CDMA Mobile Subscriber Unit
VX5400

Internal Use Only

SERVICE MANUAL

TRI BAND, QUAD MODE
[PCS/GPS/CELLULAR/AMPS]
CDMA MOBILE PHONE

TABLE OF CONTENTS

CHAPTER 1. System Introduction

1. Specification

1.1 General Specification

1.1.1 Transmit/Receive Frequency Interval

1) CELLULAR : 70MHz
2) PCS : 140 MHz
3) AMPS : 45MHz

1.1.2 Number of Channels (Channel Bandwidth)

1) CELLULAR : 20 Channels
2) PCS : 48 Channels
3) AMPS : 832 Channels

1.1.3 Operating Voltage : DC 3.2~4.1V

1.1.4 Battery Power Consumption : DC 3.7V

	SLEEP	IDLE	MAX POWER
CELLULAR	1.2 mA	110 ~ 120mA	600 mA (24 dBm)
PCS	1.2 mA	120 ~ 130 mA	700 mA (24 dBm)
AMPS	Average 43 mA		800 mA (27 dBm)

1.1.5 Operating Temperature : -30°C ~ +60°C

1.1.6 Frequency Stability

1) CDMA : ±0.5PPM
2) PCS : ±0.1PPM
3) AMPS : ±2.5PPM

1.1.7 Antenna : Intenna, 50 Ω

1.1.8 Size and Weight

1) Size : 98.7 * 47.8 * 17.4 mm

2) Weight : 103 g (Approximately with standard battery)

1.1.9 Channel Spacing

1) CELLULAR : 1.25MHz

2) PCS : 1.25 MHz

3) AMPS : 30KHz

1.1.10 Battery Type, Capacity and Operating Time.

Unit = Hours : Minutes

	Standard (1,000mAh)	
Standby Time	CELLULAR	About 140 Hours (SCI=1)
	PCS	About 140 Hours (SCI=1)
	AMPS	19 Hours
Talk time	CELLULAR	210 Minutes (+10dBm output)
	PCS	210 Minutes (+10dBm output)
	AMPS	120 Minutes (Power Level 4)

1.2 Receive Specification

1.2.1 Frequency Range

1) CELLULAR : 869 MHz ~ 894 MHz

2) PCS : 1930 MHz ~ 1990 MHz

3) GPS : 1575.42 MHz

4) AMPS : 869.04 MHz ~ 893.97 MHz

1.2.2 Local Oscillating Frequency Range :

1) CELLULAR : 1738.08 MHz ~ 1787.94 MHz

2) PCS : 1715.56 MHz ~ 1768.89 MHz

3) GPS : 3150.84 MHz

4) AMPS : 1738.08MHz ~ 1787.94MHz

1.2.3 Sensitivity

1) CELLULAR : -104 dBm (C/N 12dB or more)

2) PCS : -104 dBm (C/N 12dB or more)

3) GPS : -148.5 dBm (w/o SA), -152 dBm (w/SA)

4) AMPS : -116 dBm (12dB SINAD)

1.2.4 Selectivity

1) CELLULAR : 3dB C/N Degration (With Fch ± 1.25 KHz : -30dBm)

2) PCS : 3dB C/N Degration (With Fch ± 1.25 KHz : -30dBm)

3) AMPS : 16dB at Fch ± 30kHz, 60 dB at Fch ± 60kHz

1.2.5 Interference Rejection

1) Single Tone : -30dBm at 900 kHz (CELLULAR), -30dBm at 1.25MHz(PCS)

2) Two Tone : -43dBm at 900 kHz & 1700kHz(CELLULAR), -43dBm at 1.25 MHz & 2.05 MHz

1.2.6 Spurious Wave Suppression : Maximum of -80dB

1.2.7 CDMA Input Signal Range

- Dynamic area of more than -104~ -25 dB: 79dB at the 1.23MHz band.
- Transmit Band : below –60dBm
- Receive Band : below –80dBm

1.2.8 AMPS De-Emphasis : -6dB/OCT within 0.3~3kHz

1.2.9 AMPS Expander

- Expansion Rate : 1:2
- Attack Time : within 3mS
- Recovery Time : within 13.5mS
- Reference Input : Output level to a 1000Hz tone from a carrier within +2.9kHz peak frequency deviation.

1.2.10 AMPS Sensitivity : 12dB SINAD/-116dBm

1.2.11 AMPS Intermodulation Spurious Response Attenuation : Above 65dB

1.2.12 AMPS RSSI Range : Above 60dB

1.2.13 AMPS Protection Against Spurious Response Interference : Above 60dB

1.2.14 AMPS In Band Conducted Spurious Emissions

- Transmit Band : below –60dBm
- Receive Band : below –80dBm

1.2.15 AMPS Out of Band Conducted Spurious Emissions : Below -47dBm

1.2.16 AMPS Radiated Spurious Emissions

Frequency Range	Maximum allowable EIRP
25 ~ 70 kHz	- 45 dBm
70 ~ 130 kHz	- 41 dBm
130 ~ 174 kHz	- 41 ~ - 32 dBm
174 ~ 260 kHz	- 32 dBm
260 ~ 470 kHz	- 32 ~ - 26 dBm
470 ~ 1.0 GHz	- 21 dBm

1.3 Transmit Specification

1.3.1 Frequency Range

1) CELLULAR : 824MHz ~ 849MHz
2) PCS : 1850 MHz ~ 1910 MHz
3) AMPS : 824.04MHz ~ 848.97MHz

1.3.2 Output Power

1) CELLULAR : 0.282 W
2) PCS: 0.252 W
4) AMPS : 0.4W

1.3.3 CDMA TX Frequency Deviation :

1) CELLULAR: +300Hz or less
2) PCS: ± 150Hz
3) AMPS: +300Hz or less

1.3.4 CDMA TX Conducted Spurious Emissions

1) CELLULAR : 900kHz : - 42 dBc/30kHz below
1.98MHz : - 54 dBc/30kHz below
2) PCS : -42 dBc / 30KHz below

1.3.5 CDMA Minimum TX Power Control

1) CELLULAR : - 50dBm below
2) PCS: -50dBm below

1.3.6 AMPS Carrier ON/OFF Conditions

" ON" condition : within ±3dB of specification output (in 2msec)

1.3.7 AMPS Compressor

1) Compression Rate : 2:1
2) Attack Time : 3msec
3) Recovery Time : 13.5msec
4) Reference Input : Input level for producing a nominal ±2.9kHz peak requency deviation of transmitted carrier.

1.3.7 AMPS Preamphasis : 6dB/OCT within 0.3 ~ 3 kHz

1.3.8 AMPS Maximum Frequency Deviation

1) F3 of G3 : ±12kHz (±10%)
2) Supervisory Audio Tone : ±2kHz (±10%)
3) Signaling Tone : ±8kHz (±10%)
4) Wideband Data : ±8kHz (±10 %)

1.3.9 AMPS Post Deviation Limiter Filter

1) 3.0kHz ~ 5.9kHz : above 40log(F/3000) dB
2) 5.9kHz ~ 6.1kHz : above 35dB
3) 6.1kHz ~ 15kHz : above 40log(F/3000) dB
4) Over 15kHz : above 28dB

1.3.10 AMPS Spectrum Noise Suppression

1) For all Modulation
   fo+20kHz ~ fo+45kHz : above 26dB
2) For Modulation by Voice and SAT
   fo+45kHz : above 63+10log(Py) dB
3) For Modulation by WBD (without SAT) and ST (with SAT)
   fo+45kHz ~ fo+60kHz : above 45dB
   fo+60kHz ~ fo+90kHz : above 65dB
   fo+90kHz ~ 2fo : above 63+10log(Py) dB,
   where fo=carrier frequency, Py=mean output power in watts.

1.3.11 AMPS Harmonic and Conducted Spurious Emissions : above 43+10log(Py) dB

1.4 MS (Mobile Station) Transmitter Frequency

1.4.1 CELLULAR mode

Ch #	Center Freq. (MHz)	Ch #	Center Freq. (MHz)
1011	824.640	404	837.120
29	825.870	445	838.350
70	827.100	486	839.580
111	828.330	527	840.810
152	829.560	568	842.040
193	830.790	609	843.270
234	832.020	650	844.500
275	833.250	697	845.910
316	834.480	738	847.140
363	835.890	779	848.370

1.4.2 PCS mode

Ch #	Center Freq (MHz)	Ch #	Center Freq (MHz)	Ch #	Center Freq (MHz)
25	1851.25	425	1871.25	825	1891.25
50	1852.50	450	1872.50	850	1892.50
75	1853.75	475	1873.75	875	1893.75
100	1855.00	500	1875.00	900	1895.00
125	1856.25	525	1876.25	925	1896.25
150	1857.50	550	1877.50	950	1897.50
175	1858.75	575	1878.75	975	1898.75
200	1860.00	600	1880.00	1000	1900.00
225	1861.25	625	1881.25	1025	1901.25
250	1862.50	650	1882.50	1050	1902.50
275	1863.75	675	1883.75	1075	1903.75
300	1865.00	700	1885.00	1100	1905.00
325	1866.25	725	1886.25	1125	1906.25
350	1867.50	750	1887.50	1150	1907.50
375	1868.75	775	1888.75	1175	1908.75

1.5 MS (Mobile Station) Receiver Frequency

1.5.1 CELLULAR & AMPS mode

Ch. #	Center Freq. (MHz)	Ch. #	Center Freq. (MHz)
1011	869.640	404	882.120
29	870.870	445	883.350
70	872.100	486	884.580
111	873.330	527	885.810
152	874.560	568	887.040
193	875.790	609	888.270
234	877.020	650	889.500
275	878.250	697	890.910
316	879.480	738	892.140
363	880.890	779	893.370

1.5.2 PCS mode

Ch #	Center Freq (MHz)	Ch #	Center Freq (MHz)	Ch #	Center Freq (MHz)
25	1931.25	425	1951.25	825	1971.25
50	1932.50	450	1952.50	850	1972.50
75	1933.75	475	1953.75	875	1973.75
100	1935.00	500	1955.00	900	1975.00
125	1936.25	525	1956.25	925	1976.25
150	1937.50	550	1957.50	950	1977.50
175	1938.75	575	1958.75	975	1978.75
200	1940.00	600	1960.00	1000	1980.00
225	1941.25	625	1961.25	1025	1981.25
250	1942.50	650	1962.50	1050	1982.50
275	1943.75	675	1963.75	1075	1983.75
300	1945.00	700	1965.00	1100	1985.00
325	1946.25	725	1966.25	1125	1986.25
350	1947.50	750	1967.50	1150	1987.50
375	1948.75	775	1968.75	1175	1988.75

1.5.3 GPS mode

- Center Freq. : 1575.42MHz

1.6 AC Adapter : See Appendix

1.7 Cigarret Lighter Adapter : See Appendix

1.8 Portable Hands-Free Kit : Not Supported

2. Installation

2.1 Installing a Battery Pack

1) The Battery pack is keyed so it can only fit one way. Align the groove in the battery pack with the rail on the back of the phone until the battery pack rests flush with the back of the phone.
2) Slide the battery pack forward until you hear a “click”, which locks the battery in place.

2.2 For Adapter Use

1) Plug the adapter into a wall outlet. The adapter can be operated from a 110V source. When AC power is connected to the adapter.
2) Insert the adapter jack into the phone with the installed battery pack.
Red light indicates battery is being charged.. Green light indicates battry is fully charged.

2.3 For Mobile Mount

2.3.1 Installation Position

In order to reduce echo sound when using the Hands-Free Kit, make sure that the speaker and microphone are not facing each other and keep microphone a generous distance from the speaker.

2.3.2 Cradle Installation

Choose an appropriate flat surface where the unit will not interface with driver’s movement or passenger’s comfort. The driver/user should be able to access the phone with ease. Using the four self-tapping screws provided, mount the supplied braket on the selected area. Then with the four machine screws provided, mount the counterpart on the reverse side of the reverse side of the cradle. Secure the two brackets firmly together by using the two bracket joint screws provide. The distance between the cradle and the interface box must not exceed the length of the main cable.

2.3.3 Interface Box

Choose an appropriate flat surface (somewhere under the dash on the passenger side is preferred) and mount the IB bracket with the four self-tapping screws provided. Clip the IB into the IB bracket.

2.3.4. Microphone Installation

Install the microphone either by clipping I onto the sunvisor (driver’s side) or by attaching it to door post (driver’s side), using a velcno adhesive tape (not included).

2.3.5 Cable Connections

2.3.5.1 Power and Ignition Cables

Connect the red wire to the car battery positive terminal and the black wire to the car ground. Connect the green wire to the car ignition sensor terminal. (In order to operate HFK please make sure to connect green wire to ignition sensor terminal.) Connect the kit's power cable connector to the interface box power receptacle.

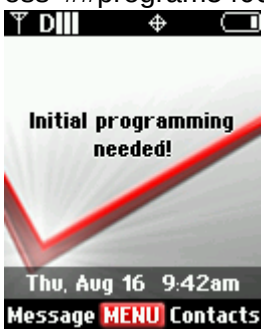
2.3.5.2 Antenna Cable Connection

Connect the antenna coupler cable connector from the cradle to the external antenna connector. (Antenna is not included.)

CHAPTER 2. NAM Input Method
(Inputting of telephone numbers included)

1) NAM Programming Method

Press '##program5400' ➔ Press "Send" ➔ Press "000000"



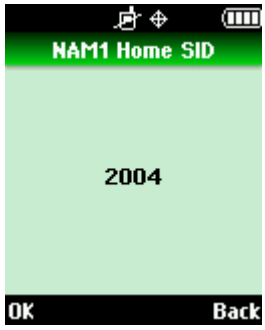
1. Press '1' on keypad or 'OK' for entering Service Prg.

2. Check ESN, and Press "OK" button. (Read only)

3. Insert the NAM 1 PHONE NUMBER and press "OK" button.

4. Check MIN Number, and Press “OK” button.
   (MIN Number is automatically written with MDN)

5. Insert the NAM 1 HOME SID, and Press “OK” button.



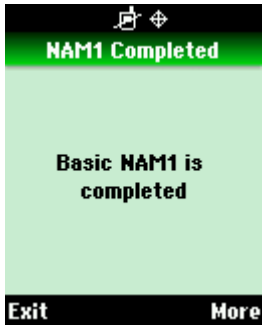
6. Insert the NAM 1 NAME for ‘Edit’, and Press “OK” button.

Edit ➔

SAVE ➔

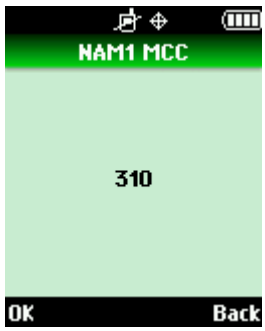
OK

7. If you want to enter the more item,
   Press ‘More’ key. Otherwise Press ‘Exit’



8. Insert the Security Code,
   And Press “OK” button.

9. Insert the NAM 1 MOBILE COUNTRY CODE[NAM1 MCC].
   And press “OK” button.

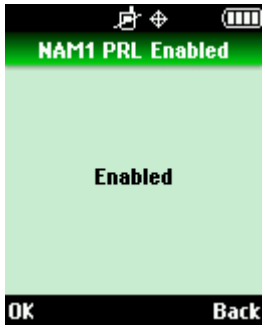


10. Insert the NAM 1 NMSID and Press “OK” button.

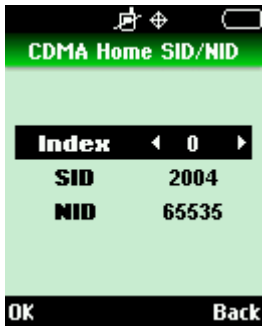
11. Insert the True IMSI MCC and Press “OK” button.

12. Insert the True IMSI NMSID and Press “OK” button.

13. Check PRL Enabled, and Press “OK” button.

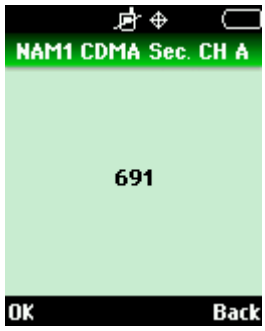


14. Check Home SID/NID, and Press “OK” button.
(If you want to change *Index*, Press Right or Left button.)
If you want to change *SID*, Locate Black Mark in the *SID* with UP or Down button, and Press “OK” button, and Insert *SID* Number.
For *NID* Change, do the same way as *SID* change.)

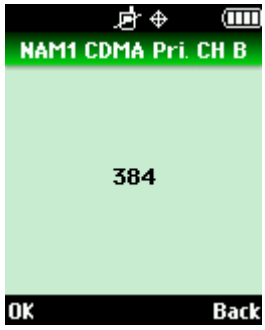


15. Insert the NAM 1 CDMA Primary CH A, and press ‘OK’ button.

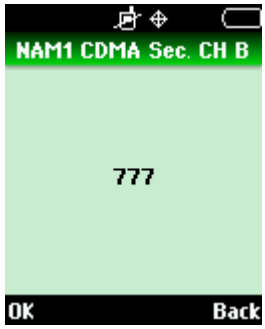
16. Insert the NAM 1 CDMA Second CH A, and press ‘OK’ button.



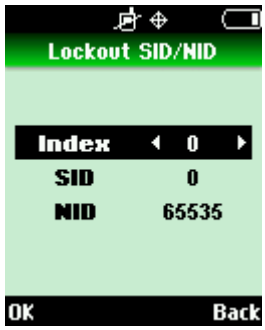
17. Insert the NAM 1 CDMA Primary CH B, and press ‘OK’ button.



18. Insert the NAM 1 CDMA Second CH B, and press ‘OK’ button.



19. Check Lockout SID/NID, and Press “OK” button.
(If you want to change *Index*, Press Right or Left button.)
If you want to change *SID*, Locate Black Mark in the *SID* with UP or Down button, and Press “OK” button, and Insert *SID* Number.
For *NID* Change, do the same way as *SID* change.)

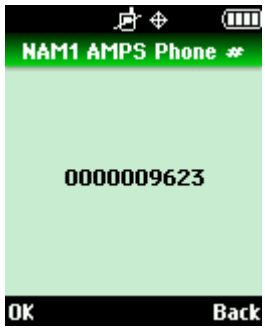


20. Use ‘UP’ or ‘DOWN’ key to select *Yes* or *No* and then press ‘OK’ button.

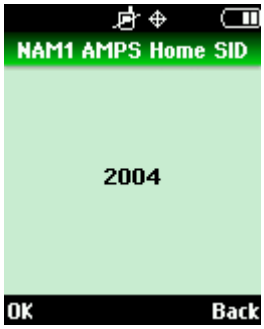
21. Use ‘UP’ or ‘DOWN’ key to select Yes or No and then press ‘OK’ button.

22. Use “UP” or “DOWN” key to select Yes or No and then Press “OK” button.

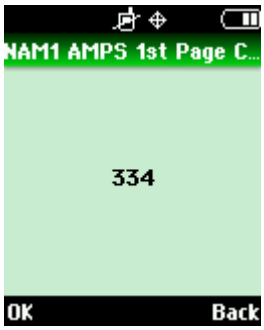
23. Insert the NAM 1 AMPS PHONE NUMBER and press “OK” button.



24. Insert the NAM 1 AMPS HOME SID,
and Press “OK” button.



25. Insert the NAM 1 AMPS 1st Page Channel,
and Press “OK” button.

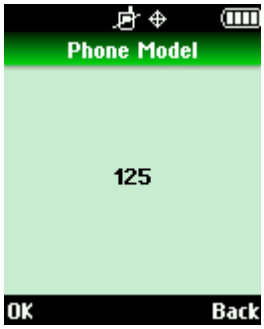


26. Use ‘UP’ or ‘DOWN’ key to select *Yes* or *No*
and then press ‘OK’ button.

27. Insert the NAM 1 Access Overload Class,
and Press “OK” button.

28. In case of NAM2, Press ‘Edit’ soft key.
    And Use same method as the above.
    Otherwise Press ‘OK’ button.

29. Check Phone Model, and Press “OK” button.



30. Insert Slot Cycle Index, and Press “OK” button.

31. Press “OK” and then the phone will restart.

CHAPTER 3. Circuit Description

1. RF Transmit/Receive Part

1.1 Overview

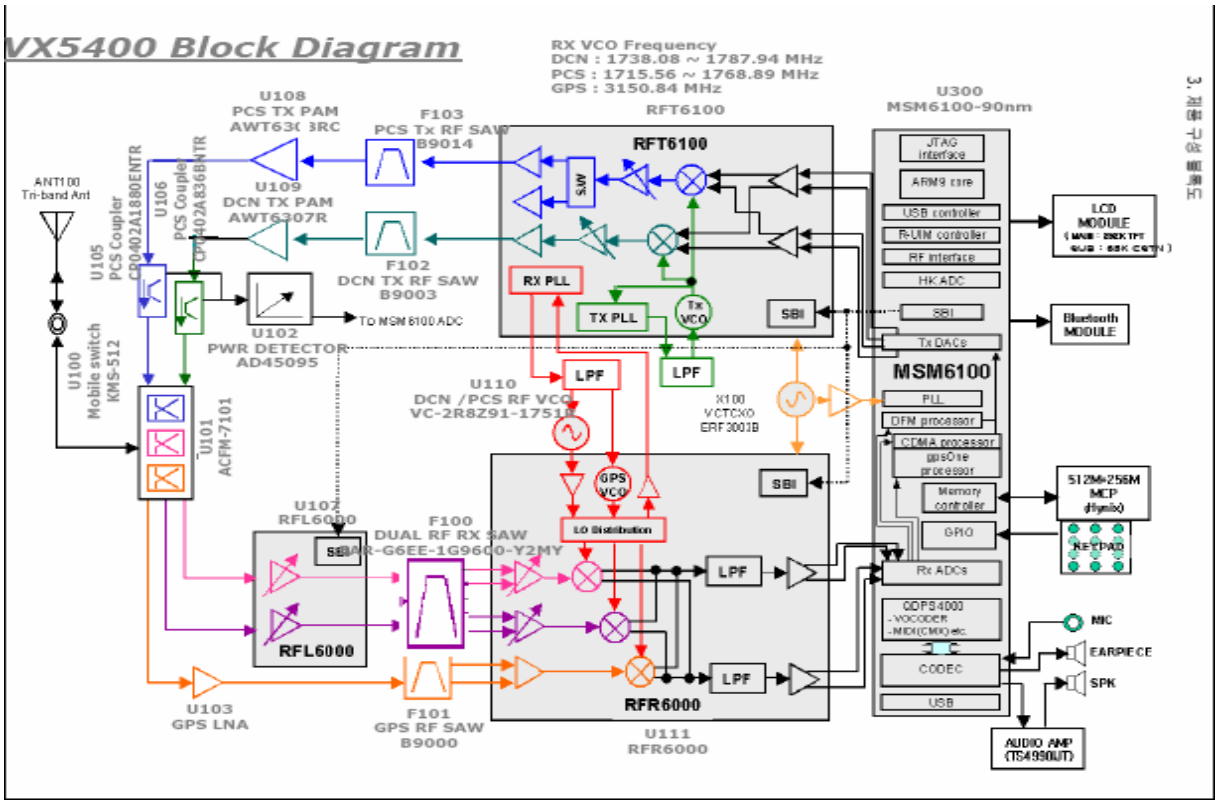
The Tx and Rx part employs the Direct-Conversion system. The Tx and Rx frequencies are respectively 824.04~848.97 and 869.04~893.97 for cellular and 1850~1910 and 1930~1990 for PCS. The block diagram is shown in [Figure 1-1]. RF signals received through the antenna are seperated by the Quintplexer.

