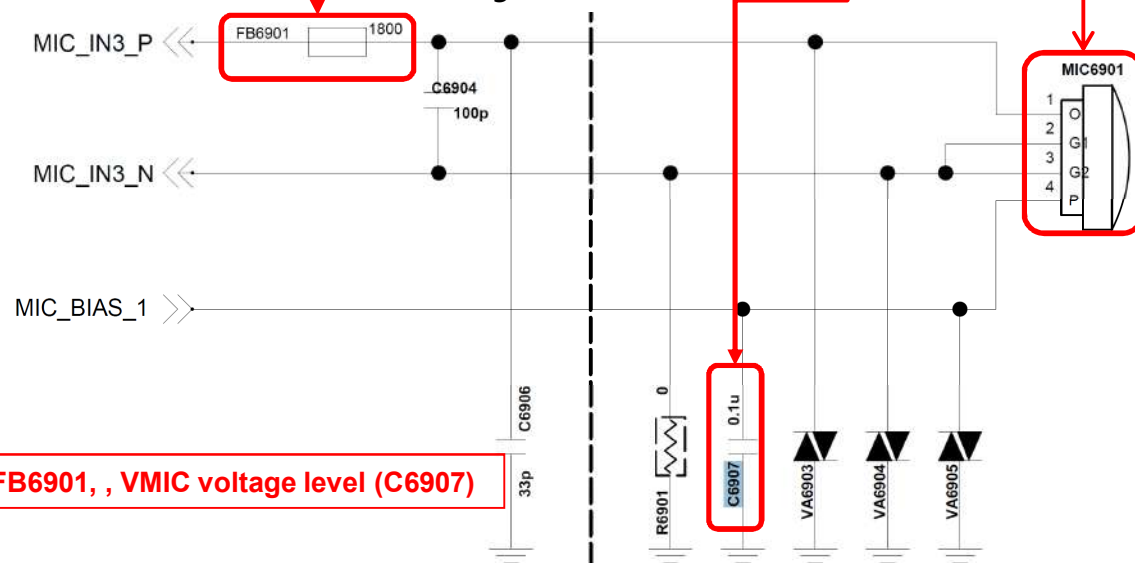
Checking Flow



Image



Circuit Diagram

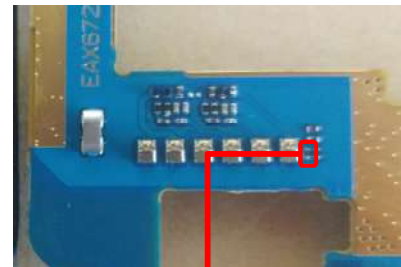
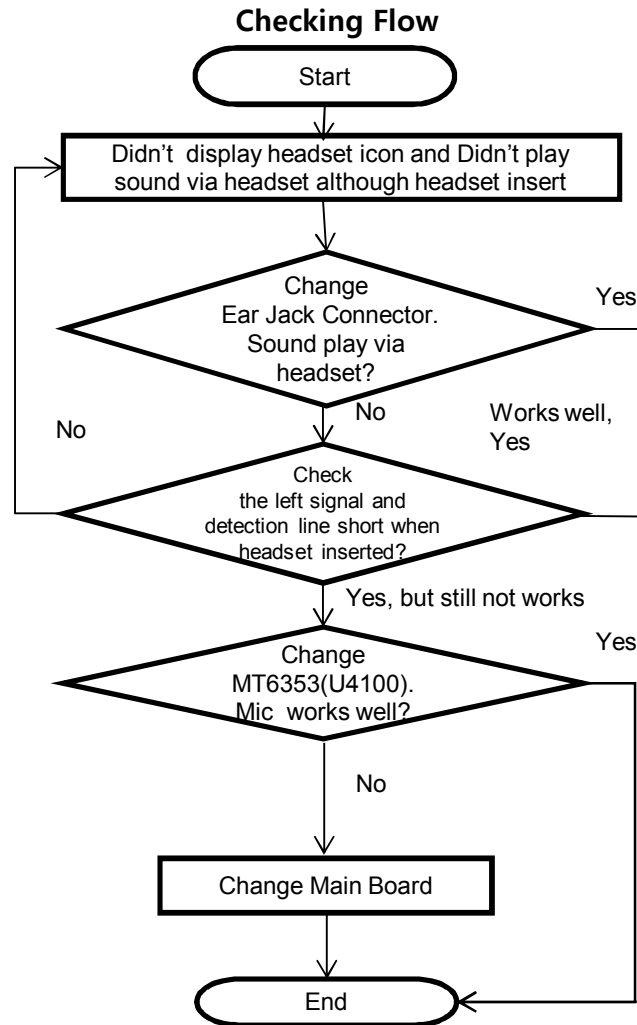


Check FB6901, , VMIC voltage level (C6907)

3. TROUBLE SHOOTING

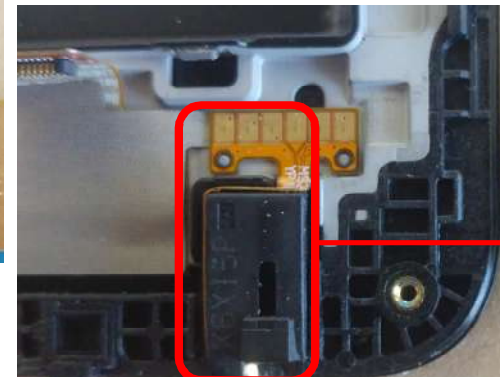
3.10.4 Audio_Ear MIC Jack

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

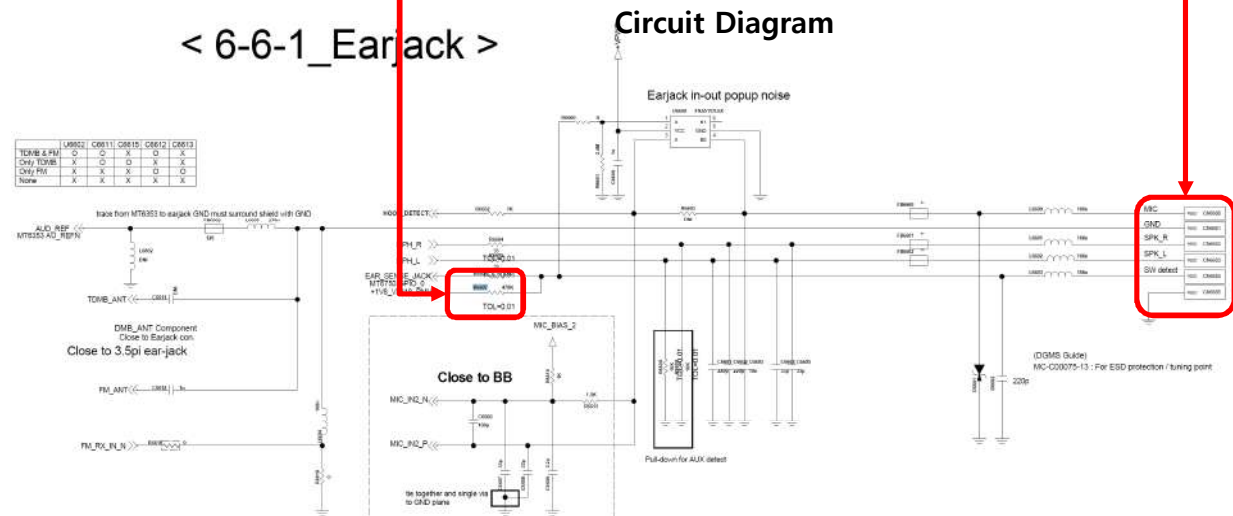


Jack detect
Voltage Level Check at R6607
- 1.8V(before Jack)
- low(after Jack)

Image



Circuit Diagram



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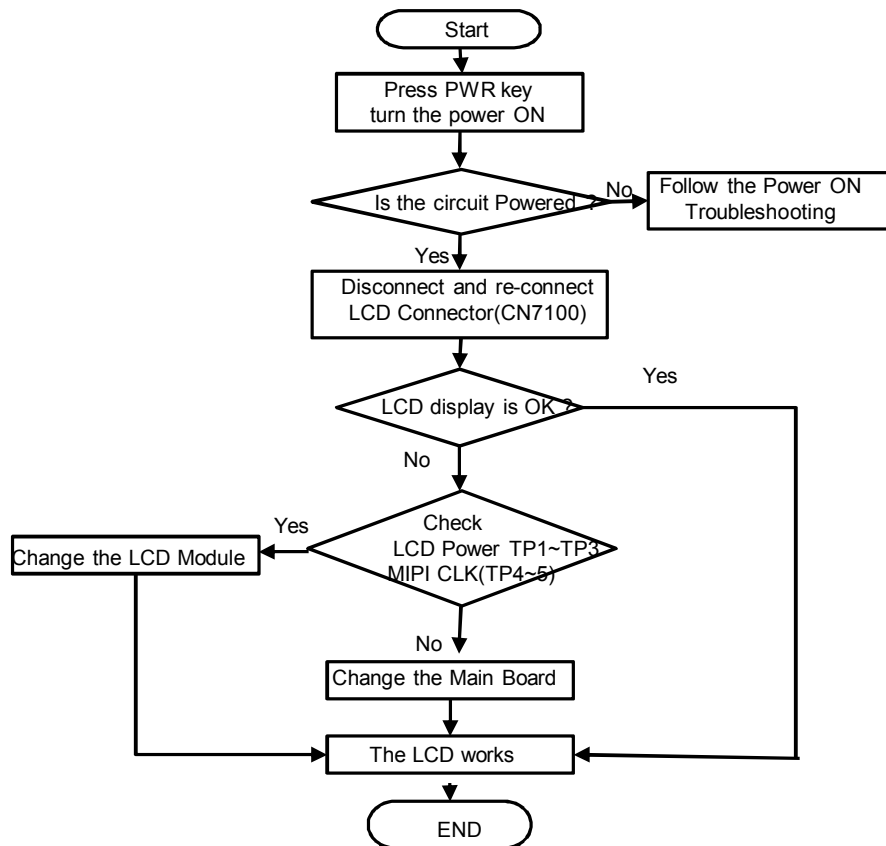
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3. TROUBLE SHOOTING