RF Signal fed into the low noise amplifier (LNA) through the Quintplexer. Then, they are fed into RFR6000. In RFR6000, the RF signal is changed into baseband signal directly. Then, this signal is changed into digital signal by the analog to digital converter (ADC, A/D Converter), and the digital circuit part of the MSM(Mobile Station Modem) 6100 processes the data from ADC. The digital processing part is a demodulator.

In the case of transmission, RFT6100 receives OQPSK-modulated anlaog signal from the MSM6100.

The RFT6100 connects directly with MSM6100 using an analog baseband interface. In RFT6100, the baseband quadrature signals are upconverted to the Cellular or PCS frequency bands and amplified to provide signal drive capability to the power amp.

After that, the RF signal is amplified by the Power Amp in order to have enough power for radiation. Finally, the RF signal is sent out to the cell site via the antenna after going through the Quintplexer.



[Figure 1-1] Block Diagram Of VX5400

1.2 Description of Receive Part Circuit

1.2.1 Quintplexer (U101)

The Quintplexer consists of the Rx bandpass filter (BPF), the Tx BPF and the GPS filter(BPF) which has the function of separating Tx, Rx and GPS signals in the full Triplex system for using the common antenna. The Tx part BPF is used to suppress noises and spurious out of the Tx frequency band. The Rx BPF is used to receive only Rx signal coming from the antenna, which is usually called preselector. It's main function is to limit the bandwidth of spectrum reaching the LNA and mixer, attenuate receiver spurious response and suppress local oscillator energy. As a result frequency sensitivity and selectivity of mobile phone increase. The specification of VX5400 Quintplexer described below ;

- PCS band

	Tx	**Rx**	**Tx to Rx (min)**
Pass Band	1850~1910 MHz	1930~1990 MHz	
Insertion Loss	3.9 dB max	4.2 dB max	
Return Loss	9.0 dB min	9.0dB min	
Attenuation	43 dB min (1930~1990MHz)	52dB min (1850~1910MHz)	54 dB (1850~1910MHz) 45 dB (1930~1990MHz)

- Cellular band

	Tx	**Rx**	**Tx to Rx (min)**
Pass Band	824~849MHz	869~894 MHz	
Insertion Loss	2.4 dB max	3.4 dB max	
Return Loss	9.0 min	9.0 min	
Attenuation	43 dB min (869~894MHz)	55 dB min (824~849MHz)	55 dB (824~849MHz) 45 dB (869~894MHz)

- GPS band

Pass Band	1574.42~1576.42MHz
Insertion Loss	1.5 dB max
Return Loss	10 min
Isolation1	34 dB min(Cell Tx → GPS)

Isolation2	34 dB min(PCS Tx → GPS)

1.2.2 LNAs (U107)

The RFL6000 has cellular and PCS LNAs, respectively. The characteristics of Low Noise Amplifier (LNA) are low noise figure, high gain, high intercept point and high reverse isolation. The frequency selectivity characteristic of mobile phone is mostly determined by LNA.

The specification of VX5400 LNAs are described below:

Parameter	**Low gain**		**Middle gain**		**High gain**		**Units**
	Cellular	**PCS**	**Cellular**	**PCS**	**Cellular**	**PCS**	
Gain	-19	-20	-2	-9	15.5	16	dB
Noise Figure	19	20	2	9	1.4	1.6	dB
Input IP3	25	25	20	20	6	8	dBm

1.2.3 Down-converter Mixers and GPS LNA (U111)

The RFR6000 device performs signal down-conversion for Cellular, PCS and GPS tri-band applications. It contains all the circuitry (with the exception of external filters) needed to support conversion of received RF signals to baseband signals. The three downconverting Mixers (Cellular, PCS and GPS), and an LO Buffer Amplifier to buffer the RF VCO to the RF Transmit Upconverter. The GPS LNA & mixers offer the most advanced and integrated CDMA Rx solution designed to meet cascaded Noise Figure (NF) and Third-order Intercept Point (IIP3) requirements of IS-98C and J-STD-018 specifications for Sensitivity, Two-Tone Intermodulation, and Single-tone Desense.

Operation modes and band selection are specially controlled from the Mobile Station Modem MSM6050.

The specification of VX5400 Mixers are described below:

Parameter	**Low gain**		**High gain**		**Units**
	Cellular	**PCS**	**Cellular**	**PCS**	
Noise Figure	27	27	11	11	dB
Input IP3	4	3	4	3	dBm
Input IP2	50	50	75	70	dBm

1.2.4 Rx RF SAW FILTER(F100)

The main function of Rx RF SAW filter is to attenuate mobile phone spurious frequency, attenuate noise amplified by the LNA and suppress second harmonic originating in the LNA.

1.3 Description of Transmit Part Circuit

1.3.1 RFT6100 (U112)

The RFT6100 baseband-to-RF Transmit Processor performs all Tx signal-processing functions required between digital baseband and the Power Amplifier Modulator (PAM). The baseband quadrature signals are upconverted to the Cellular or PCS frequency bands and amplified to provide signal drive capability to the PAM. The RFT6100 includes an mixers for up-converting analog baseband to RF, a programmable PLL for generating Tx and Rx LO frequency, cellular and PCS driver amplifiers and Tx power control through an 85 dB VGA. As added benefit, the single sideband upconversion eliminates the need for a band pass filter normally required between the upconverter and driver amplifier.

I, I/, Q and Q/ signals proceed from the MSM6100 to RFT6100 are analog signal. In CDMA mode, These signals are modulated by Offset Quadrature Phase Shift King (OQPSK). I and Q are 90 deg. out of phase, and I and I/ are 180 deg. The mixers in RFT6100 converts baseband signals into RF signals. After passing through the upconverters, RF signal is inputted into the Power AMP.

- RFT6100 Cellular and PCS CDMA RF Specifications

	Condition	Min.	Typ.	Max.	Units
Rated Output Power	Average CDMA Cellular Average CDMA PCS		8 10		dBm dBm
Min Output Power	Average CDMA Cellular Average CDMA PCS		-80 -78		dBm dBm
Rx band noise power	CDMA Cellular CDMA PCS		-133 -132		dBm/Hz
ACPR	Cellular: Fc±885kHz PCS: Fc±1.25MHz		-56 -56		dBc/ 30kHz

1.3.2 Power Amplifier(U108,109)

The power amplifier that can be used in the PCS and CDMA mode has linear amplification capability and high efficiency. For higher efficiency, it is made up of one MMIC (Monolithic Microwave Integrated Circuit) for which RF input terminal and internal interface circuit are integrated onto one IC after going through the AlGaAs/GaAs HBT (heterojunction bipolar transistor) process. The module of power amplifier is made up of an output end interface circuit including this MMIC. The maximum power that can be inputted through the input terminal is +17dBm and conversion gain is about 28dB. RF transmit signals that have been amplified through

the power amplifier are sent to the Quintplexer.

1.4 Description of Frequency Synthesizer Circuit

1.4.1 Voltage Control Temperature Compensation Crystal Oscillator (VCTCXO, X100)

The temperature variation of mobile phone can be compensated by VCTCXO. The reference frequency of a mobile phone is 19.2 MHz. The receiver frequency tuning signals called TRK_LO_ADJ from MSM as 0.5 V~2.5 V DC via R and C filter in order to generate the reference frequency of 19.2 MHz and input it into the frequency synthesizer. Frequency stability depending on temperature is ±2.0 ppm.

1.4.2 Voltage Controlled Oscillator (VCO, U110)

The external VCO signal is processed by the LO generation and distribution circuits in RFR6000 to create the PCS and Cellular quadrature downconverter's LO signals. Likewise, the internal VCO signal of RFR6000 is processed to create the GPS quadrature downconverter's LO signal. In all cases, the LO signals applied at the mixer ports are at the frequency different than the VCO frequency. This assures that the VCO frequency is different than the RF frequency, an important consideration for Zero-IF processing. The VCO frequency used are 1715.56~1768.89 MHz for PCS and 1738.08~1787.94 MHz for cellular.

2. Digital/Voice Processing Part

2.1 Overview

The digital/voice processing part processes the user's commands and processes all the digital and voice signal processing in order to operate in the phone. The digital/voice processing part is made up of a keypad/LCD, receptacle part, voice processing part, mobile station modem part, memory part, and power supply part.

2.2 Configuration

2.2.1 Keypad/LCD and Receptacle Part

This is used to transmit keypad signals to MSM6100. It is made up of a keypad backlight part that illuminates the keypad, LCD part that displays the operation status onto the screen, and a receptacle that receives and sends out voice and data with external sources.

2.2.2 Voice Processing Part

The voice processing part is made up of an audio codec used to convert MIC signals into digital voice signals and digital voice signals into analog voice signals, amplifying part for amplifying the voice signals and sending them to the ear piece, amplifying part that amplifies ringer signals coming out from MSM6100, and amplifying part that amplifies signals coming out from MIC and transferring them to the audio processor.

2.2.3 MSM (Mobile Station Modem) 6100 Part

MSM is the core elements of CDMA terminal and carries out the functions of CPU, encoder, interleaver, deinterleaver, Viterbi decoder, Mod/Demod, and vocoder.

2.2.4 Memory Part

The memory part is made up of a NAND Flash memory, SDRAM for storing data.

2.2.5 Power Supply Part

The power supply part is made up of circuits for generating various types of power, used for the digital/voice processing part.

2.3 Circuit Description

2.3.1 Keypad/LCD and Receptacle Part

Once the keypad is pressed, the key signals are sent out to MSM6100 for processing. In addition, when the key is pressed, the keypad/LCD lights up through the use of 20 LEDs. The terminal status and operation are displayed on the screen for the user with the characters and icons on the LCD.
Moreover, it exchanges audio signals and data with external sources through the receptacle, and then receives power from the battery or external batteries.

2.3.2 Audio Processing Part

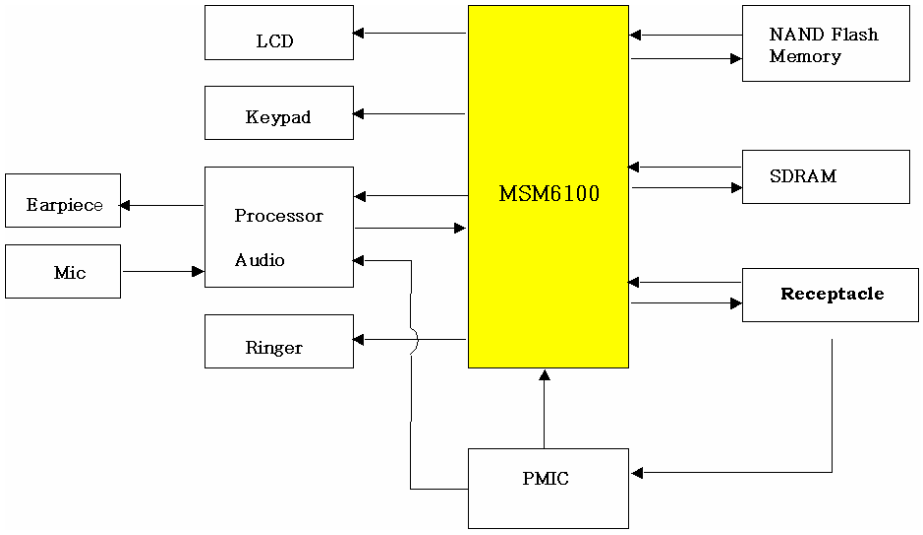
MIC signals are amplified through OP AMP, inputted into the audio codec(included in MSM6100) and converted into digital signals. Oppositely, digital audio signals are converted into analog signals after going through the audio codec. These signals are amplified at the audio amplifier and transmitted to the ear-piece. The signals from MSM6100 activate the ringer by using signals generated in the timer in MSM6100.

2.3.3 MSM Part

MSM6100 is the core element of CDMA system terminal that includes ARM9TDMI microprocessor core. It supports both CDMA and Digital FM, operating in both the cellular and PCS spectrums. The subsystems within the MSM6100 include a CDMA processor, a DFM processor, a multi-standard Vocoder, an integrated CODEC with earpiece and microphone amplifiers, general-purpose ADC for subsytem monitoring, an ARM9TDMI microprocessor, and both Universal Serial Bus(USB) and an RS-232 serial interfaces supporting forward and reverse link data communications of 307.2 Kbps simultaneously. And it also contains complete digital modulation and demodulation systems for both CDMA and AMPS cellular standards, as specified in IS-95-A/B/C.

In MSM, coded symbols are interleaved in order to cope with multi-path fading. Each data channel is scrambled by the long code PN sequence of the user in order to ensure the confidentiality of calls. Moreover, binary quadrature codes are used based on walsh functions in order to discern each channel. Data created thus are 4-phase modulated by one pair of Pilot PN code and they are used to create I and Q data.

When received, I and Q data are demodulated into symbols by the demodulator, and then de-interleaved in reverse to the case of transmission. Then, the errors of data received from viterbi decoder are detected and corrected. They are voice-decoded at the vocoder in order to output digital voice data.



[Figure 2-2] Block Diagram of Digital/Voice Processing Part

2.3.4 Memory Part

MCP contents 512 Mbits NAND flash memory and 256 Mbits SDRAM. In the Flash Memory part of MCP is programs used for terminal operation. The programs can be changed through down loading after the assembling

of terminals. On the SDRAM data generated during the terminal operation are stored temporarily.

2.3.5 Power Supply Part

When the battery voltage (+4.0V) is fed and the PWR key of keypad is pressed, the power-up circuitry in PM (power management) IC (U500) is activated by the PWR_ON_SW signal, and then the LDO regulators embedded in PMIC for MSM) are operated and +1.867V_MSMC, +2.85V_MSMP and +2.6V_MSMA are generated.

The Rx part regulator (+2.85V_RX) is operated by the control signal of SLEEP/ from MSM6100.

The Tx part regulator (+3.0V_TX) is operated by the I^2C control signal from MSM6100.

2.3.6 Logic Part

The logic part consists of internal CPU of MSM, RAM, MCP. The MSM6100 receives TCXO (=19.2MHz) from X100 and controls the phone in both CDMA and FM modes. The major components are as follows:

- **CPU**

The ARM9TDMI microprocessor includes a 3 stage pipelined RISC architecture, both 32-bit ARM and 16-bit THUMB instruction sets, a 32-bit address bus, and a 32-bit internal data bus. It has a high performance and low power consumption.

- **MCP**

Flash ROM is used to store the terminal's program. Using the down-loading program, the program can be changed even after the terminal is fully assembled.

SDRAM is used to store the internal flag information, call processing data, and timer data.

- **KEYPAD**

For key recognition, key matrix is setup using KYPD[1][3][5][7][9][11][13][15][17][19] signal from MSM. 20 LEDs and backlight circuitry are included in the keypad for easy operation in the dark.

- **LCD MODULE**

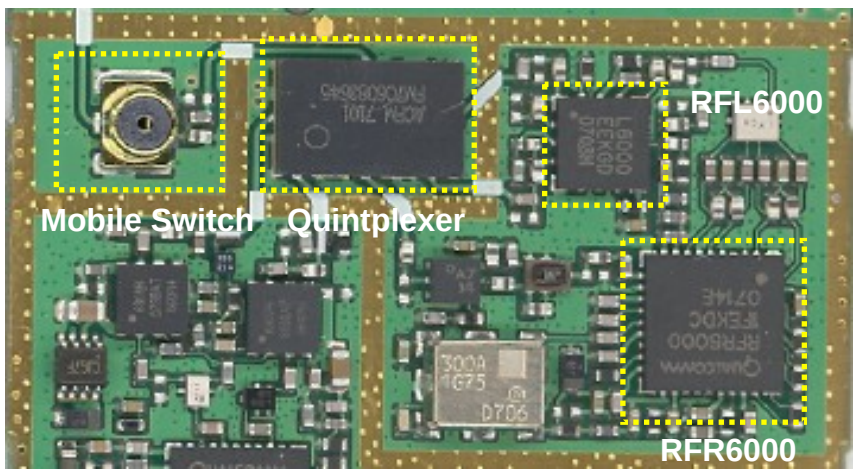
LCD module contains a controller which will display the information onto the LCD by 16-bit data from the MSM6100. It is also supplied stable 2.85V_MSMP by regulator in U402 for fine view angle and LCD reflects to improve the display efficiency. 4 LEDs are used to display LCD backlight.

CHAPTER 4. Trouble Shooting

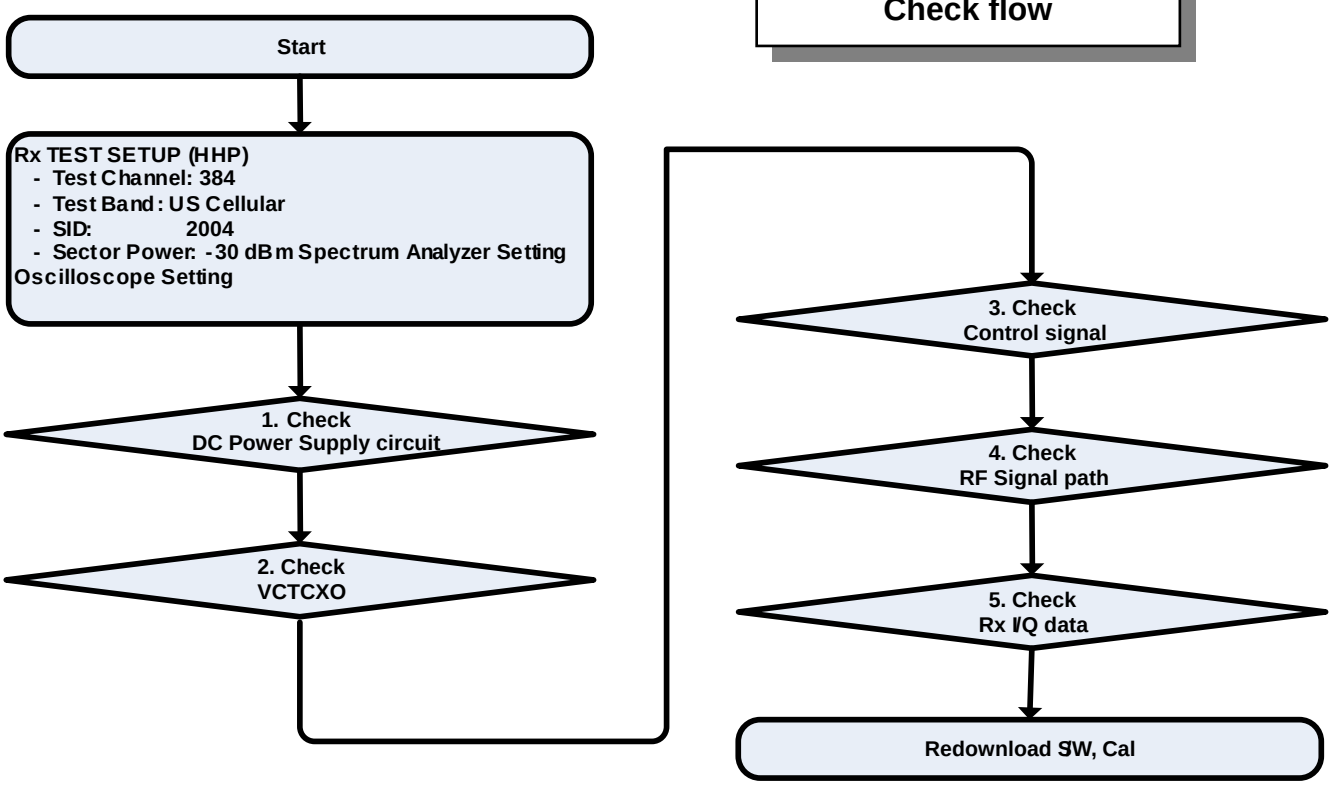
4.1 Rx Part Trouble

4.1.1 DCN Rx

Test Point

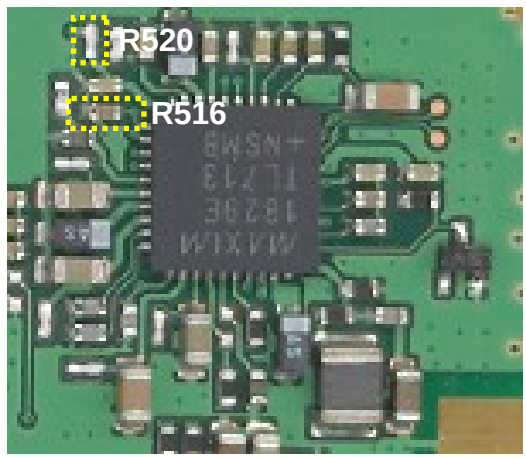


Check flow



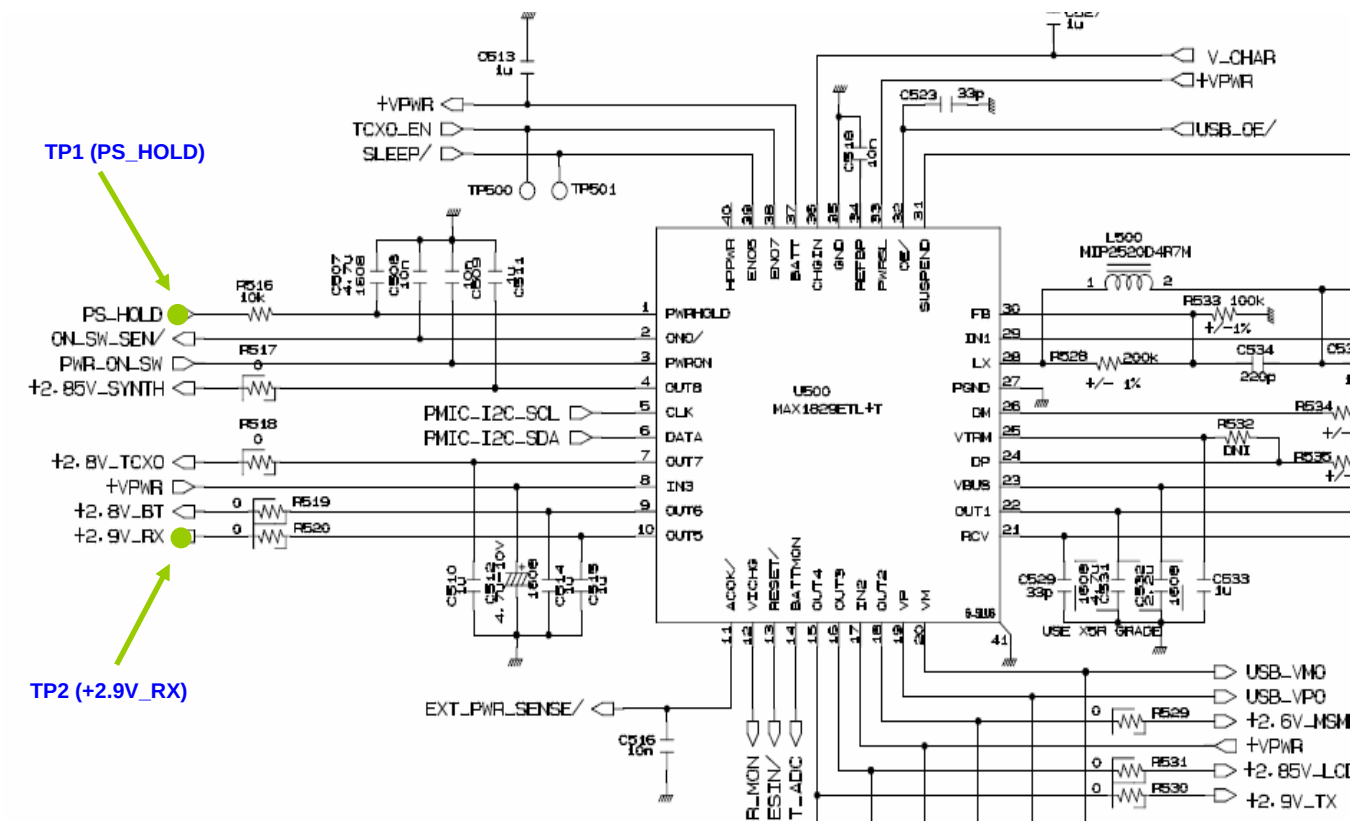
4.1.1.1 Checking DC Power supply circuit (PMIC)