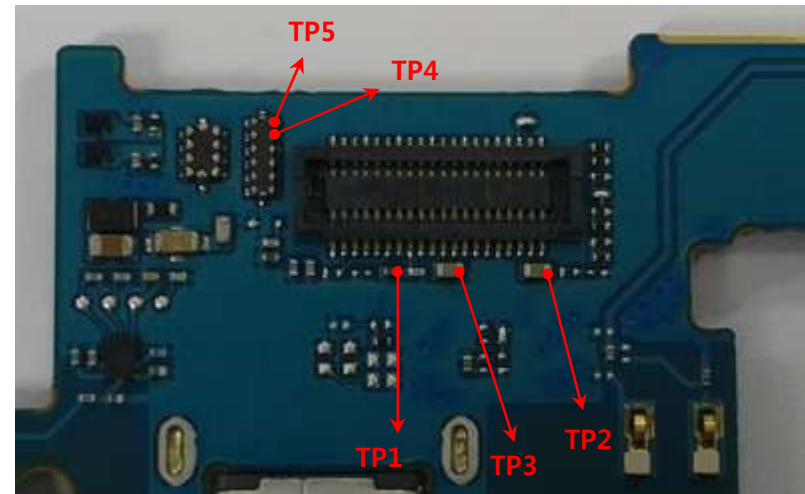
3.11 Checking LCD Block

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

Checking Flow



Image



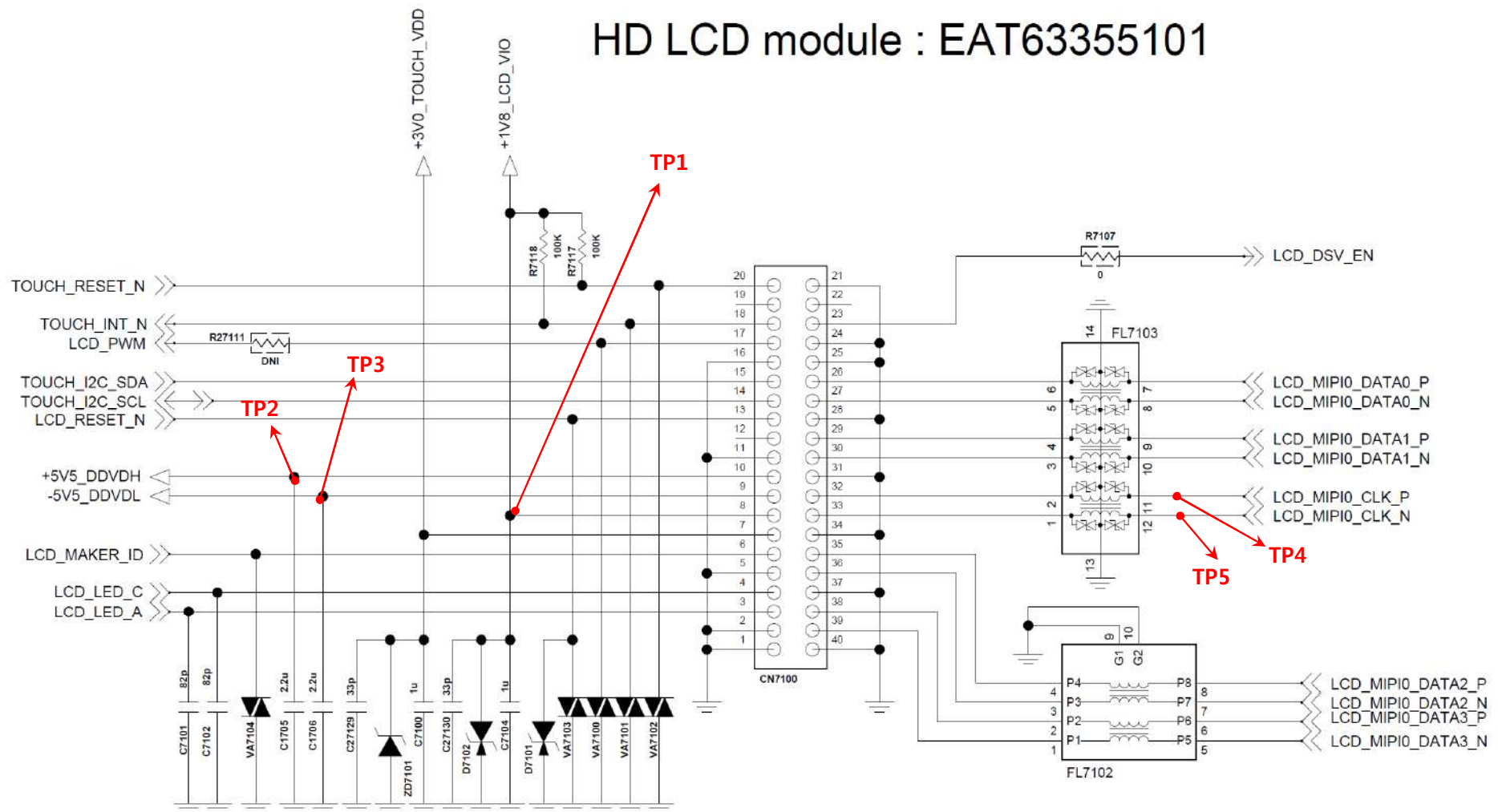
3. TROUBLE SHOOTING

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

HD LCD module : EAT63355101



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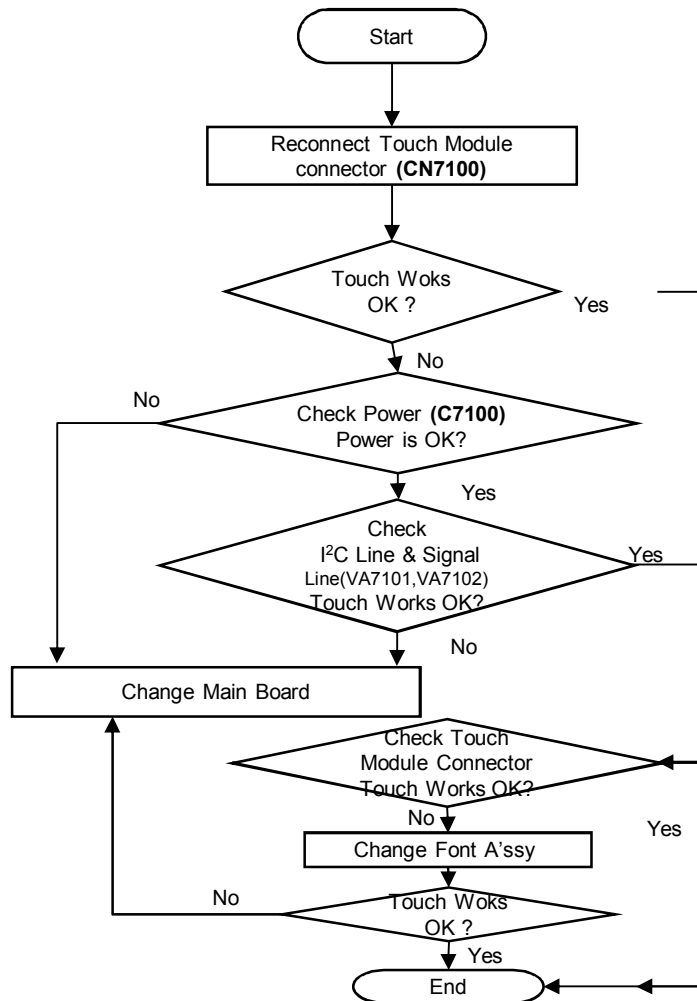
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3. TROUBLE SHOOTING

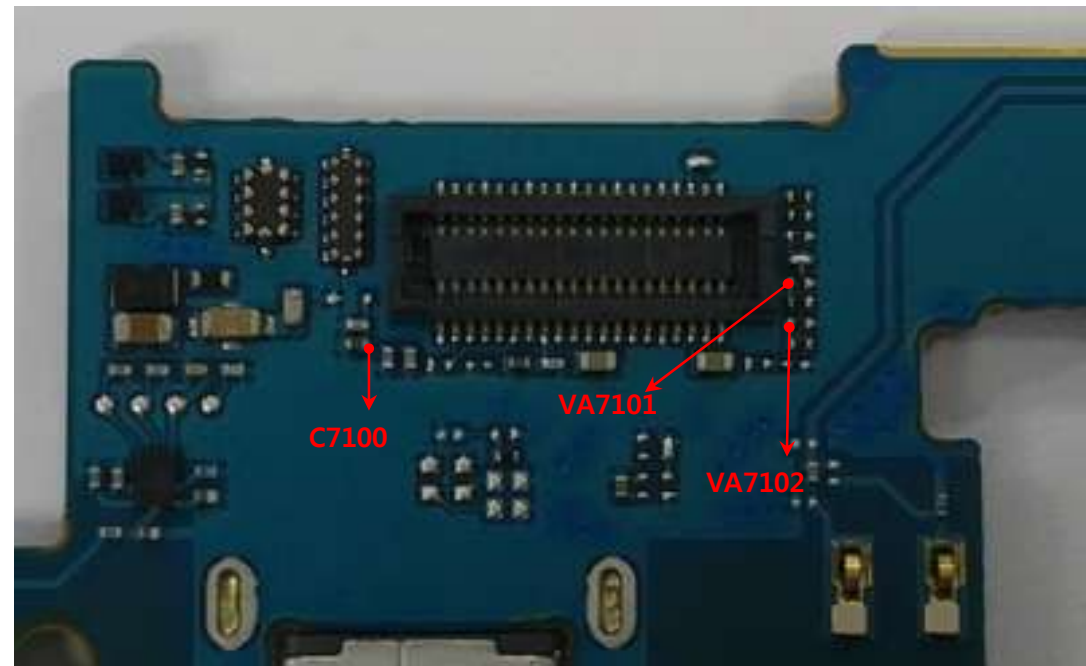
3.12 Checking Touch Block

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

Checking Flow



Image



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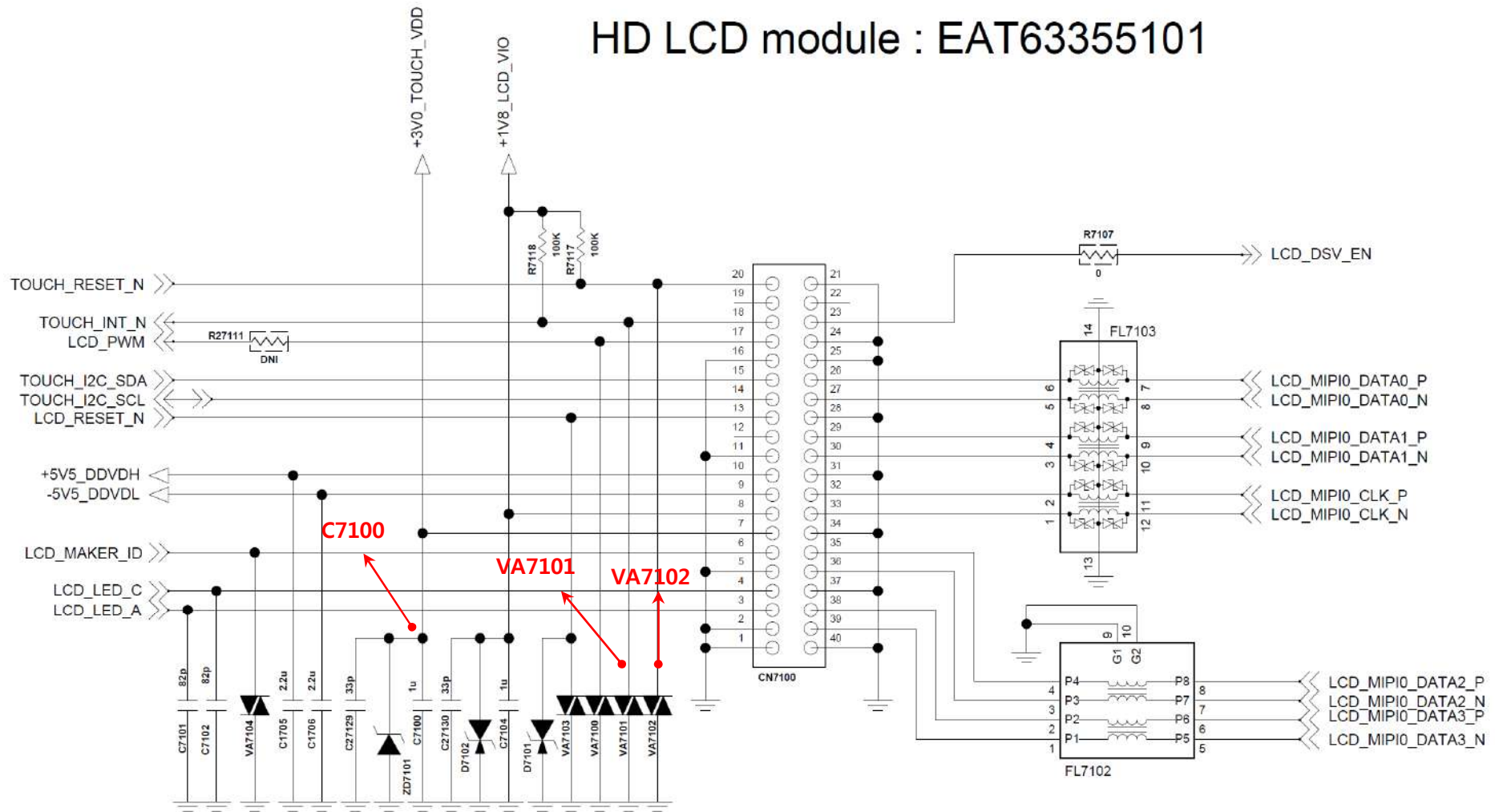
3. TROUBLE SHOOTING

3.12 Checking Touch Block

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

Circuit Diagram

HD LCD module : EAT63355101



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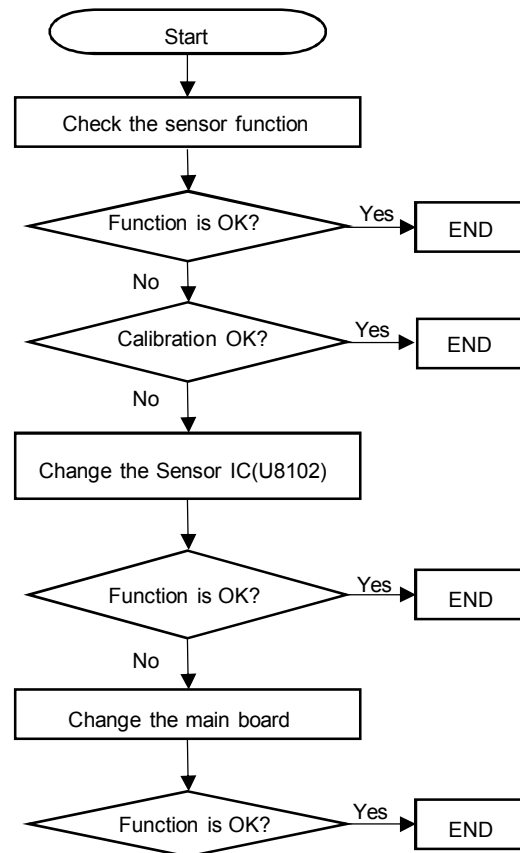
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3. TROUBLE SHOOTING

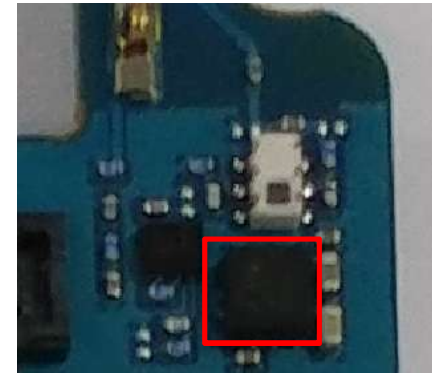
3.13 Checking accelmeter+compass sensor Block

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

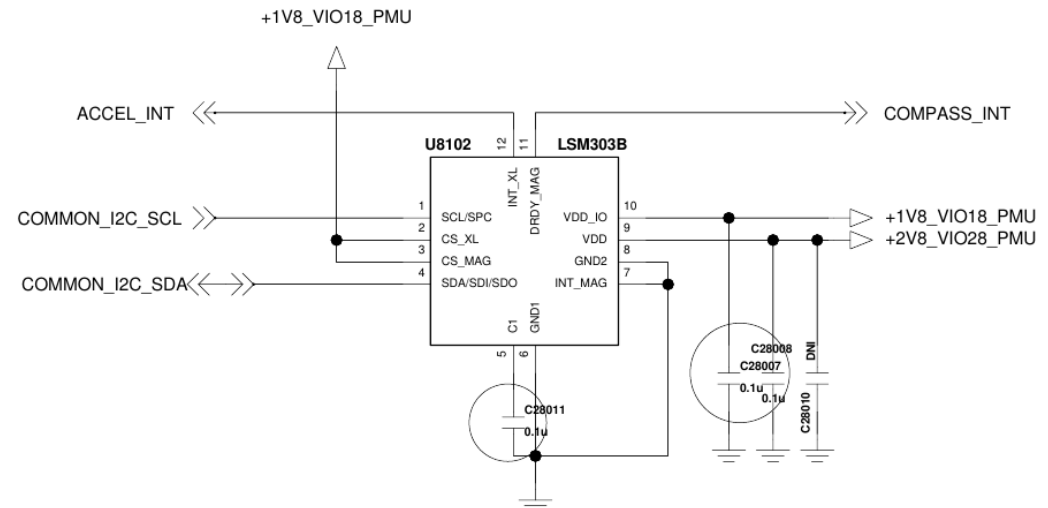
Checking Flow



Image



Circuit Diagram



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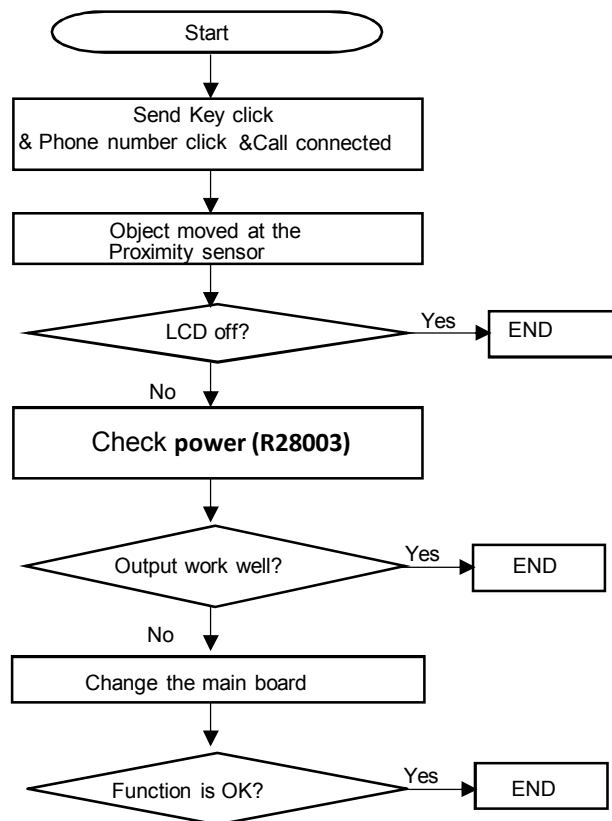
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3. TROUBLE SHOOTING