Test Point

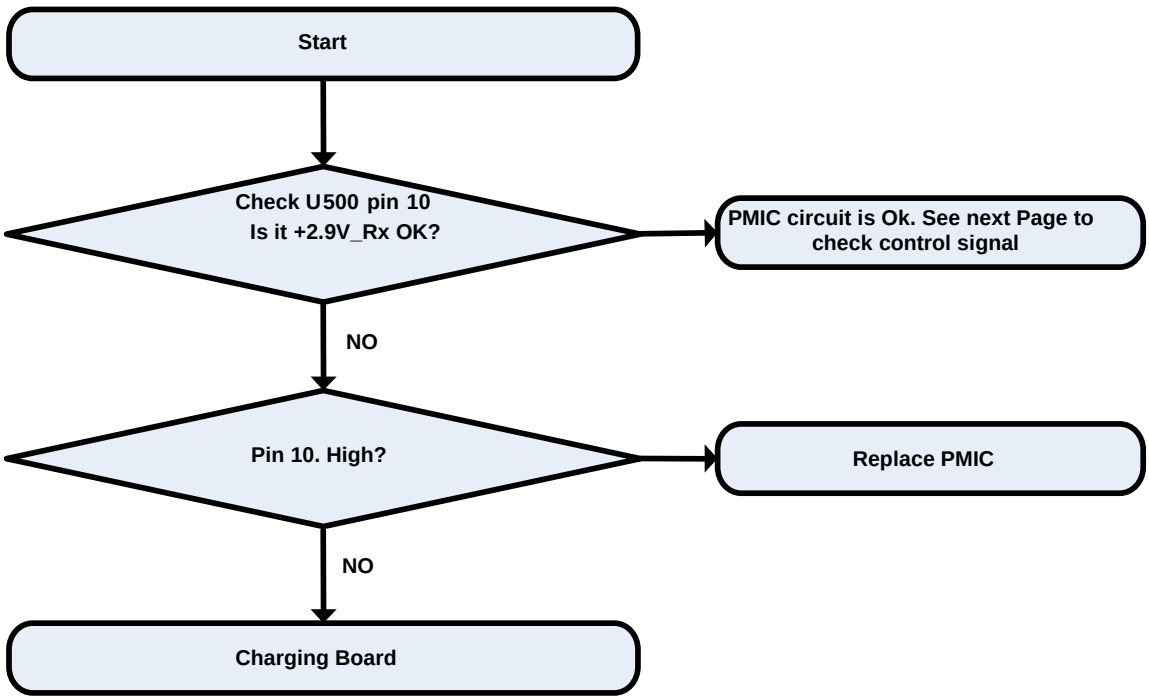


Circuit Diagram

<PMIC PART>

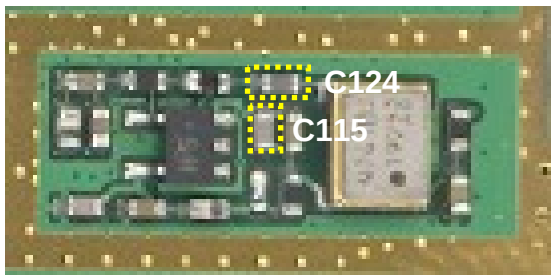


Checking Flow

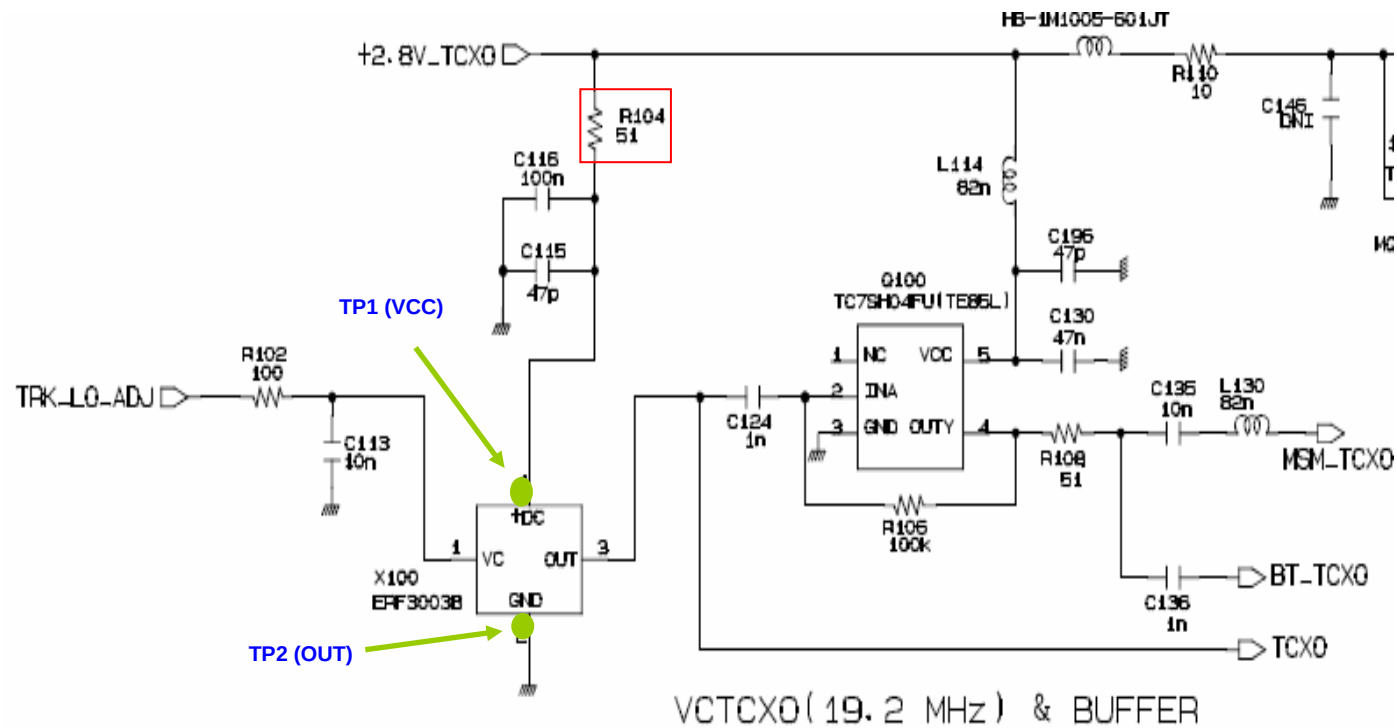


4.1.1.2 Checking VCTCXO circuit

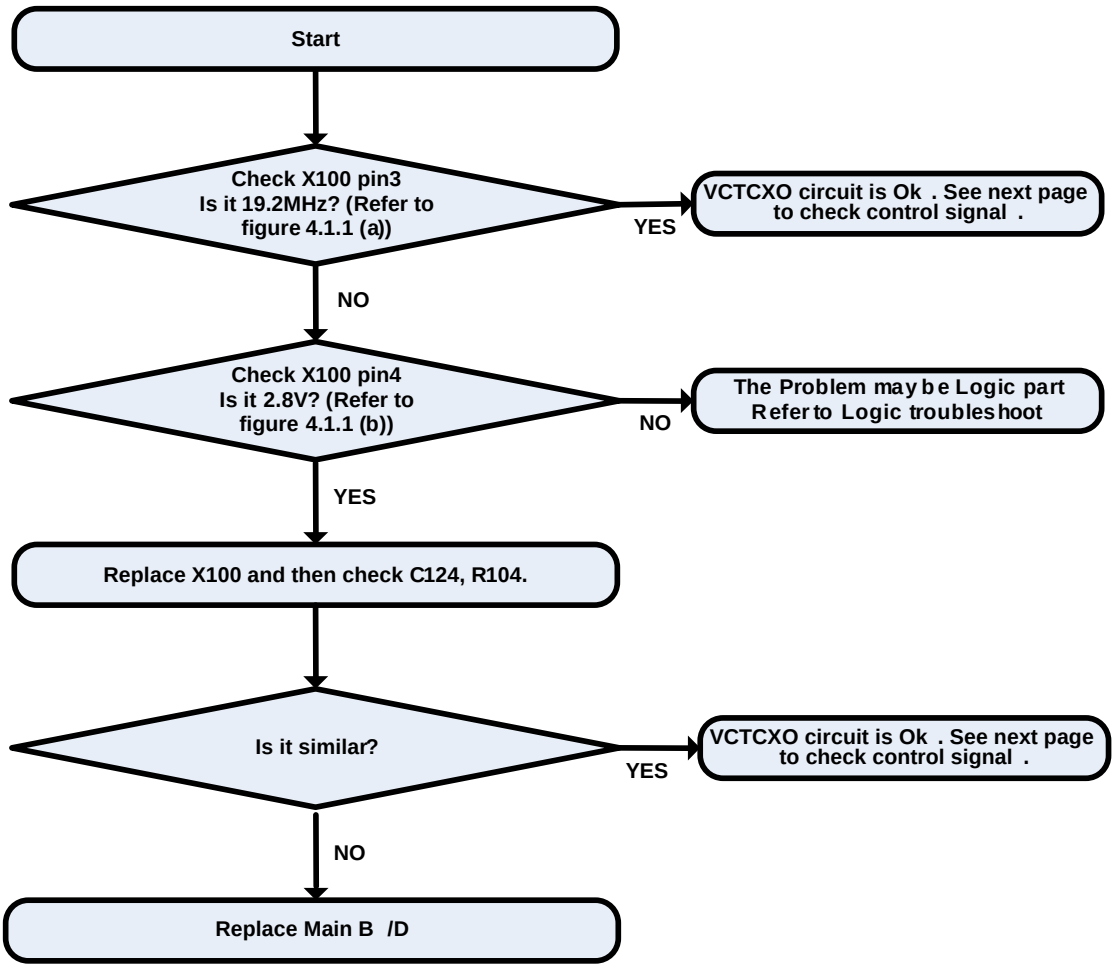
Test Point



Circuit Diagram



Checking Flow



Waveform

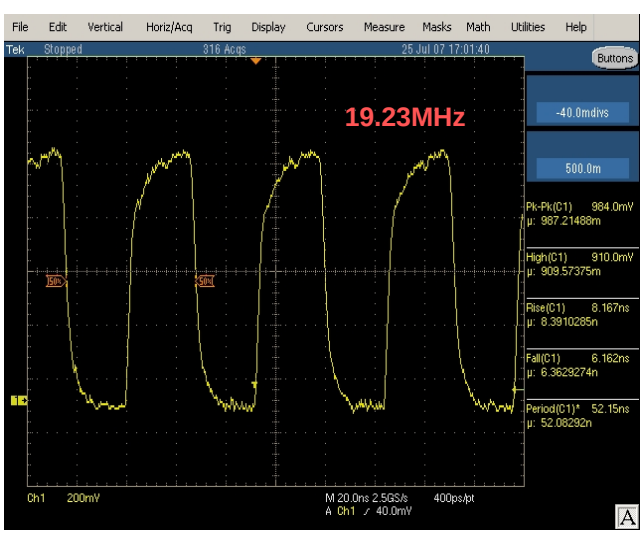


Figure 4.1.1 (a)

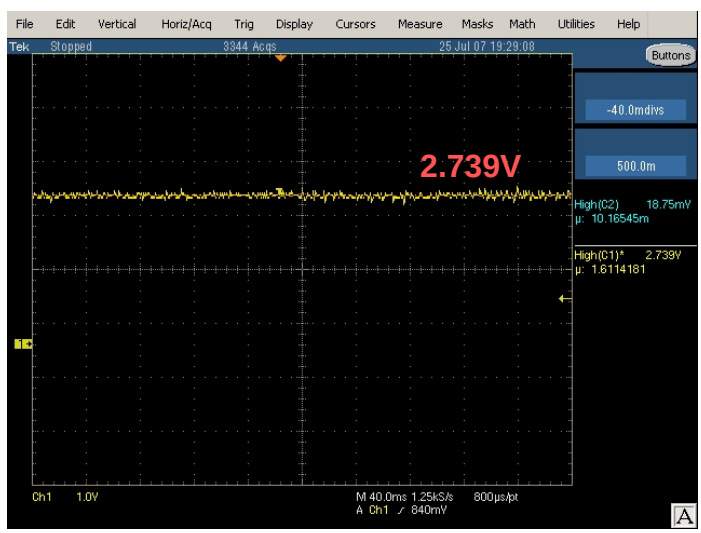
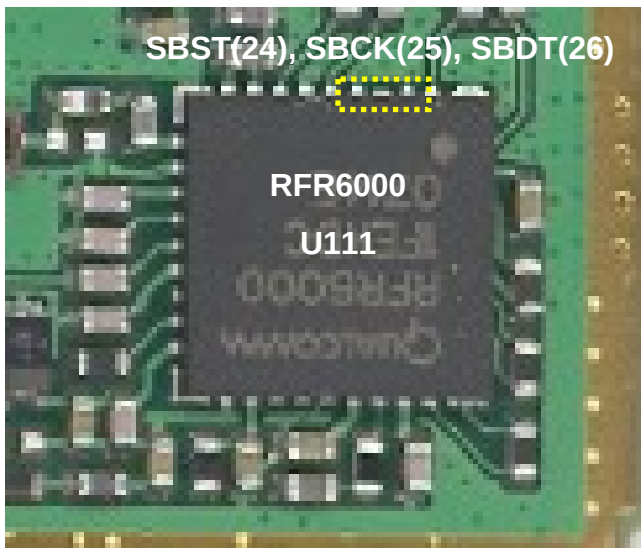
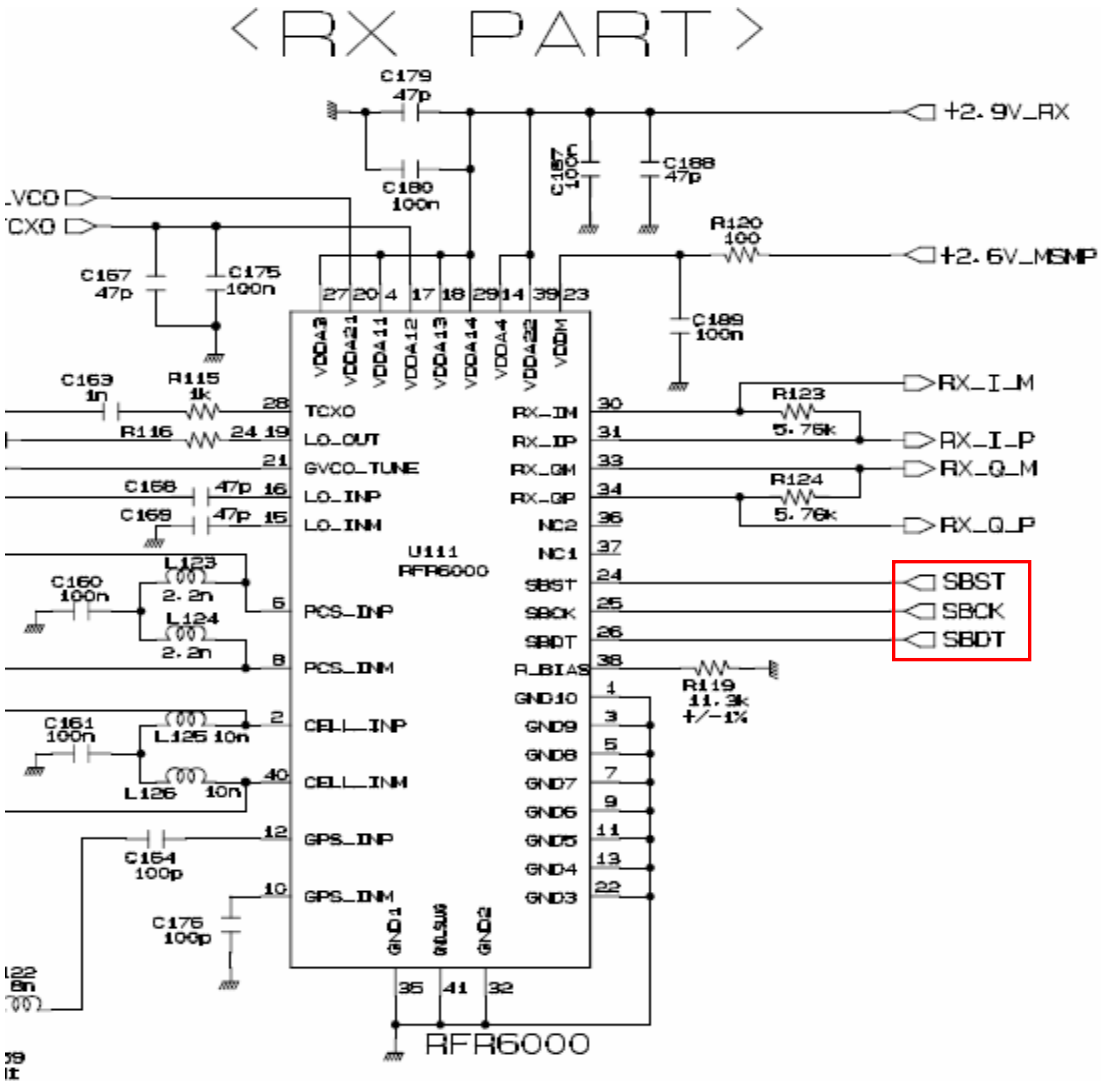


Figure 4.1.1 (b)

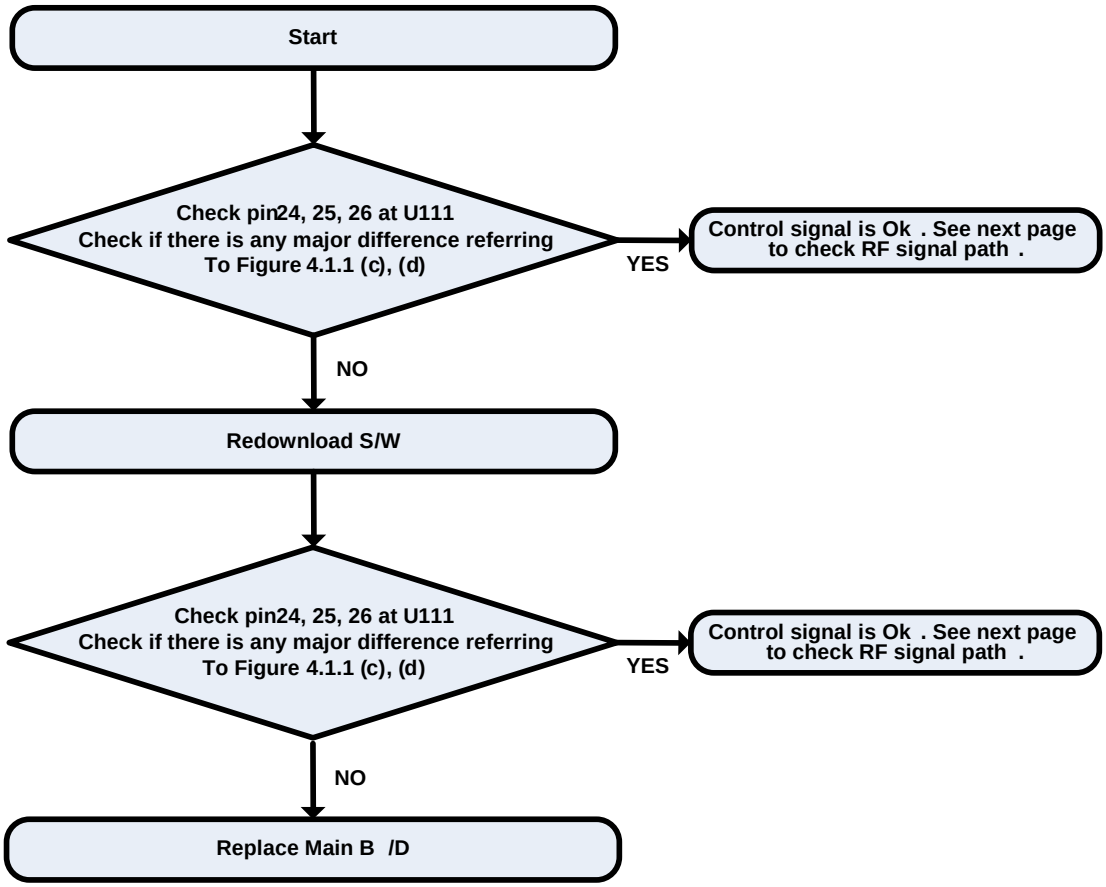
4.1.1.3 Checking Control signal

Test Point





Checking Flow



Waveform

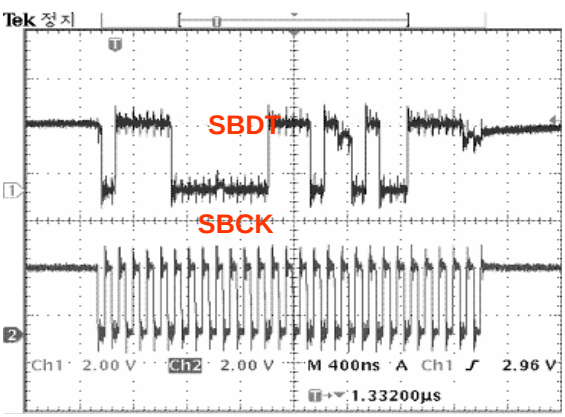


Figure 4.1.1 (c)

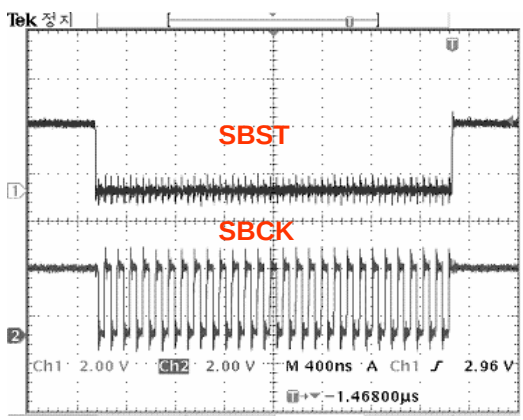
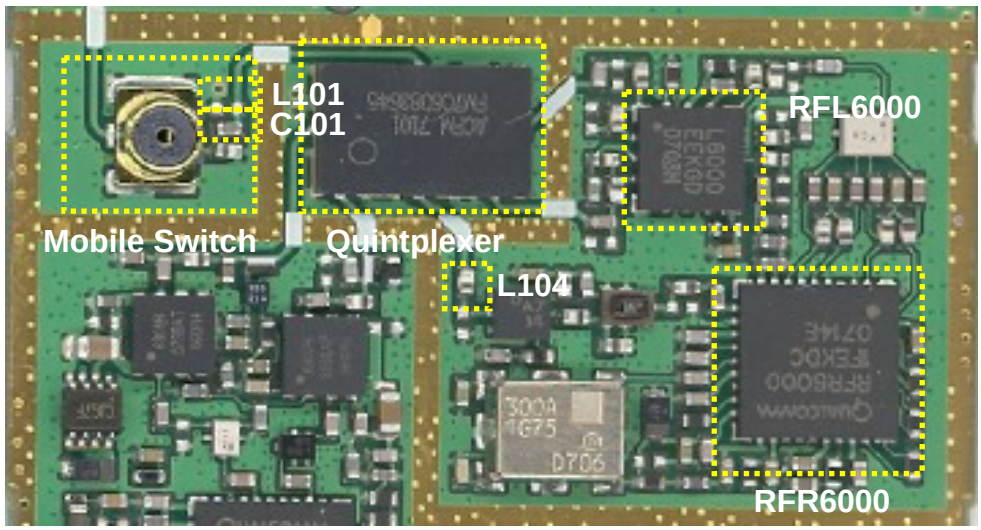


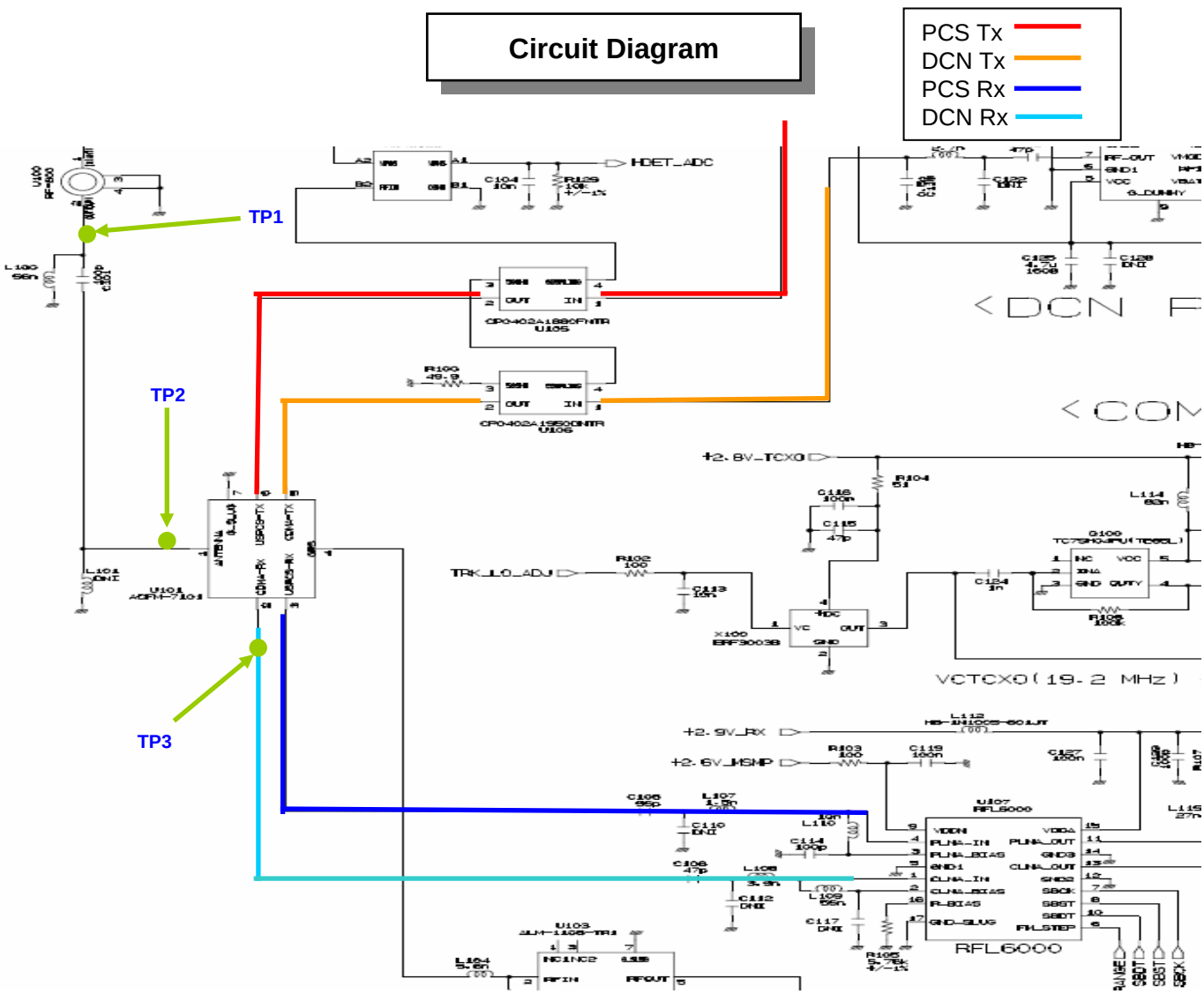
Figure 4.1.1 (d)

4.1.1.4 Checking RF signal path (Mobile S/W, Quintplexer)

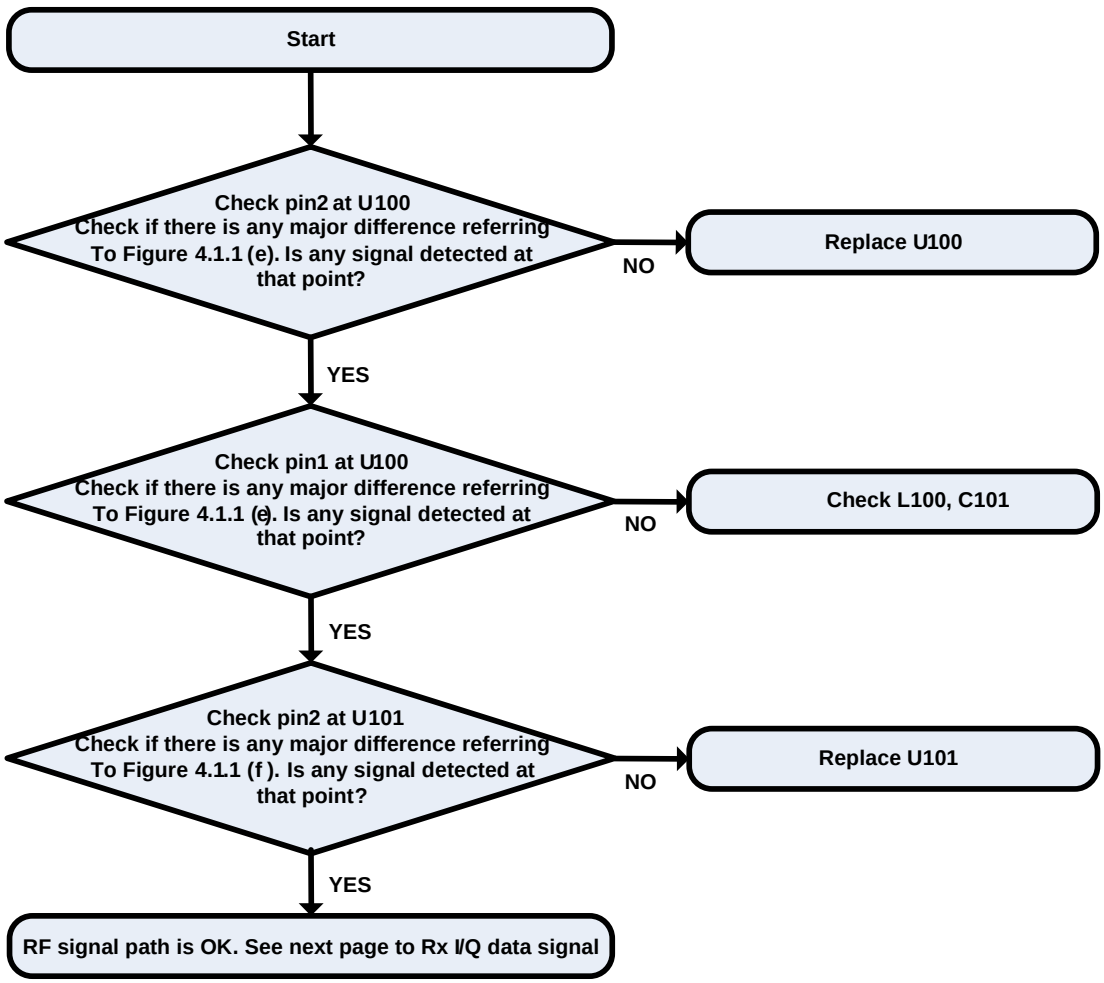
Test Point



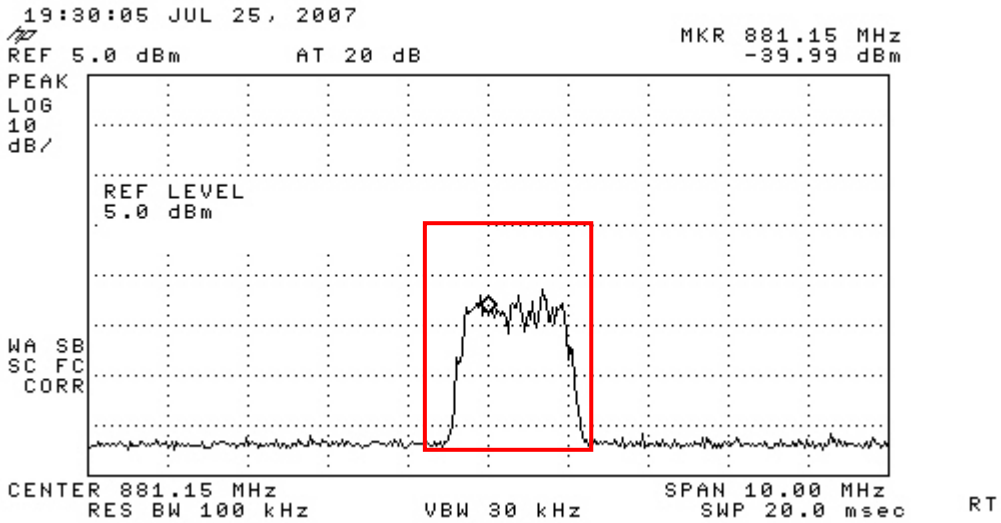
Circuit Diagram



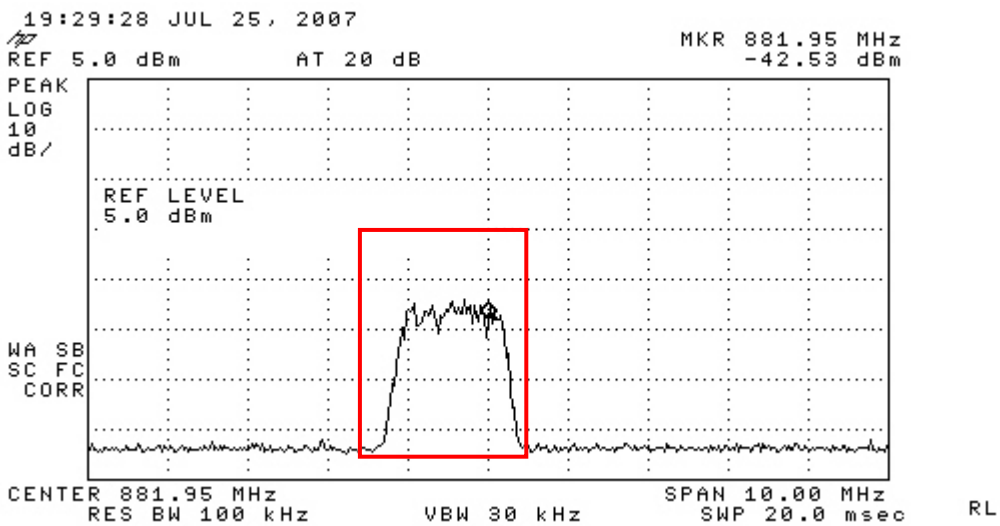
Checking Flow



Waveform



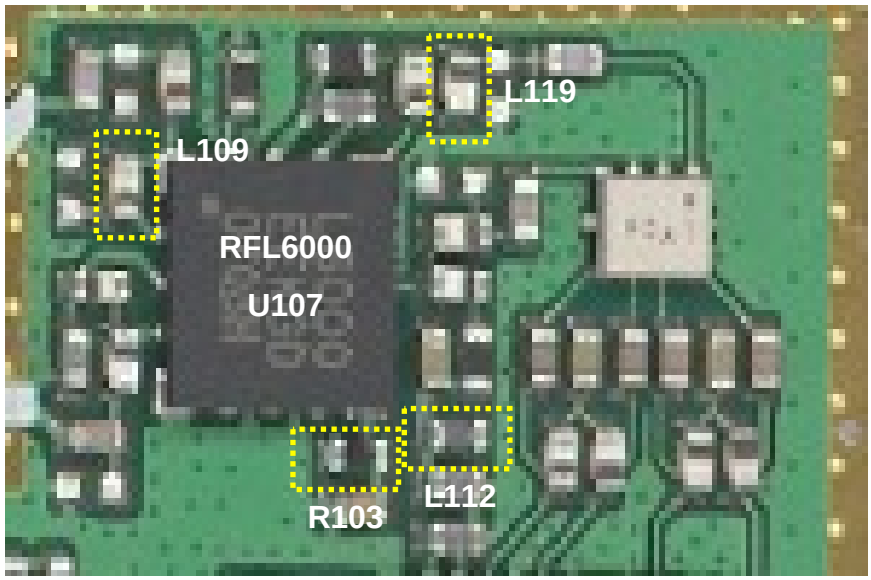
4.1.1 (e)



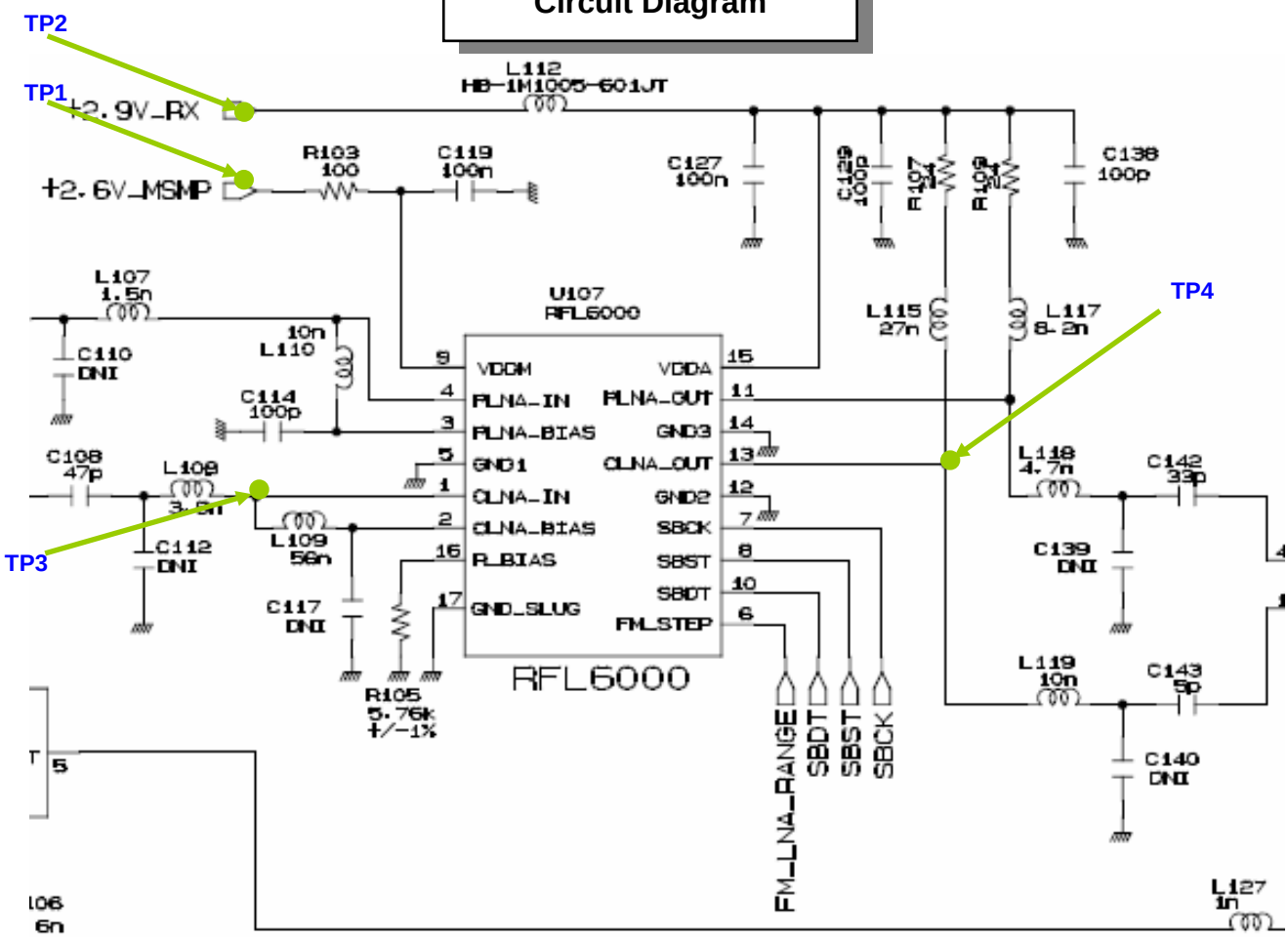
4.1.1 (f)