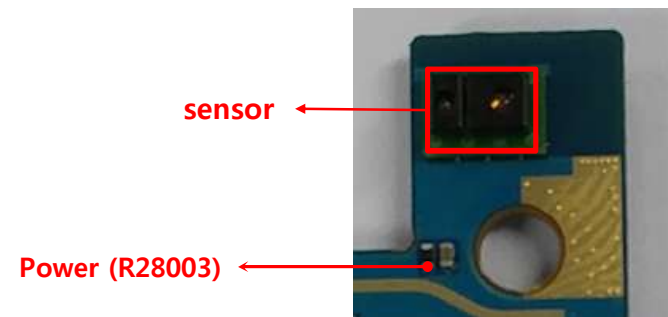
3.1.3 Checking proximity sensor Block

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

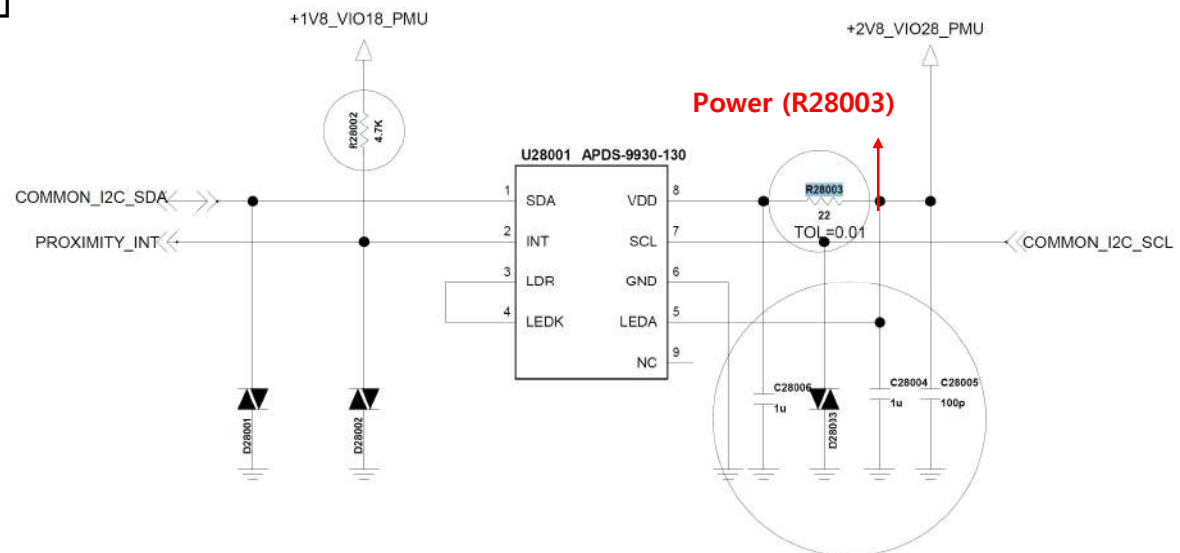
Checking Flow



Image



Circuit Diagram



LGE Internal Use Only

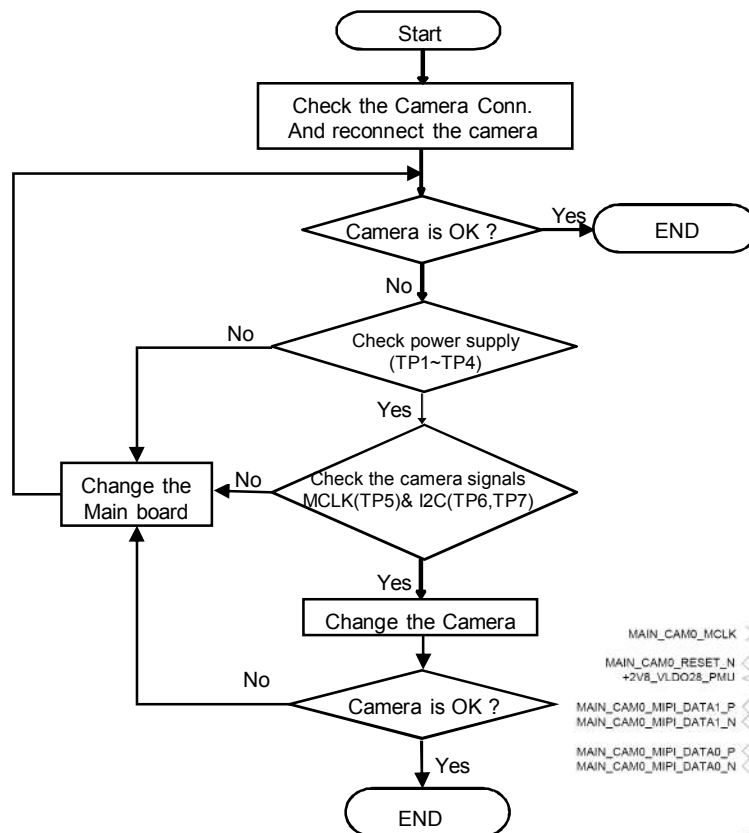
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3. TROUBLE SHOOTING