4.1.1.5 Checking LNA

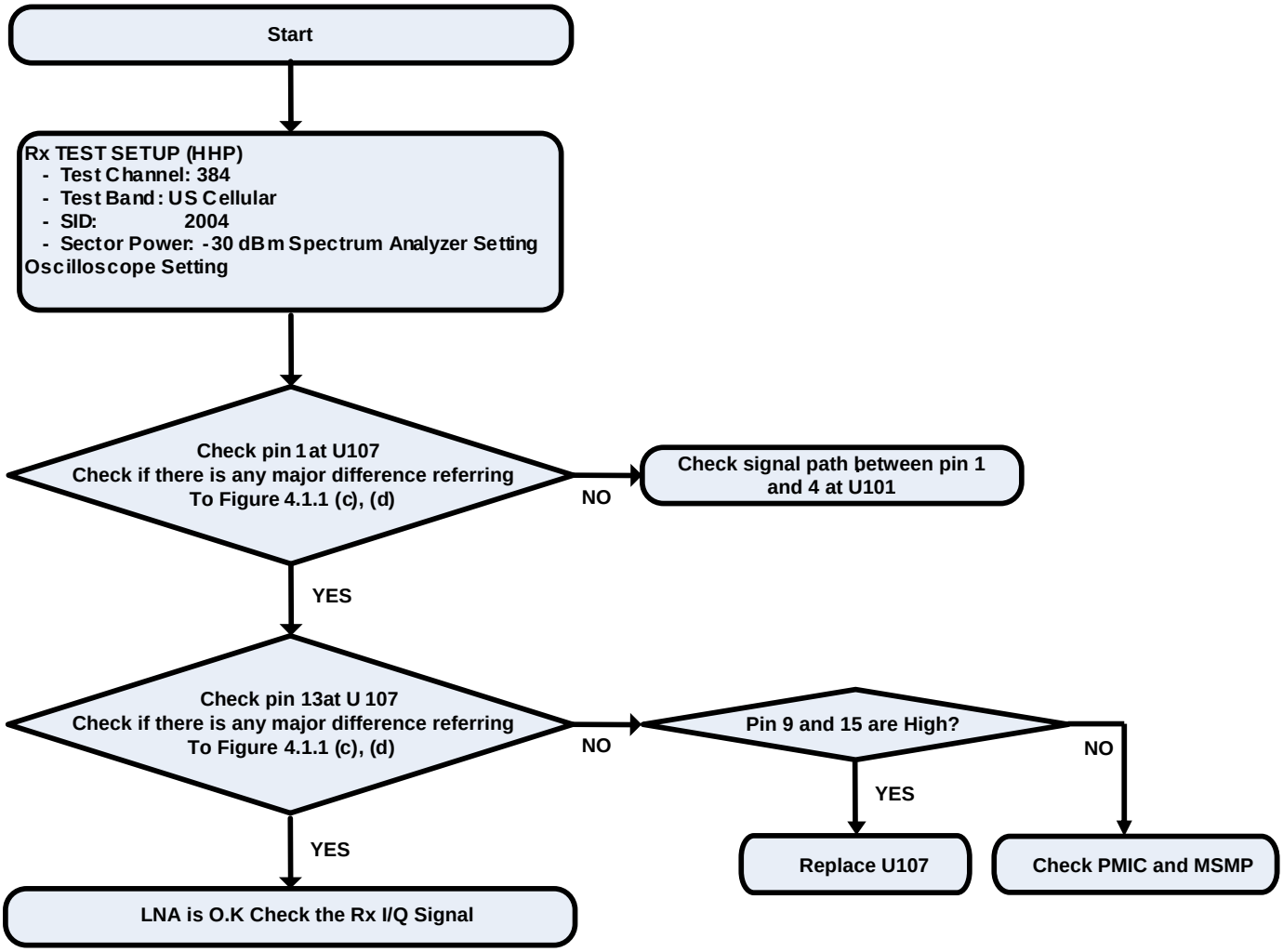
Test Point



Circuit Diagram

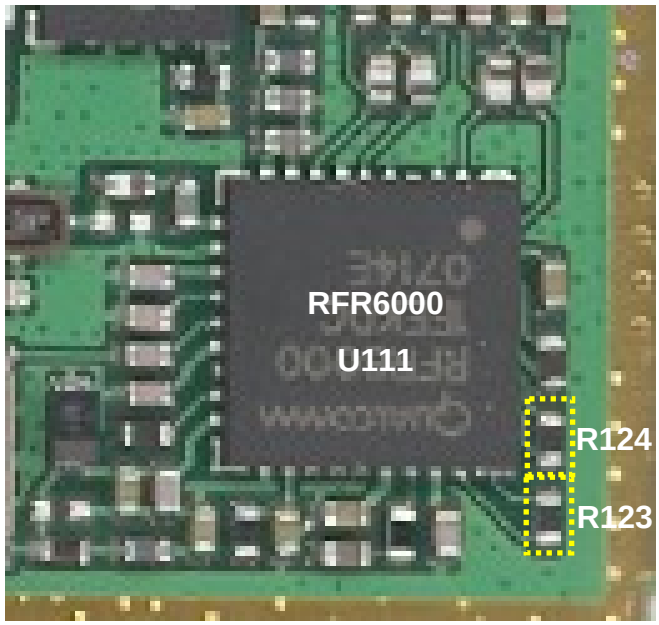


Checking Flow

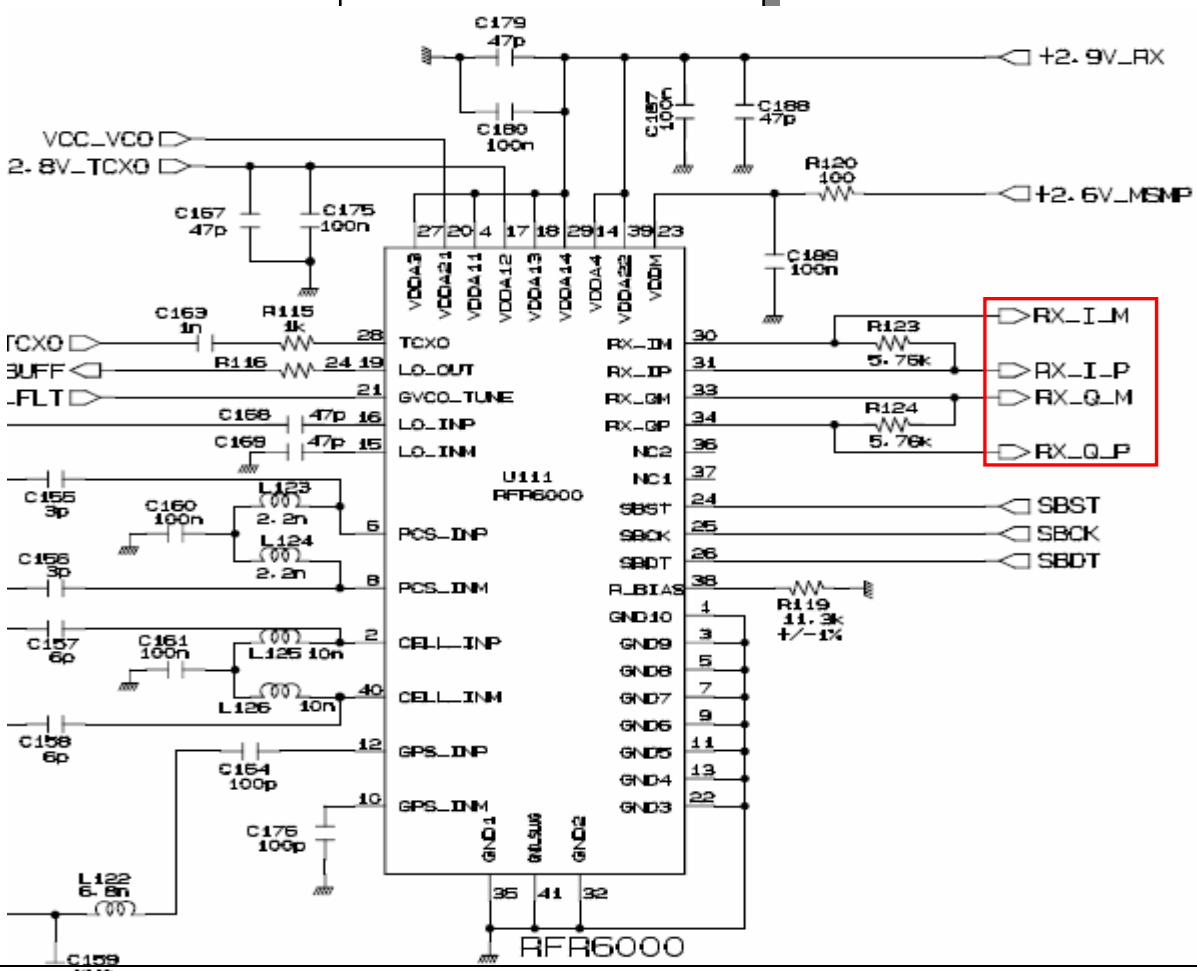


4.1.1.6 Checking Rx I/Q data

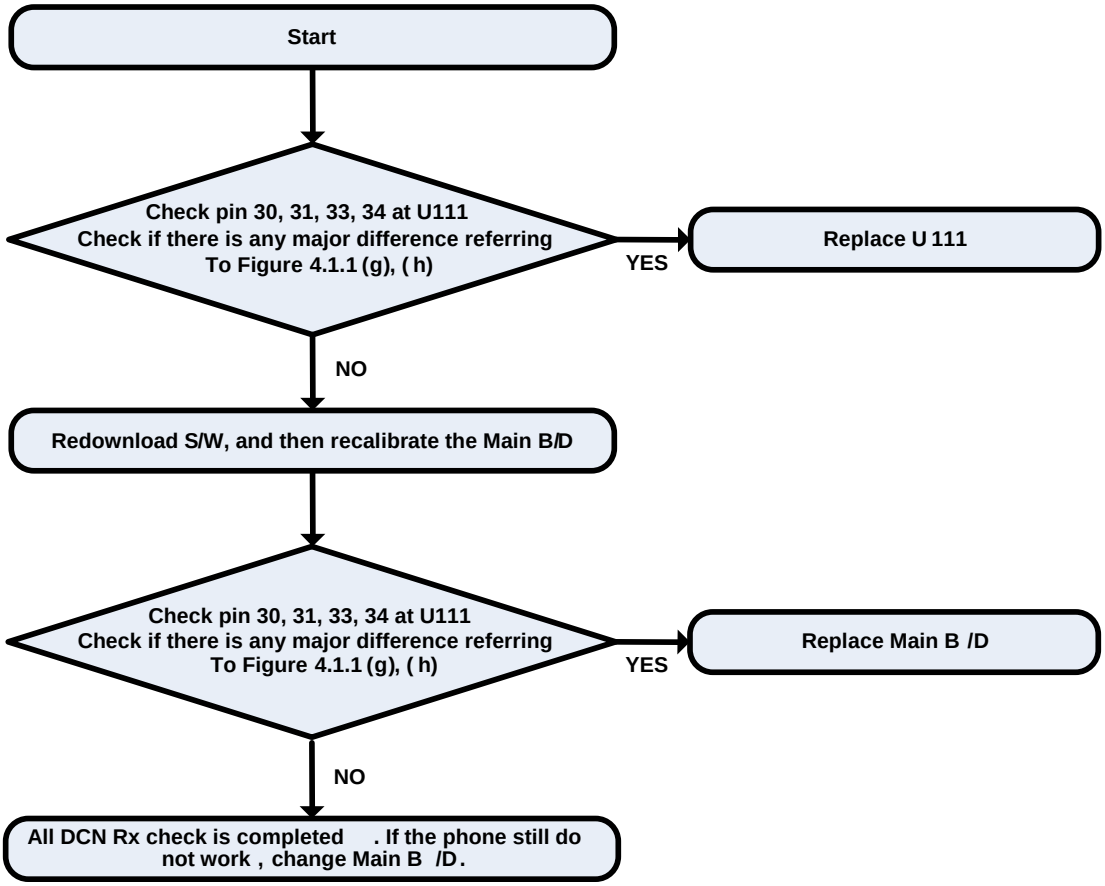
Test Point



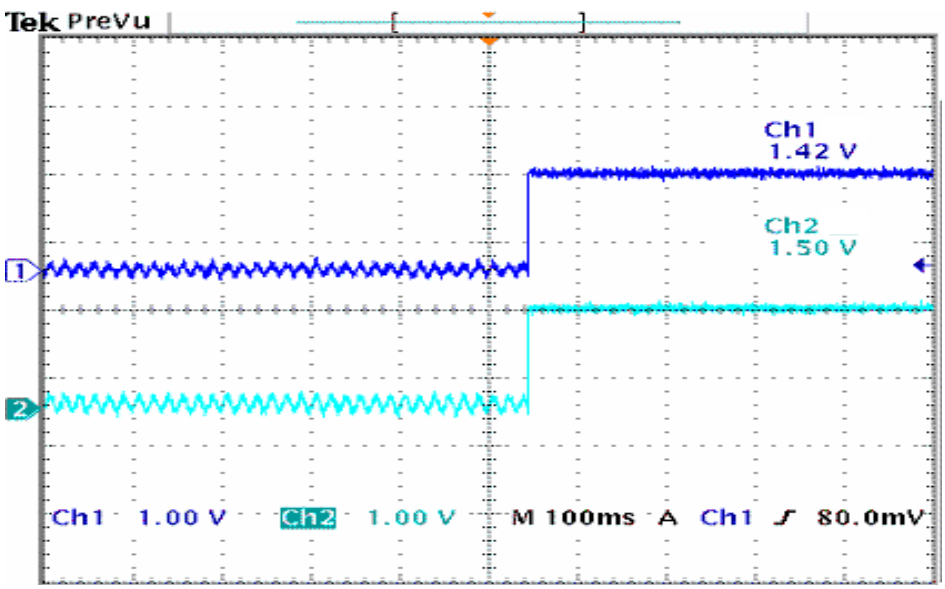
Circuit Diagram



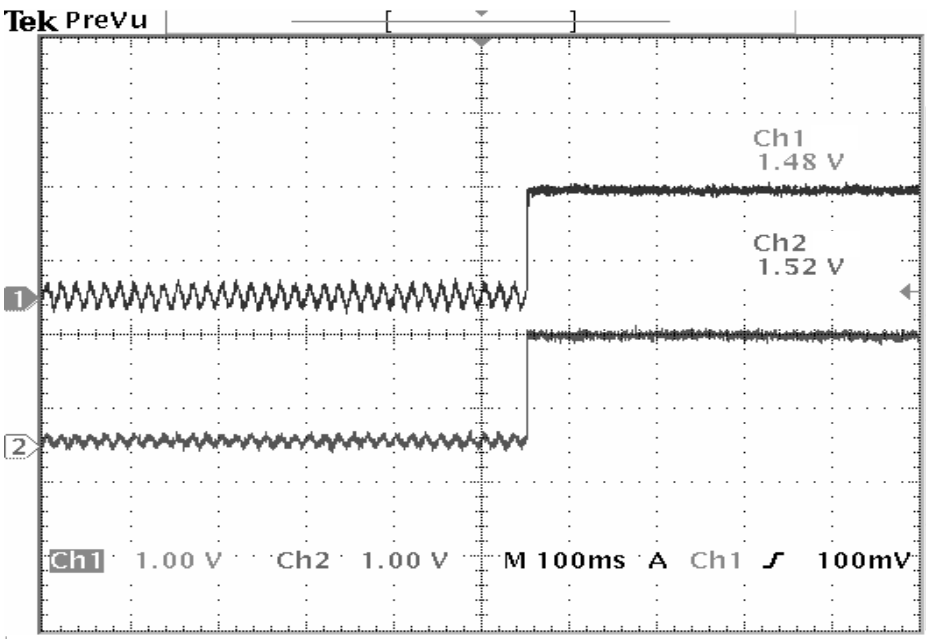
Checking Flow



Waveform



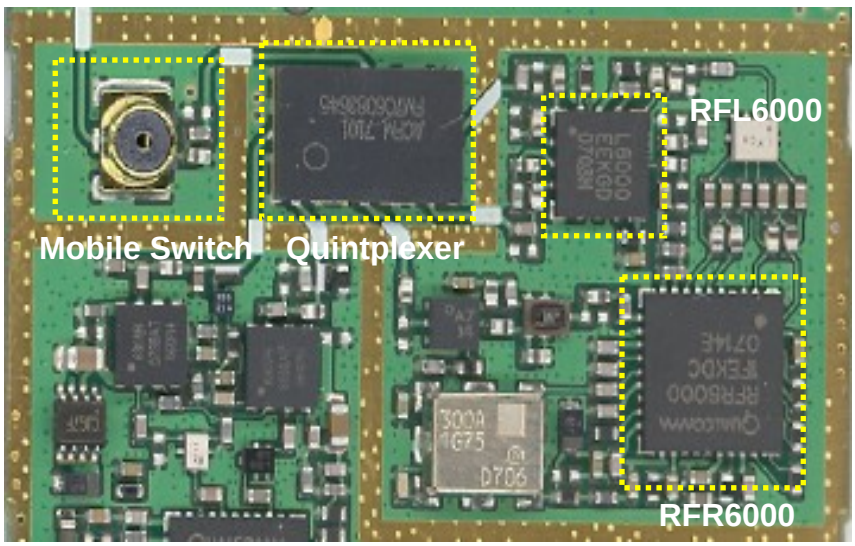
Graph 4.1.1(g)



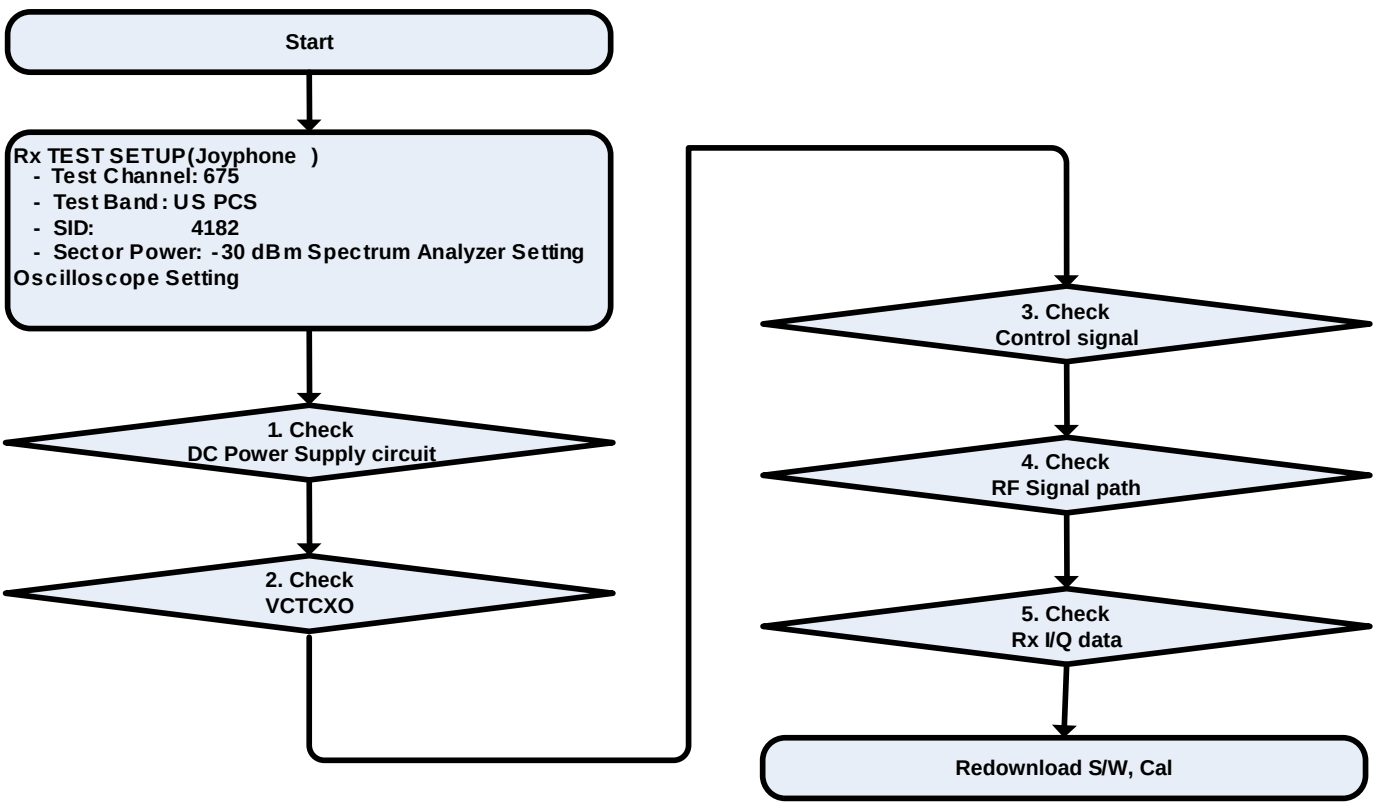
Graph 4.1.1(h)

4.1.2 PCS Rx

Test Point

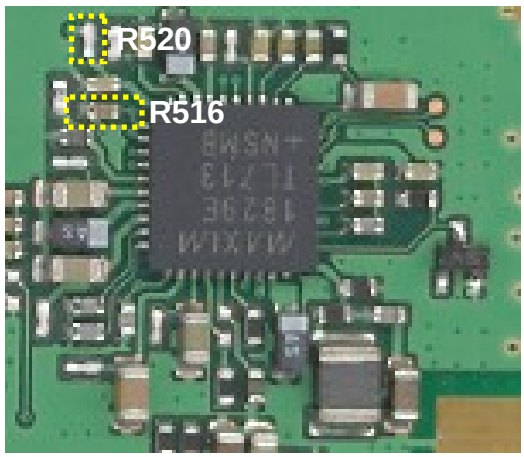


Checking Flow



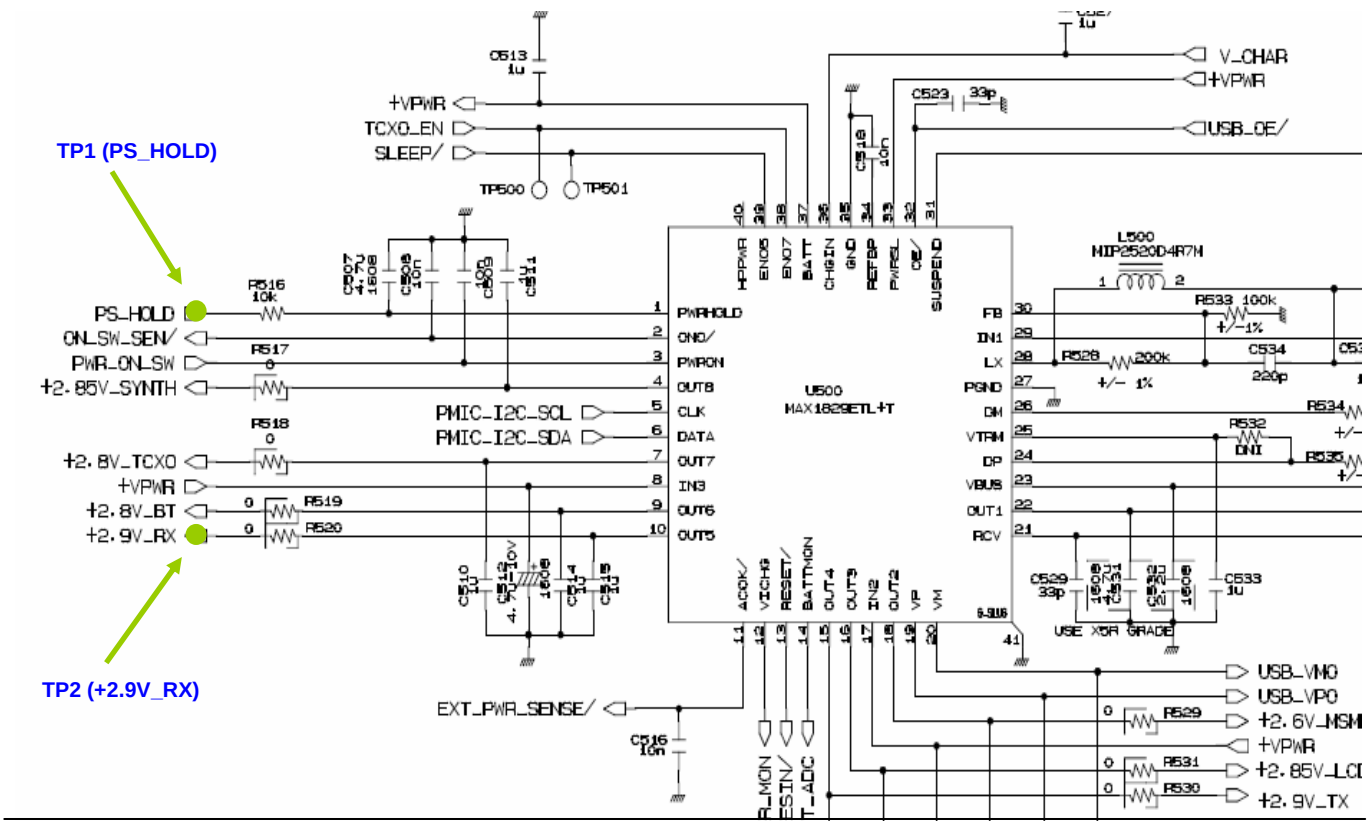
4.1.2.1 Checking DC Power supply circuit (PMIC)

Test Point

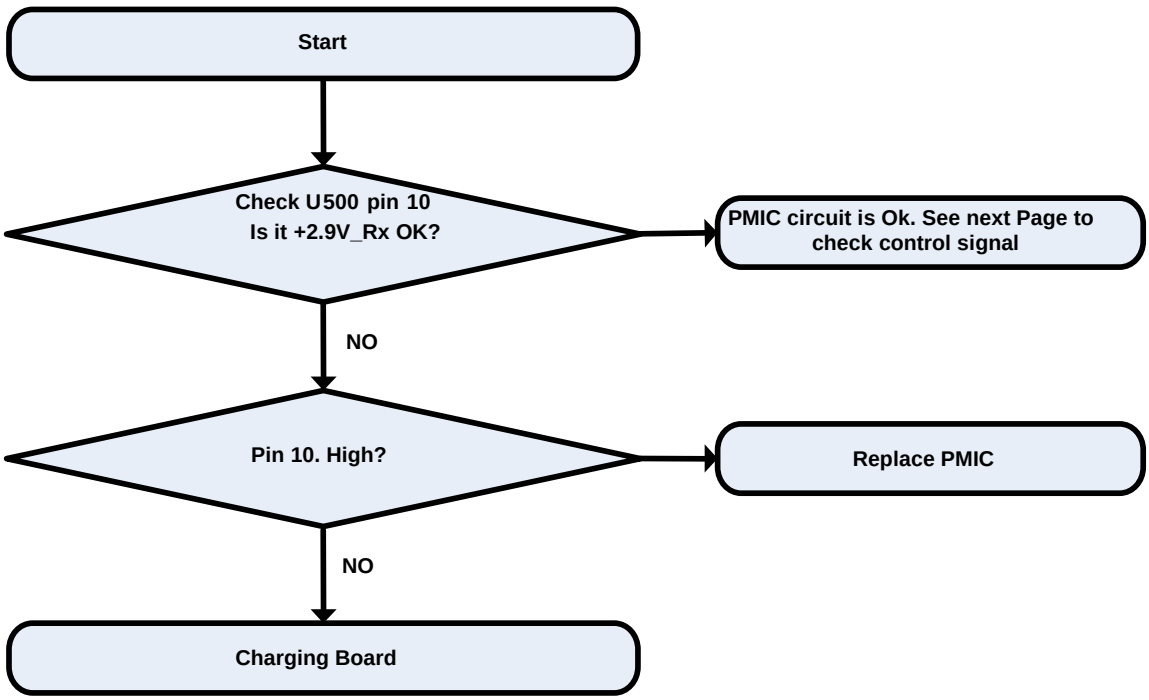


Circuit Diagram

<PMIC PART>

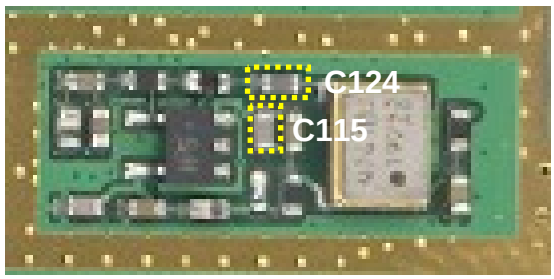


Checking Flow

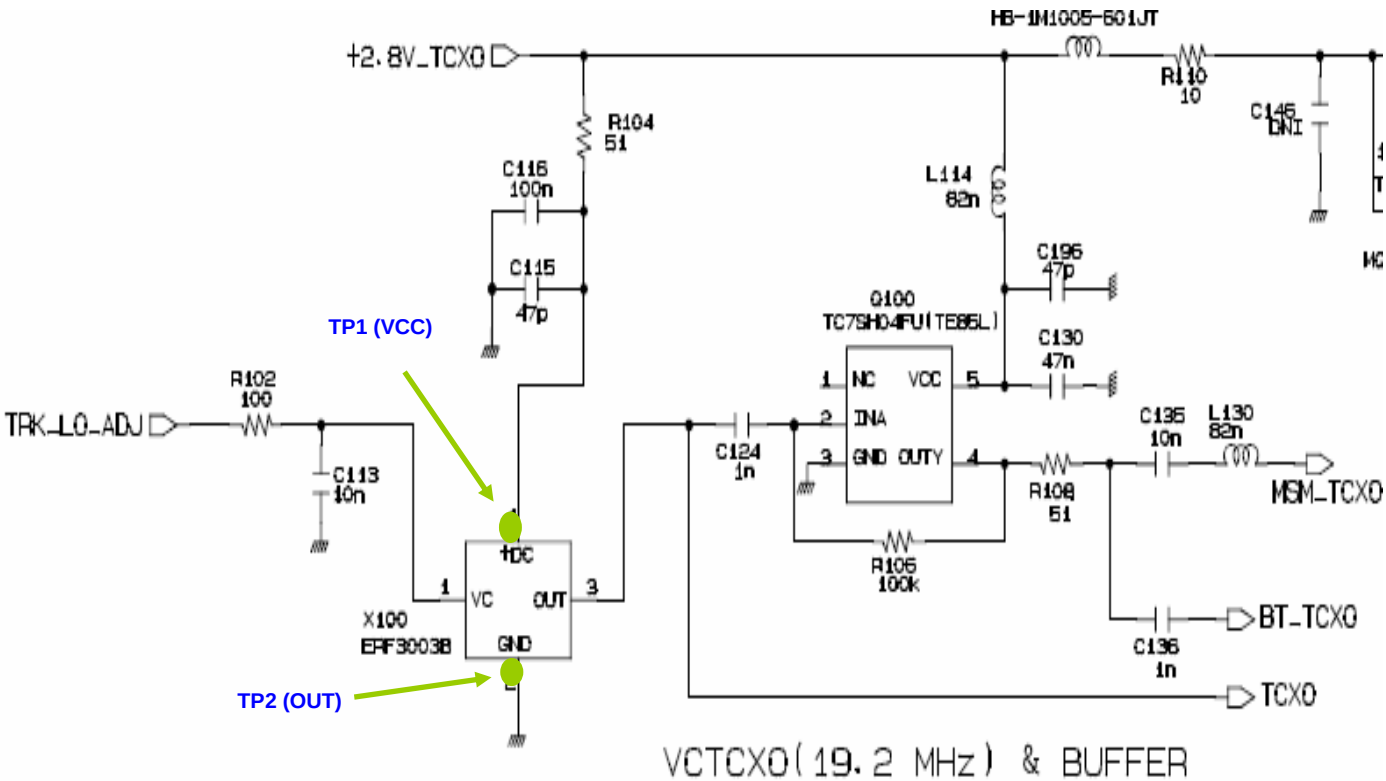


4.1.2.2 Checking VCTCXO circuit

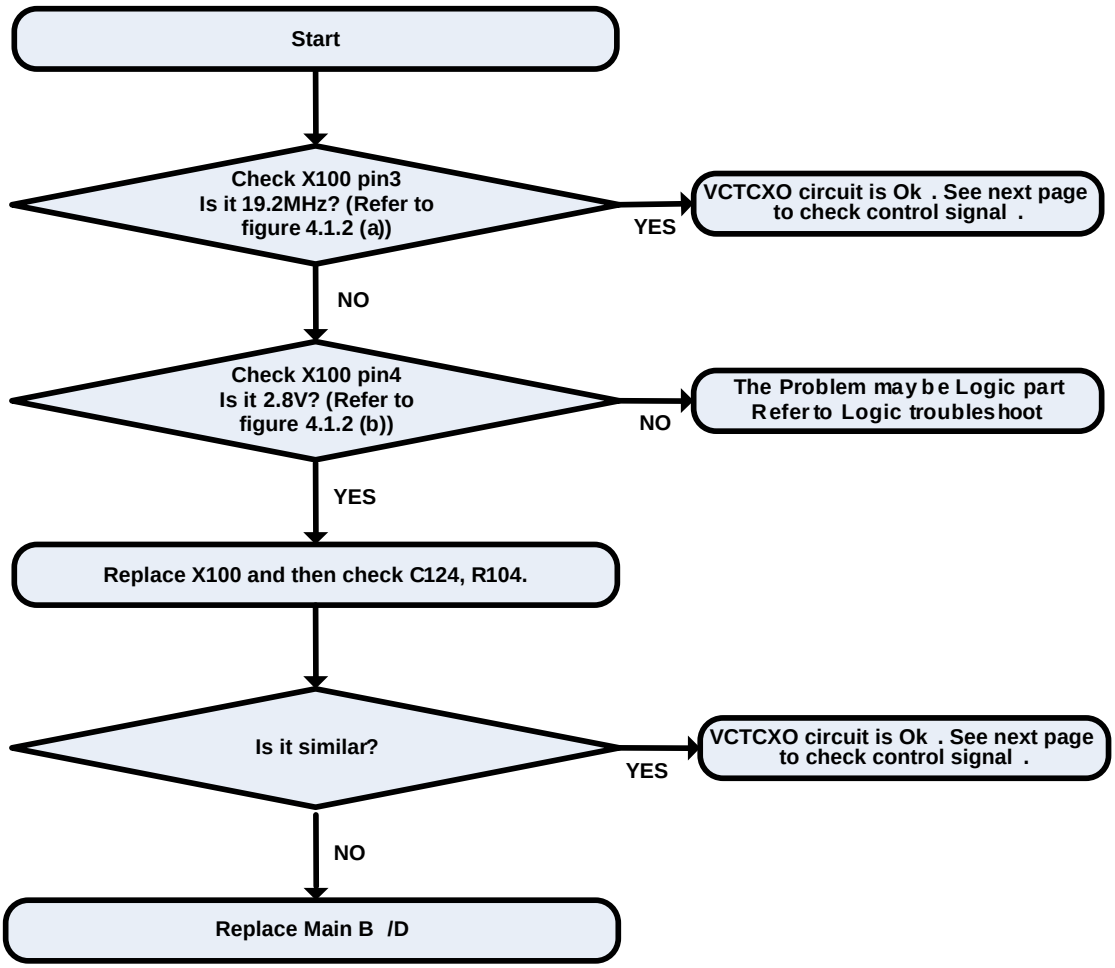
Test Point



Circuit Diagram



Checking Flow



Waveform

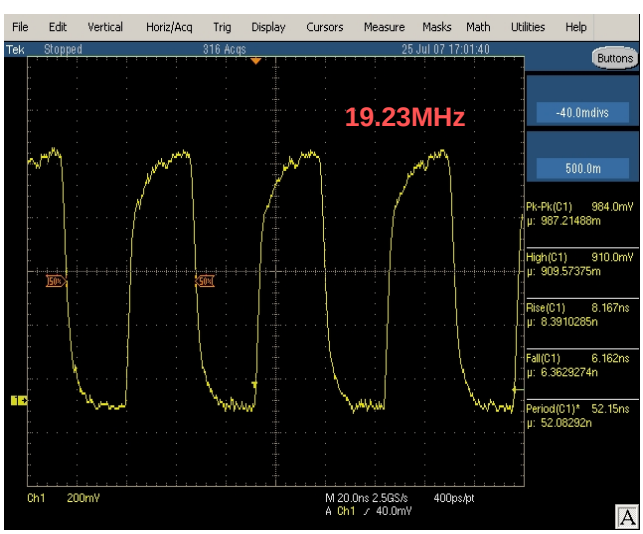
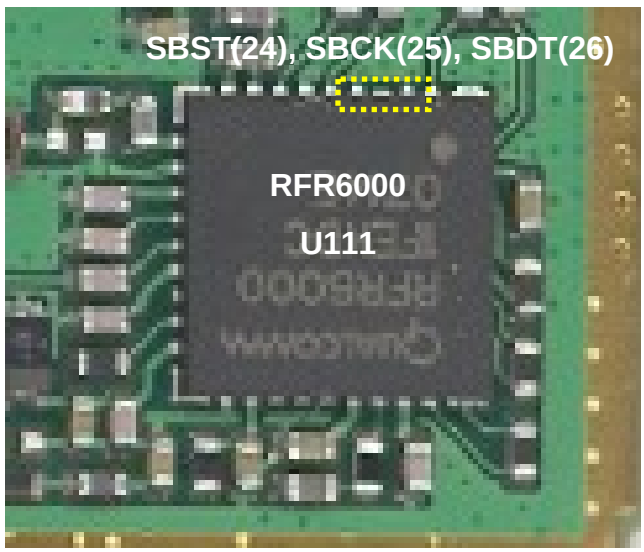


Figure 4.1.2 (a)

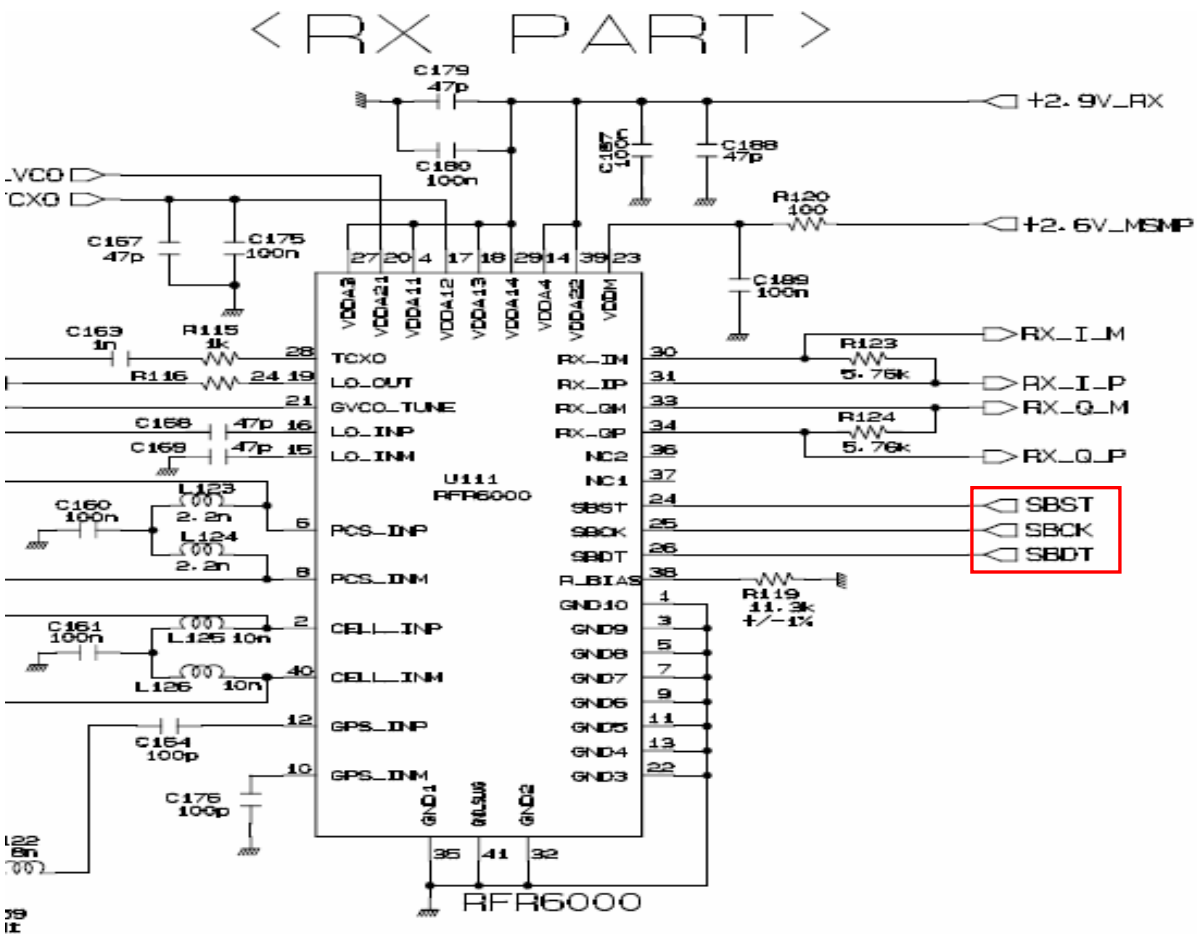
Figure 4.1.2 (b)

4.1.2.3 Checking Control circuit

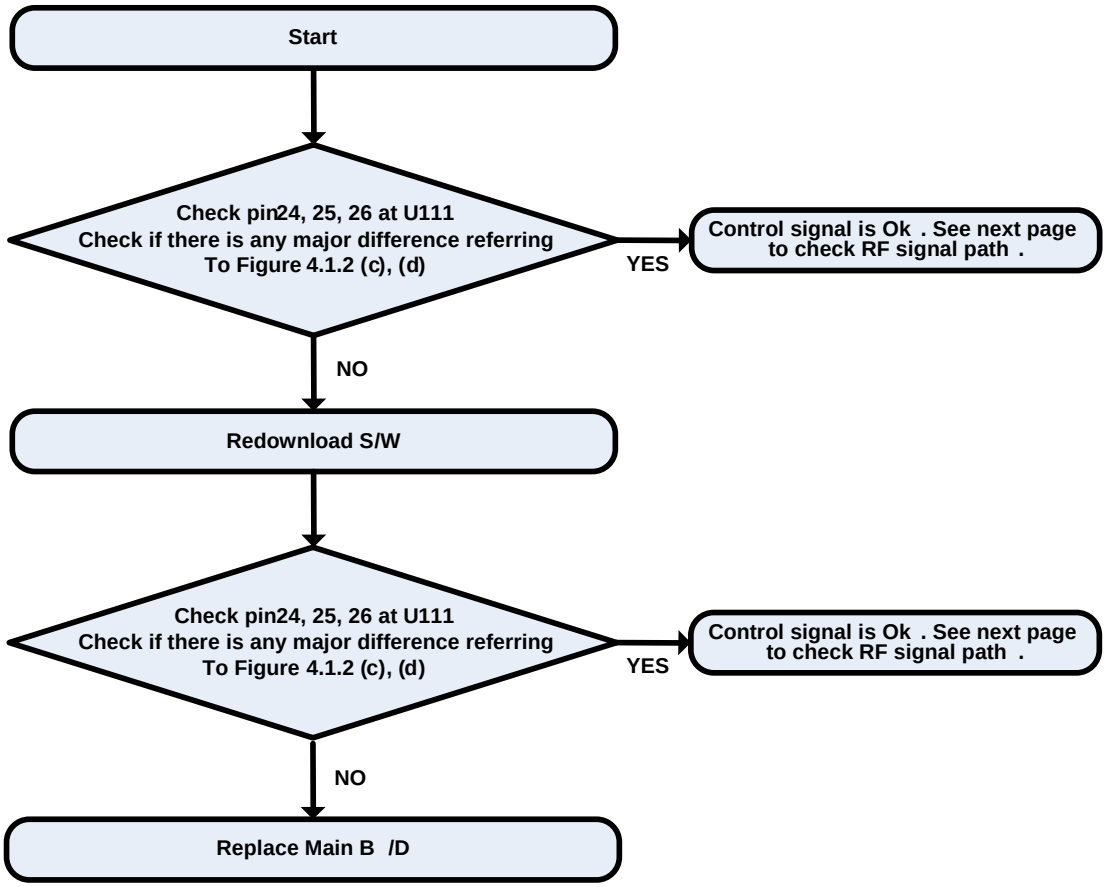
Test Point



Circuit Diagram



Checking Flow



Waveform

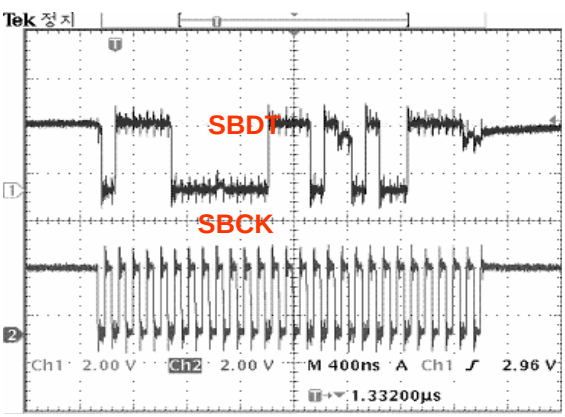


Figure 4.1.2 (c)

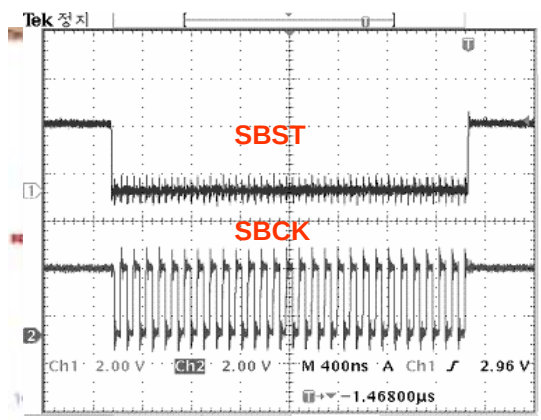
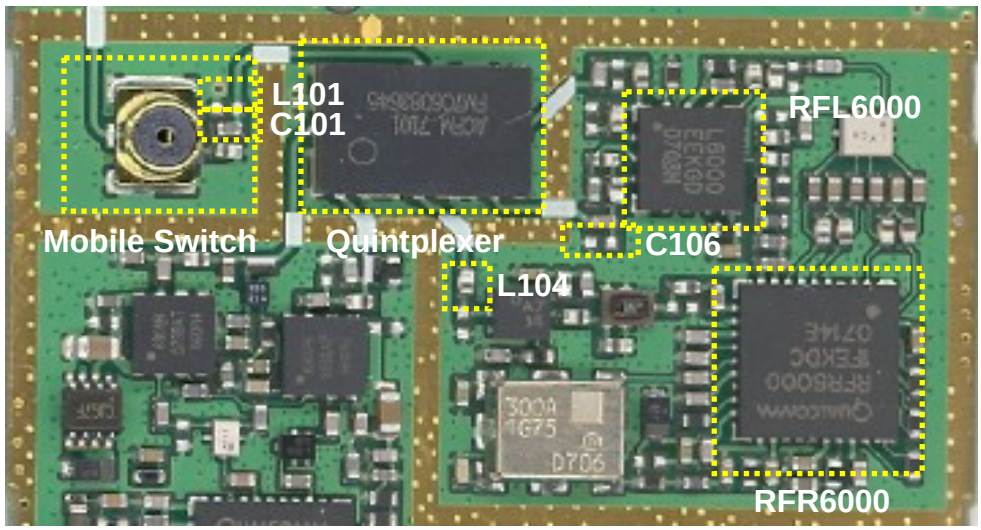