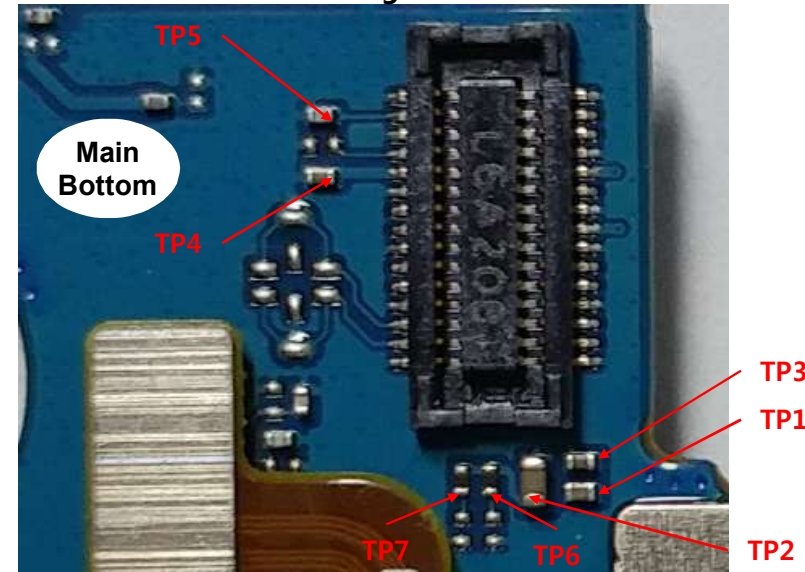
3.XX Checking Main Camera Block

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

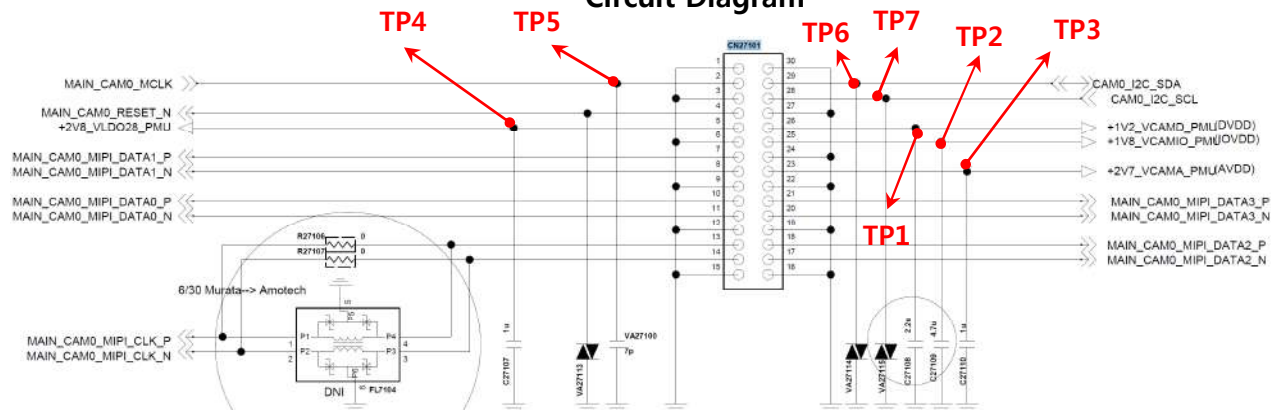
Checking Flow



Image



Circuit Diagram

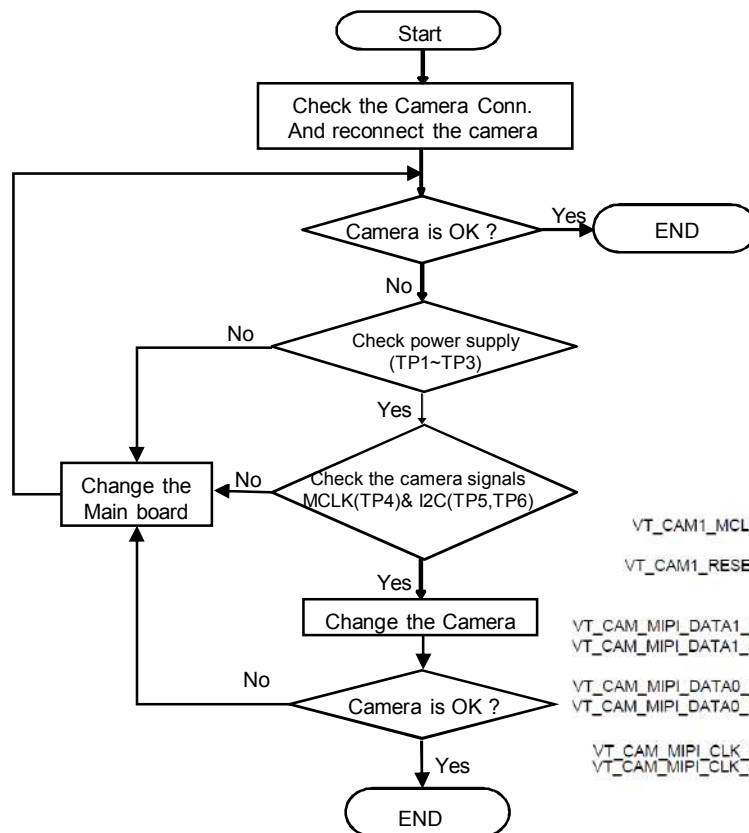


3. TROUBLE SHOOTING

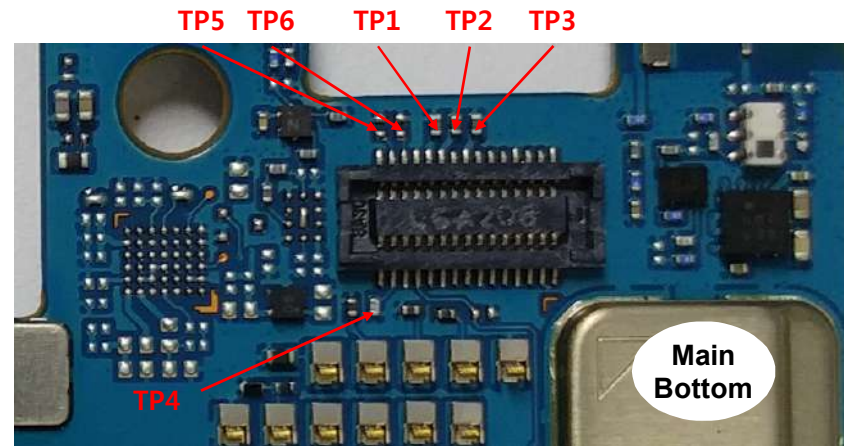
3.XX Checking Front Camera Block

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

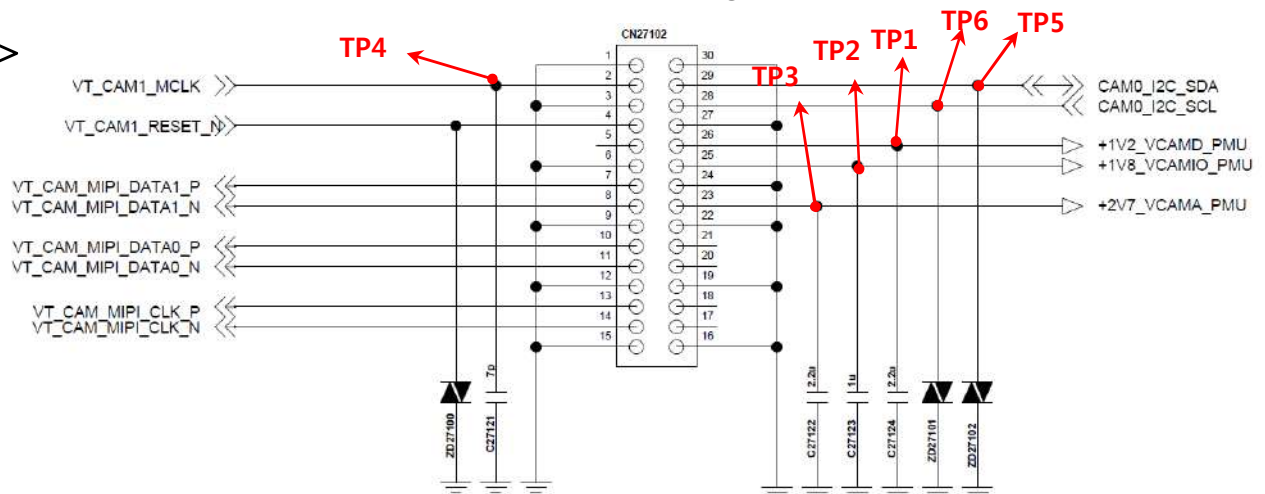
Checking Flow



Image



Circuit Diagram

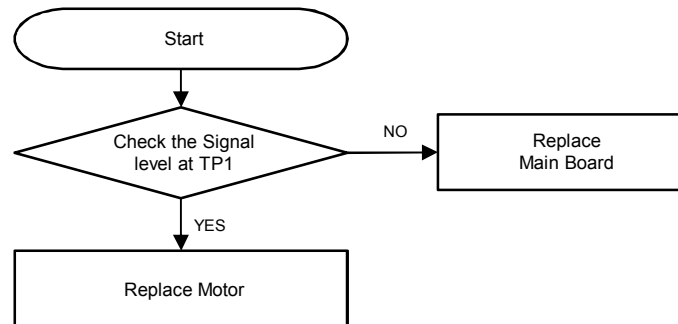


3. TROUBLE SHOOTING

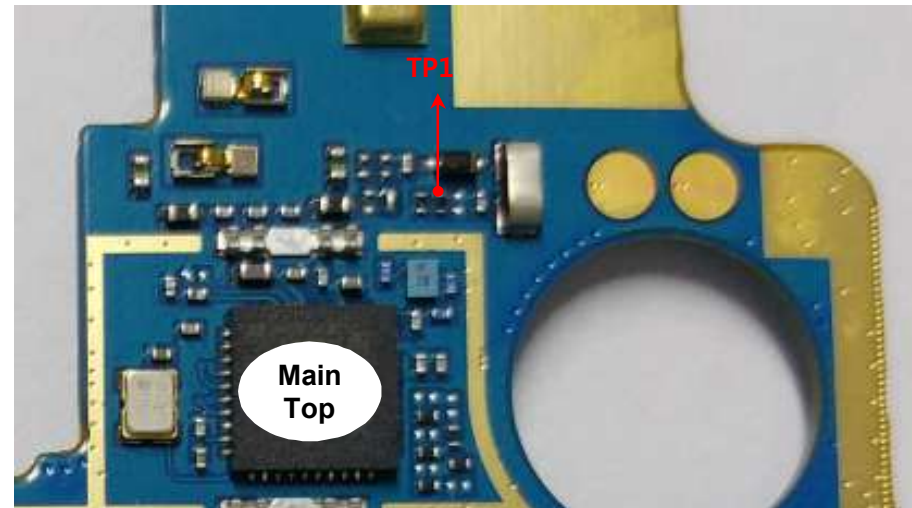