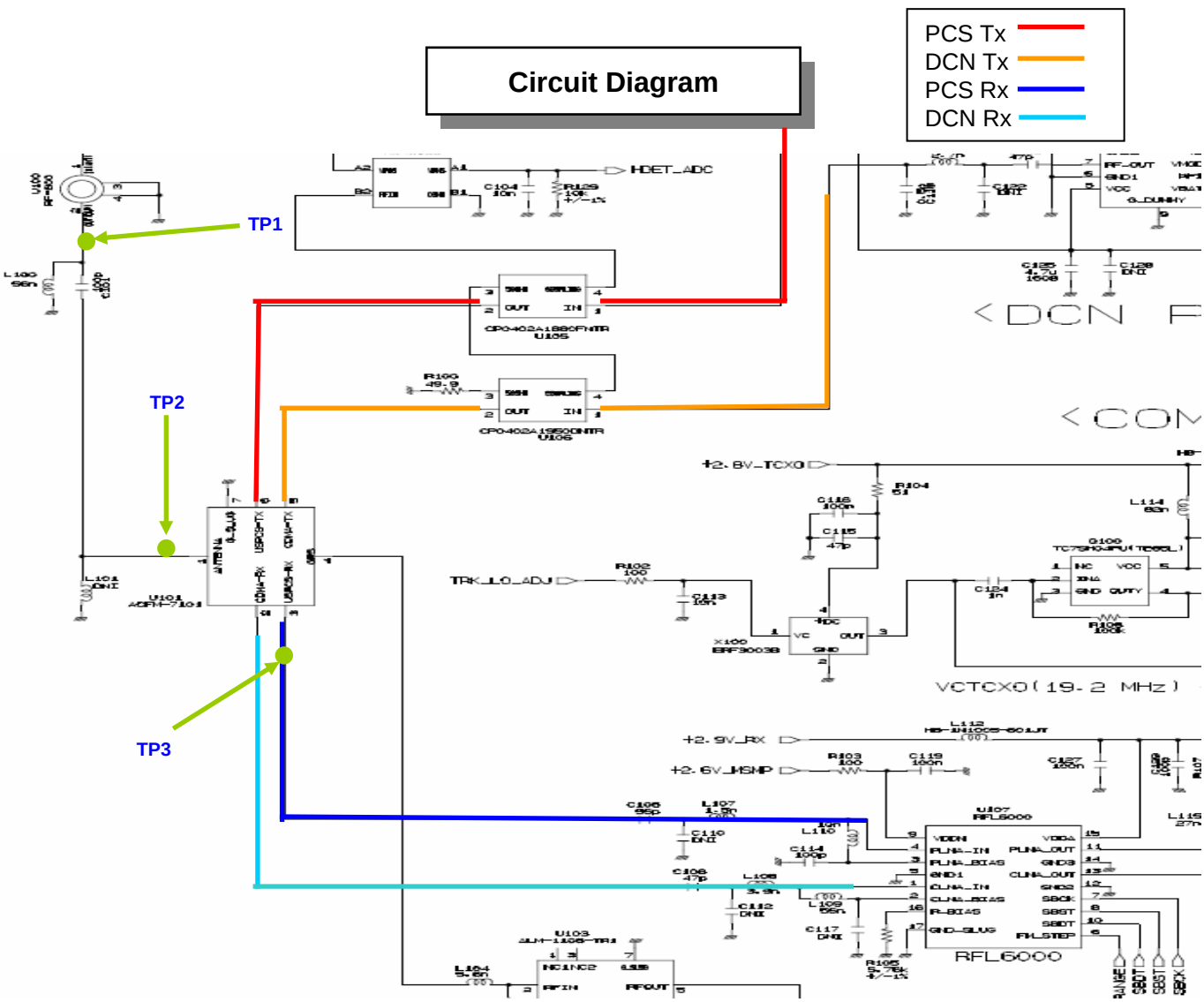
Figure 4.1.2 (d)

4.1.2.4 Checking RF signal path (Mobile S/W, Quintplexer)

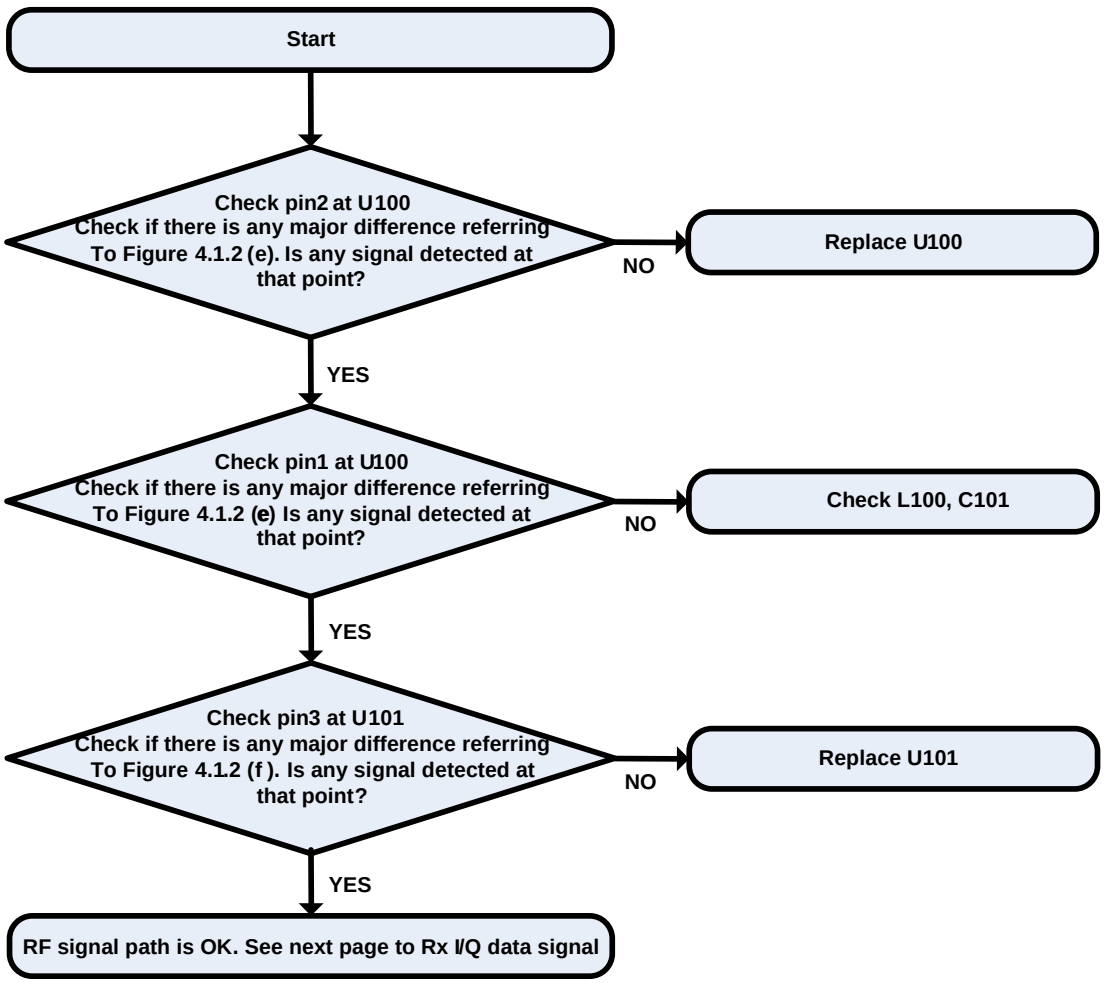
Test Point



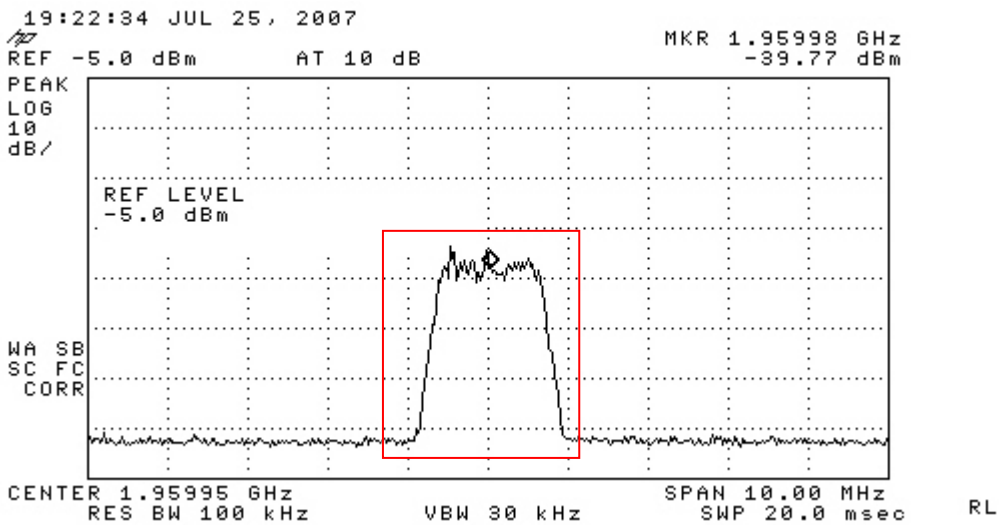
Circuit Diagram



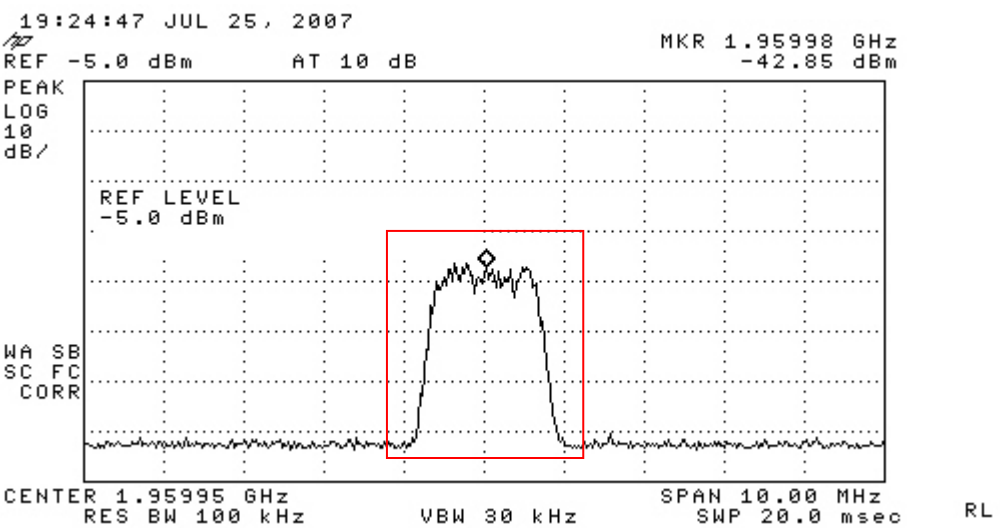
Checking Flow



Waveform



4.1.2 (e)



4.1.2 (f)

4.1.2.5 Checking LNA

Test Point

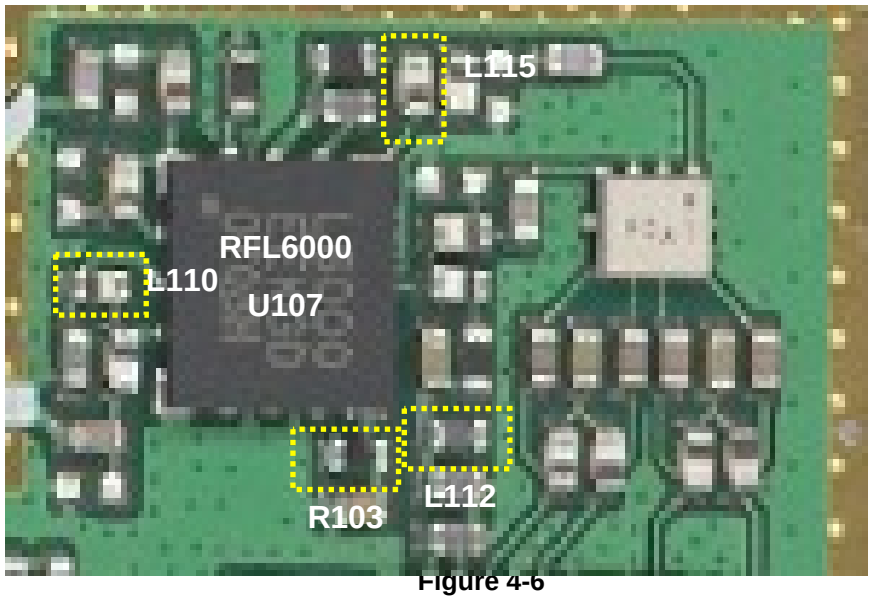
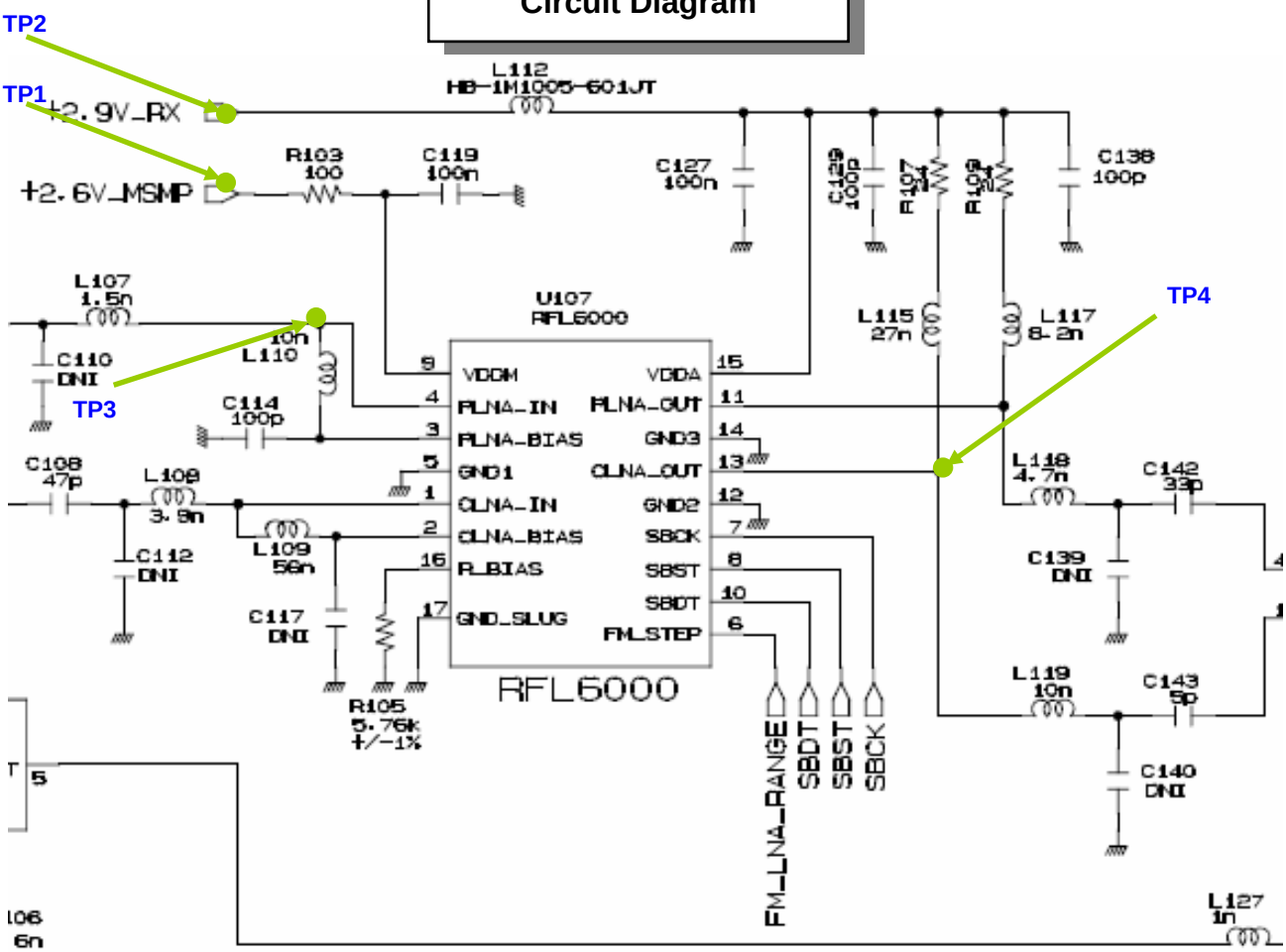
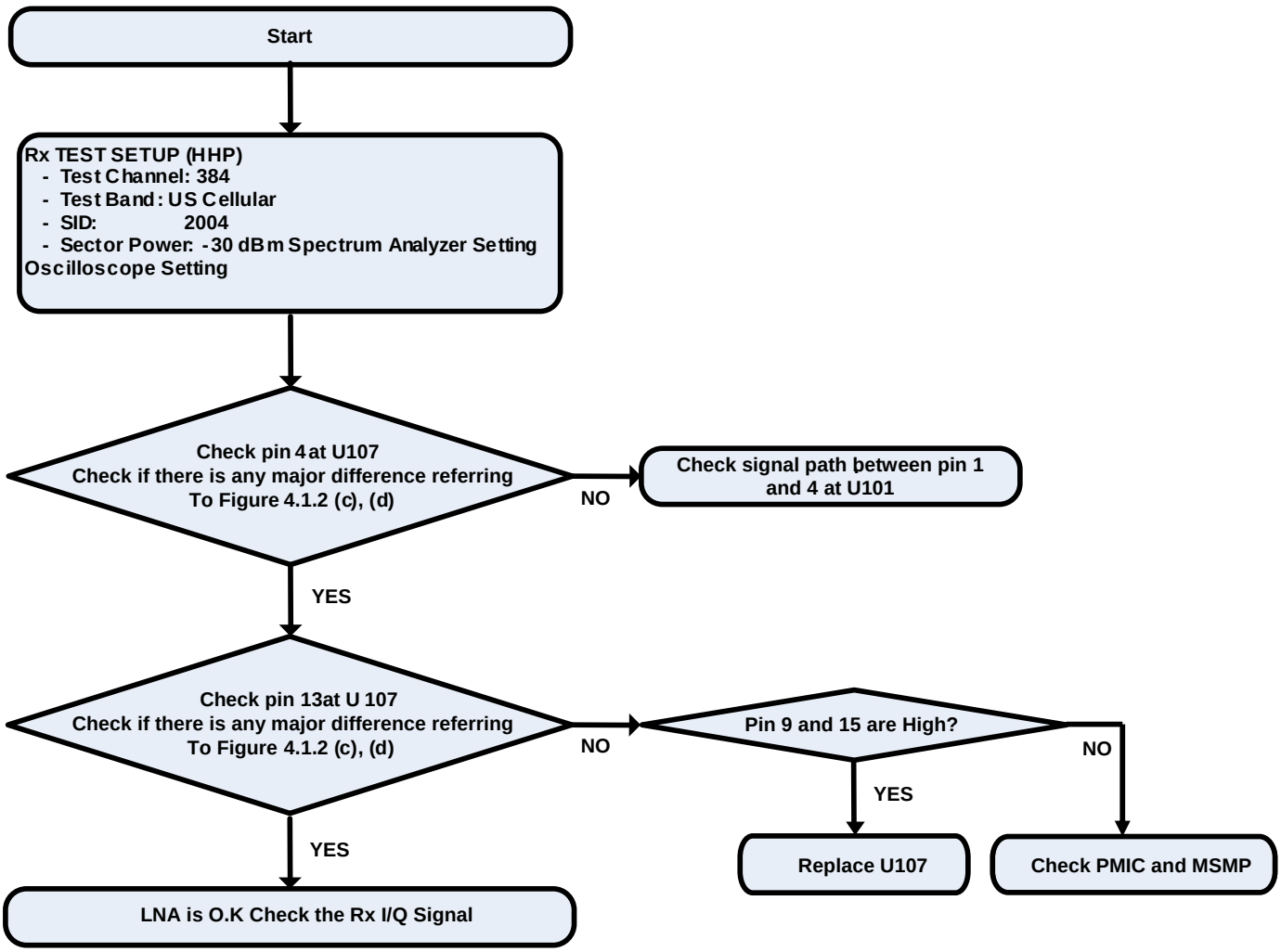