3.xx Checking Motor Block

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

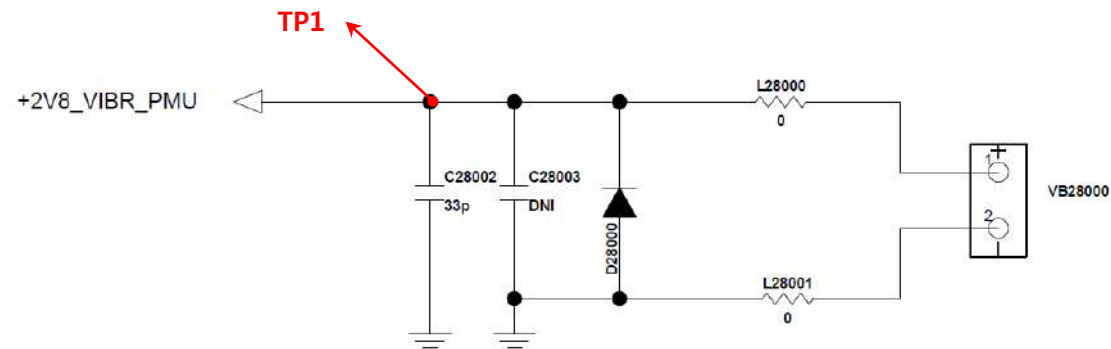
Checking Flow



Image



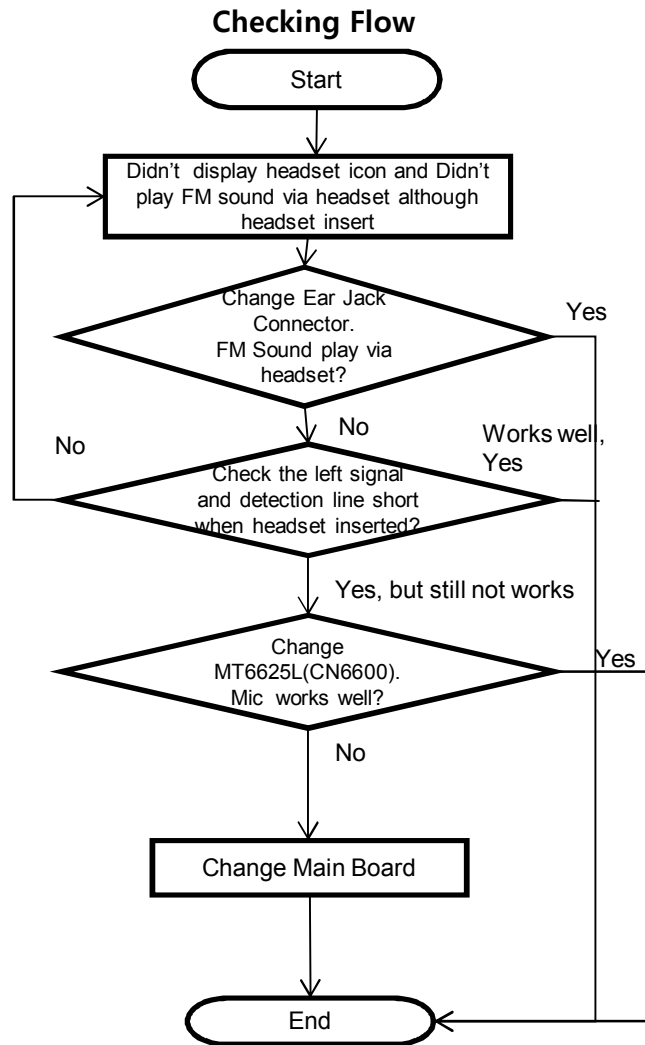
Circuit Diagram



3. TROUBLE SHOOTING

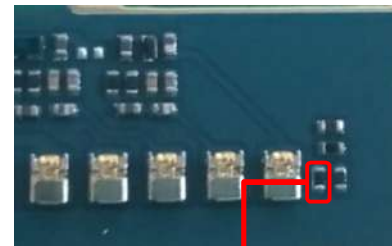
3.10.5 FM_Radio

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



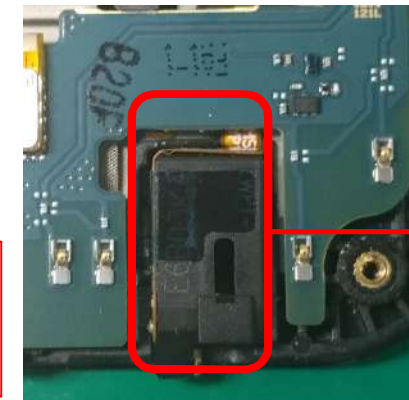
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Image (Top)

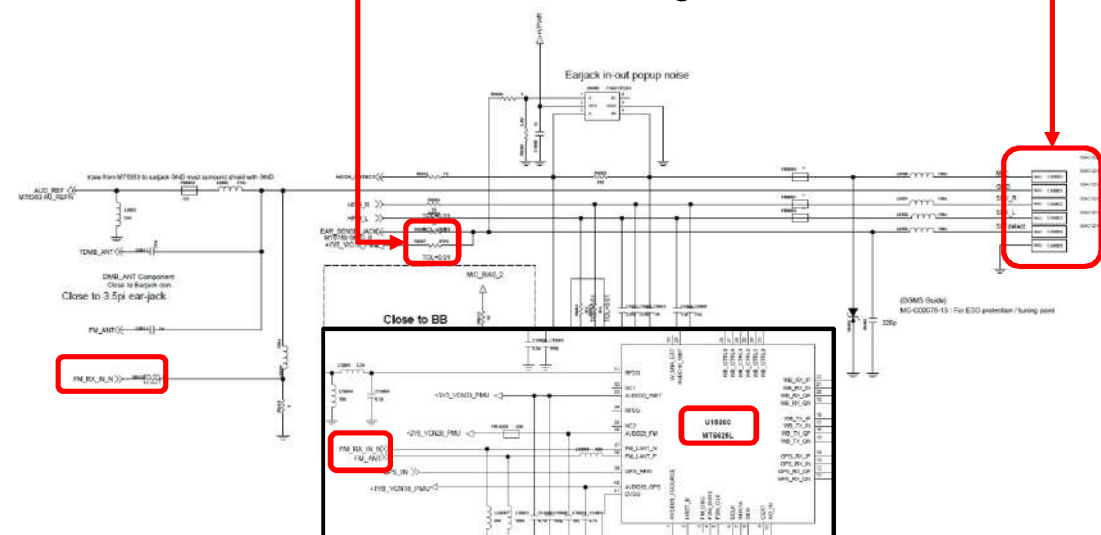


**Jack detect
Voltage Level Check at R6607**
- 1.8V(before Jack)
- low(after Jack)

Image (Bottom)



Circuit Diagram



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3. TROUBLE SHOOTING

3.16 Connectivity RF PART

3.16.1 Checking RF Signal TRX path(WiFi, BT)

Checking Flow

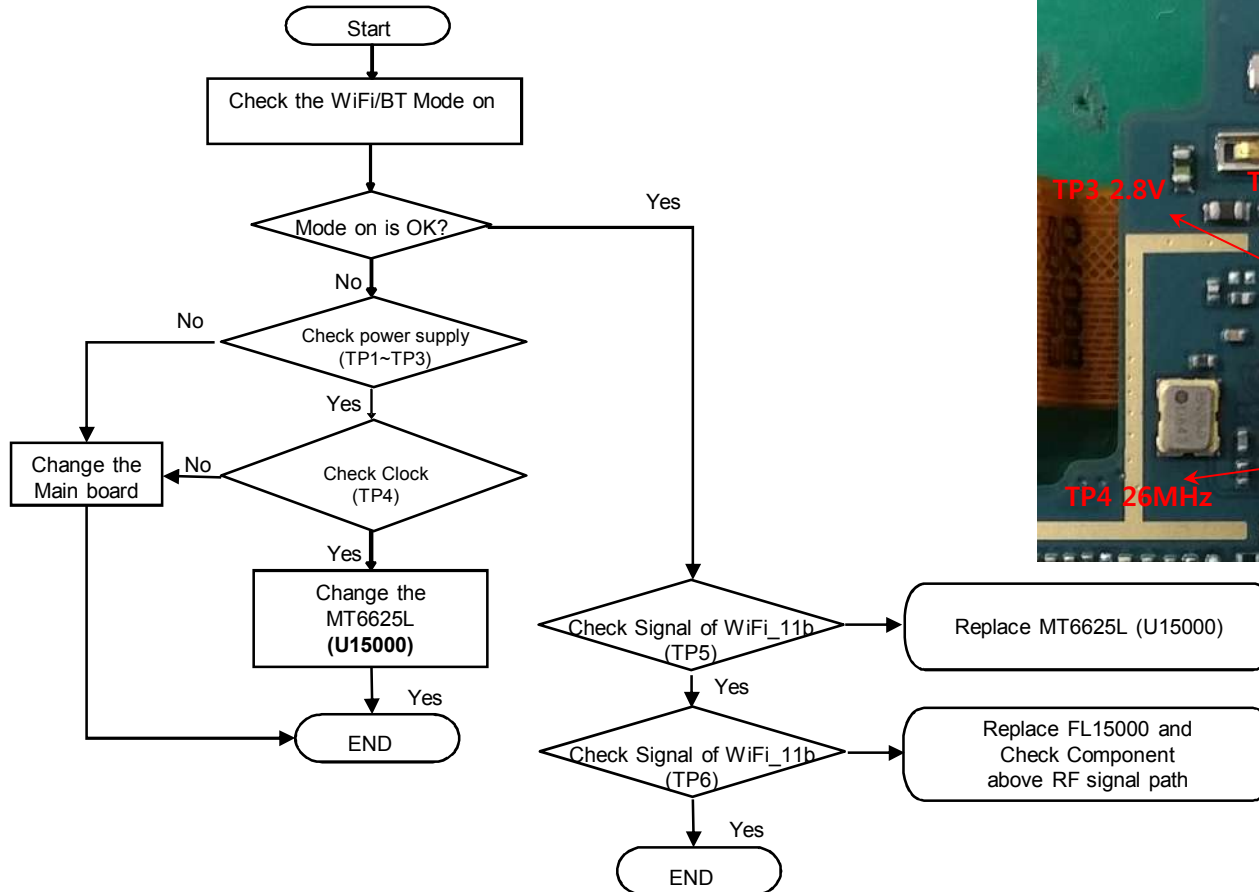
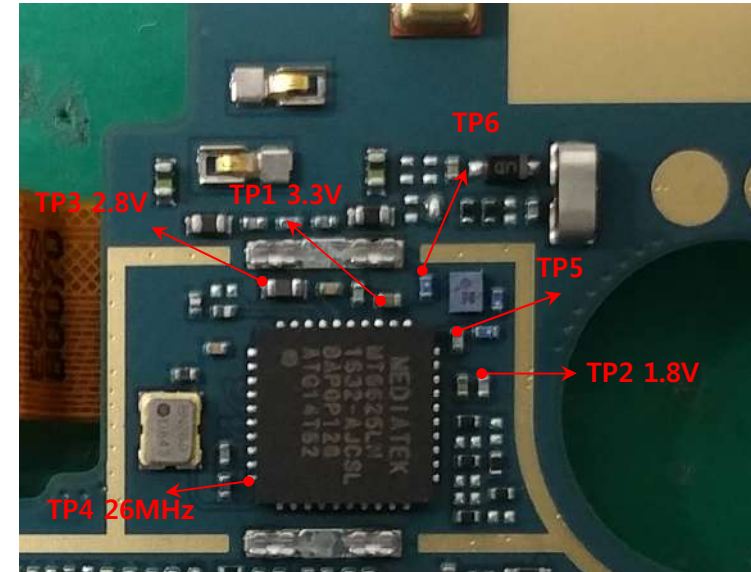


Image (Top)



3. TROUBLE SHOOTING

3.16 Connectivity RF PART

3.16.2 Checking RF Signal TRX path(GPS)

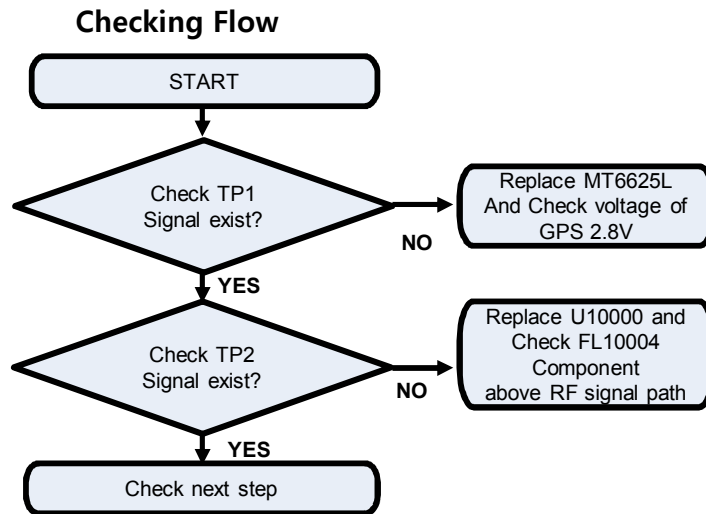
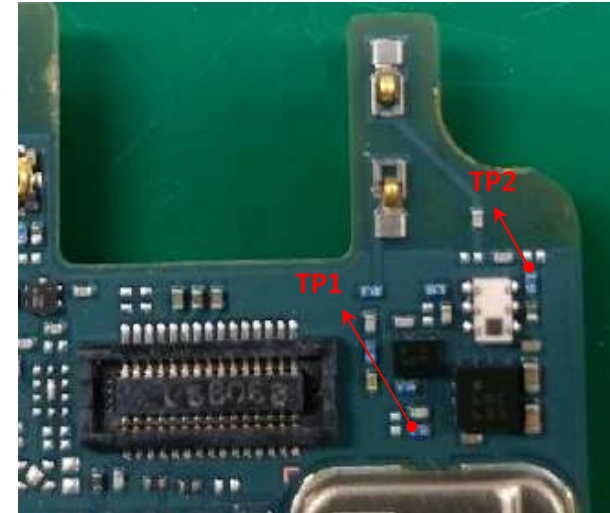
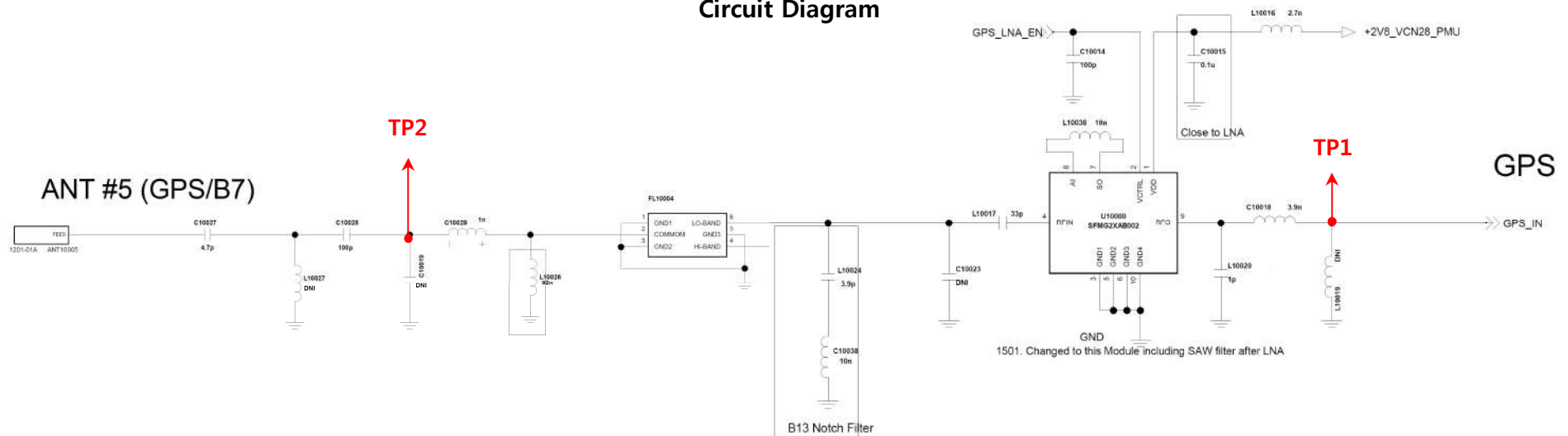


Image (Bottom)



Circuit Diagram



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