Figure 4-6

Circuit Diagram

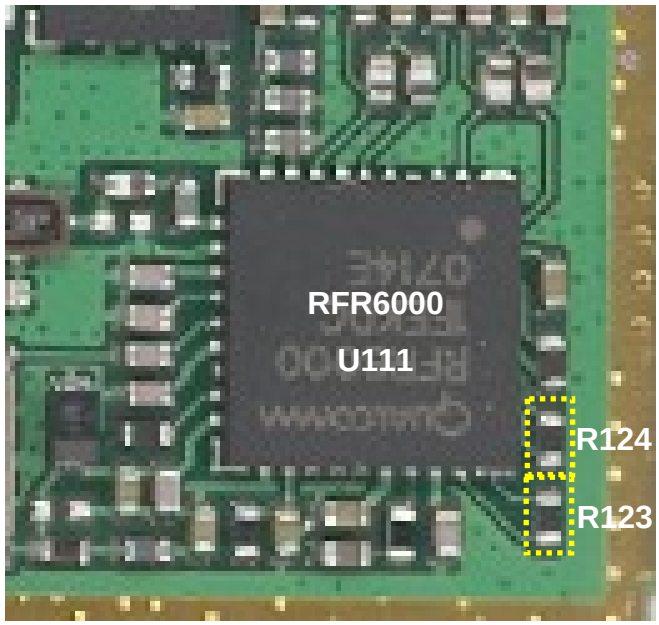


Checking Flow

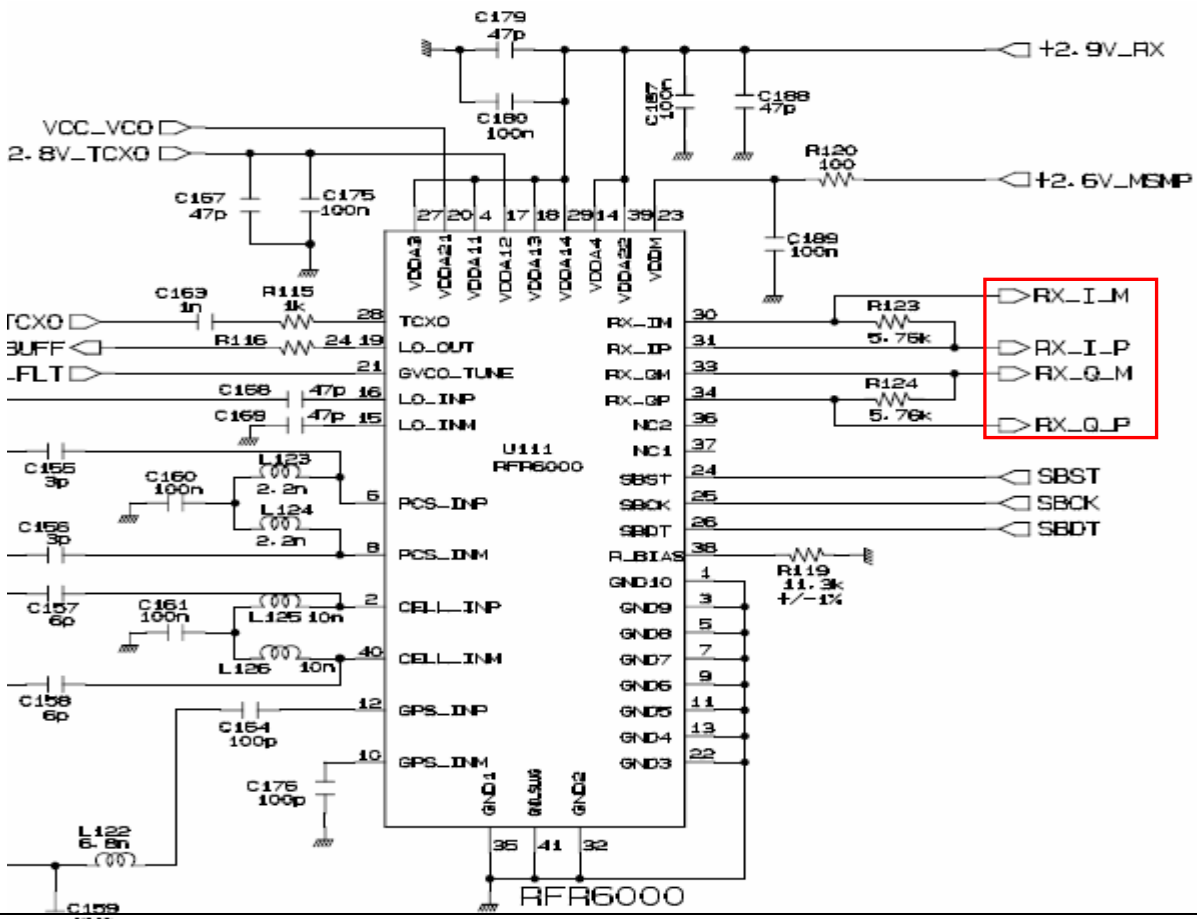


4.1.2.6 Checking Rx I/Q data

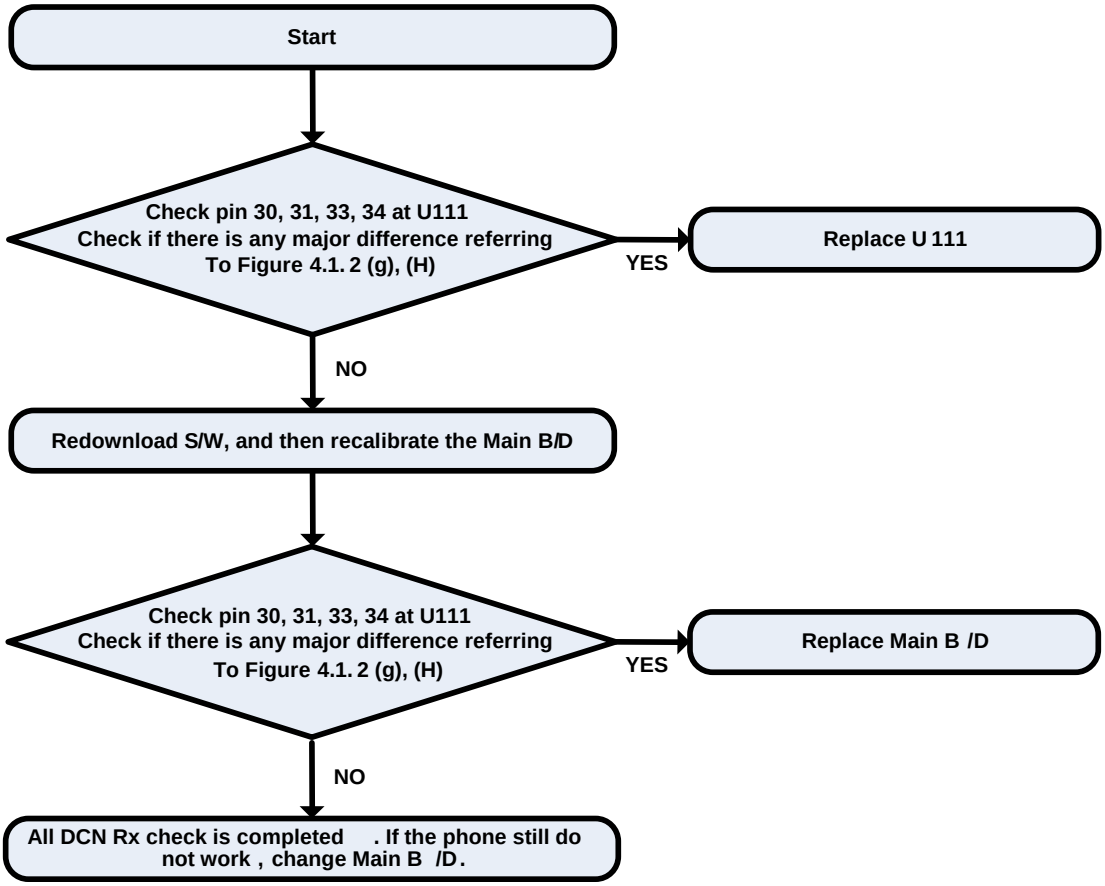
Test Point



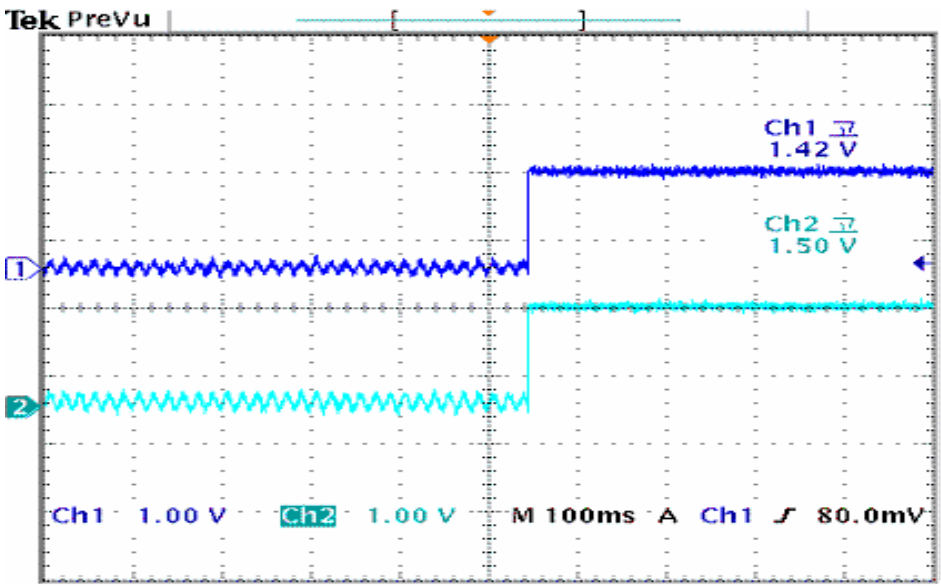
Circuit Diagram



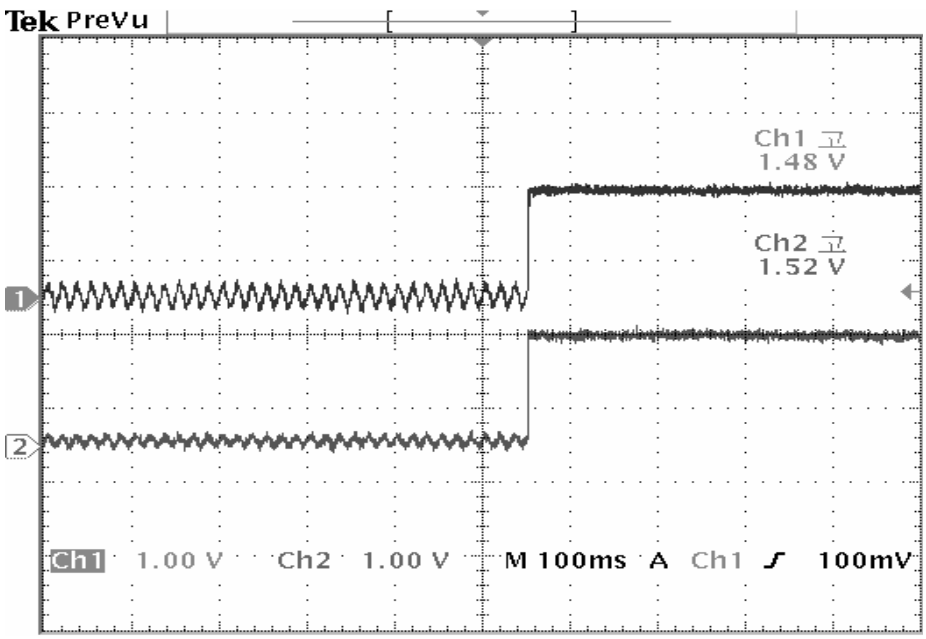
Checking Flow



Waveform



Graph 4.1.2(g)

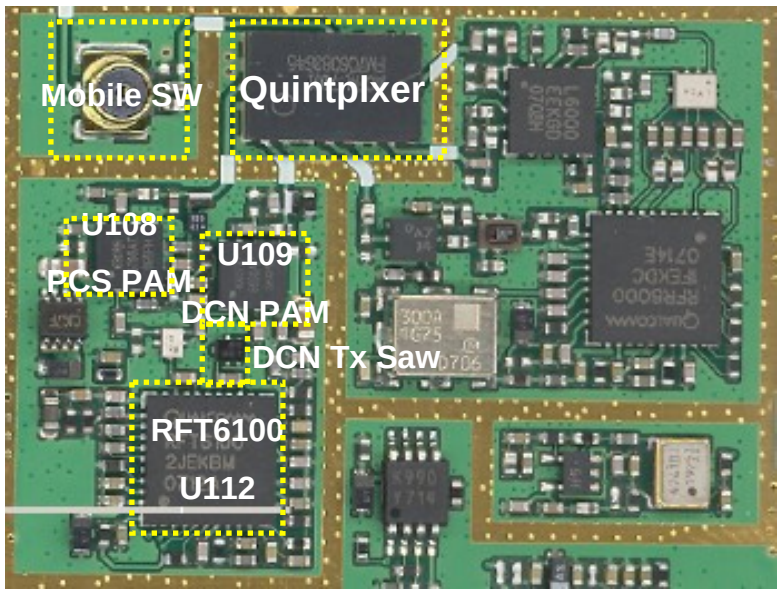


Graph 4.1.2(h)

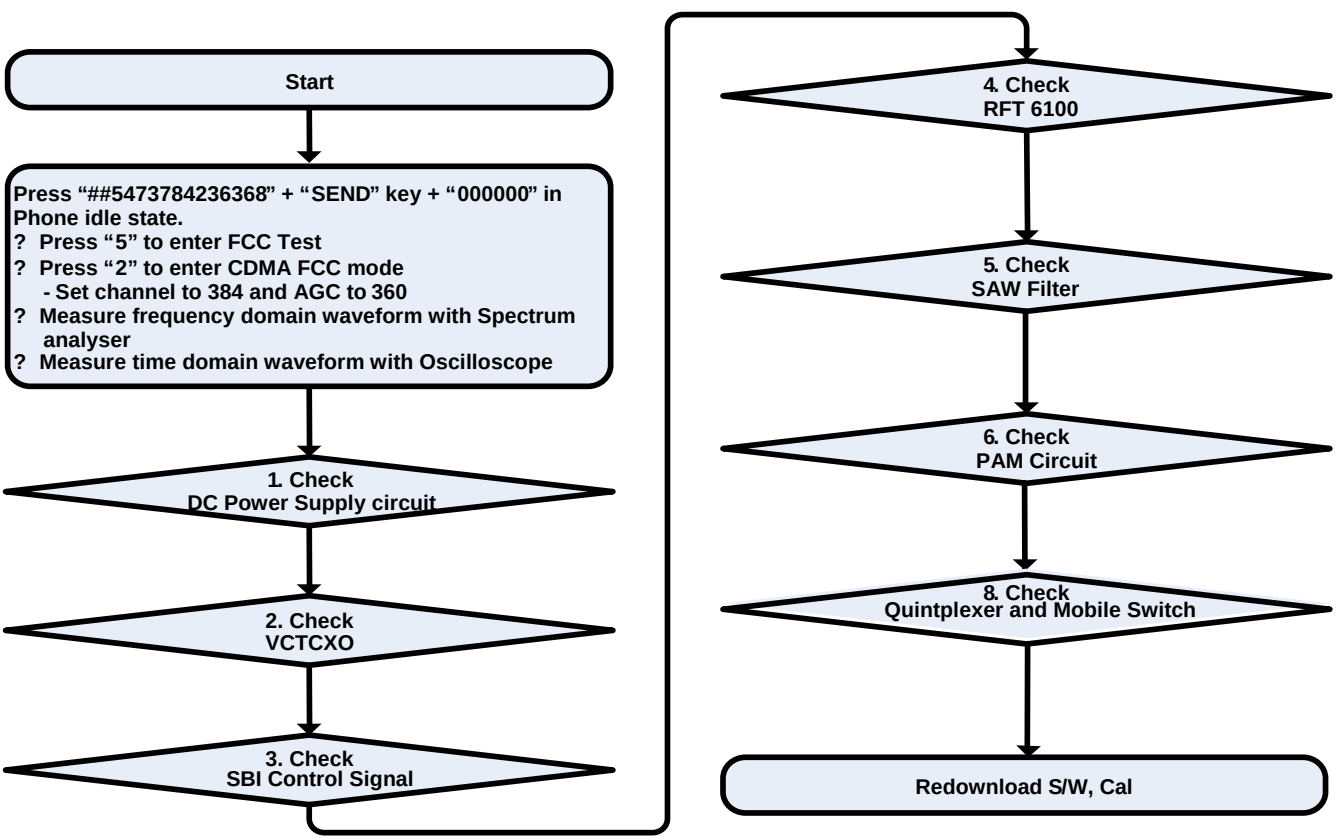
4.2 Tx Part Trouble

4.2.1 DCN Tx

Test Point

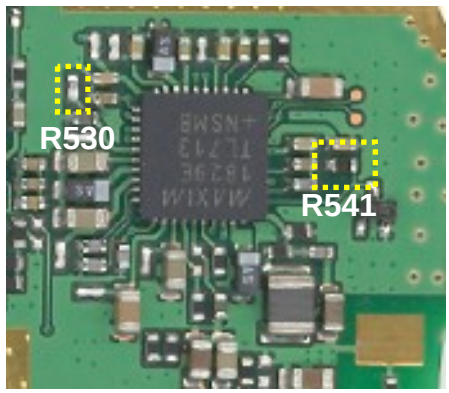


Checking Flow

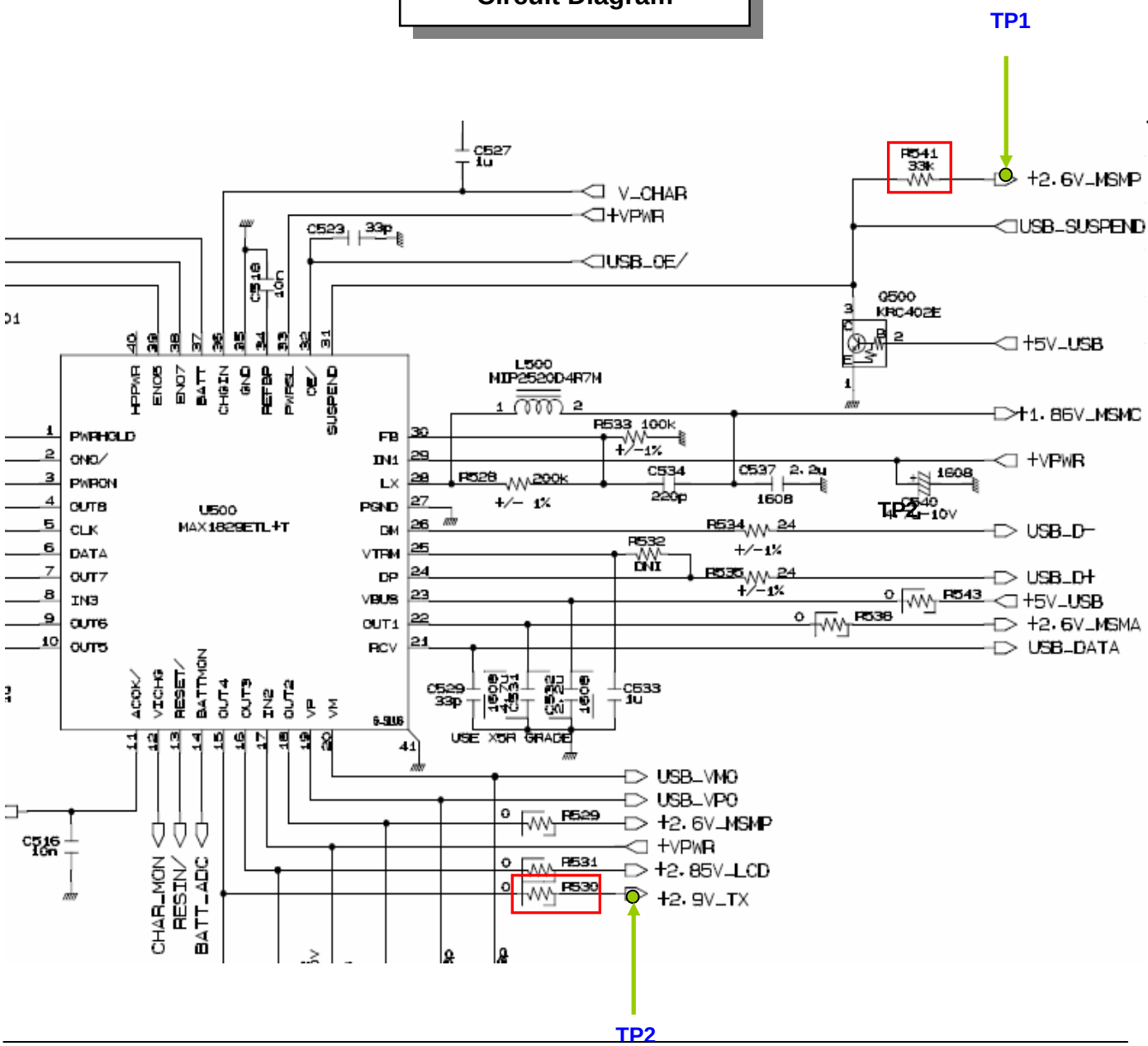


4.2.1.1 Checking DC Power supply circuit (PMIC)

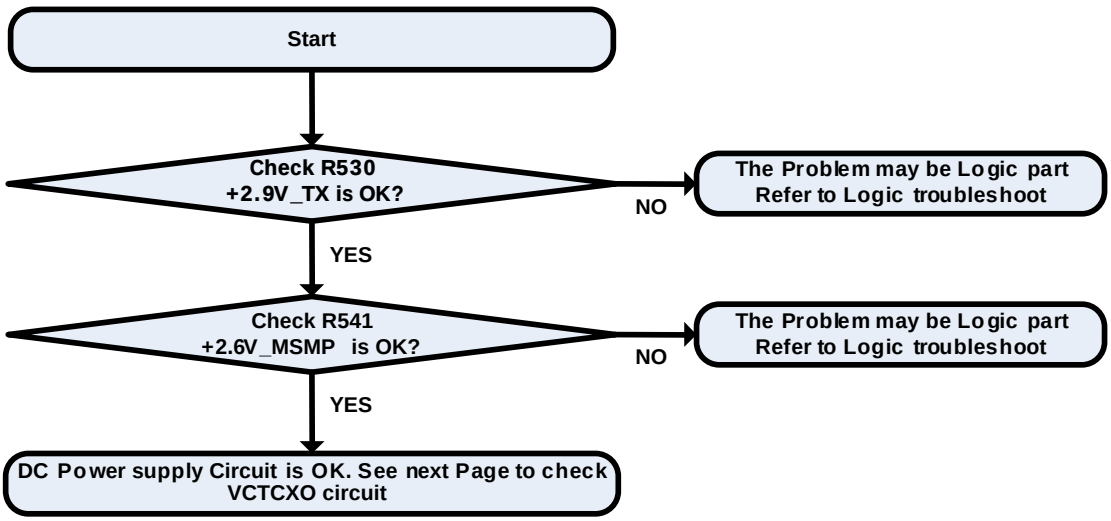
Test Point



Circuit Diagram

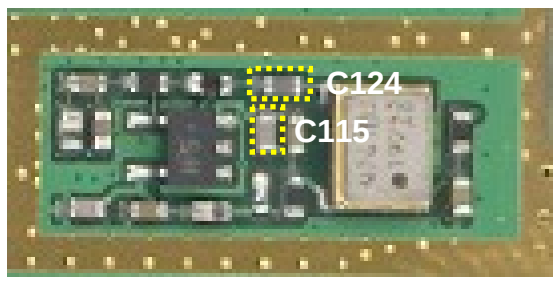


Checking Flow

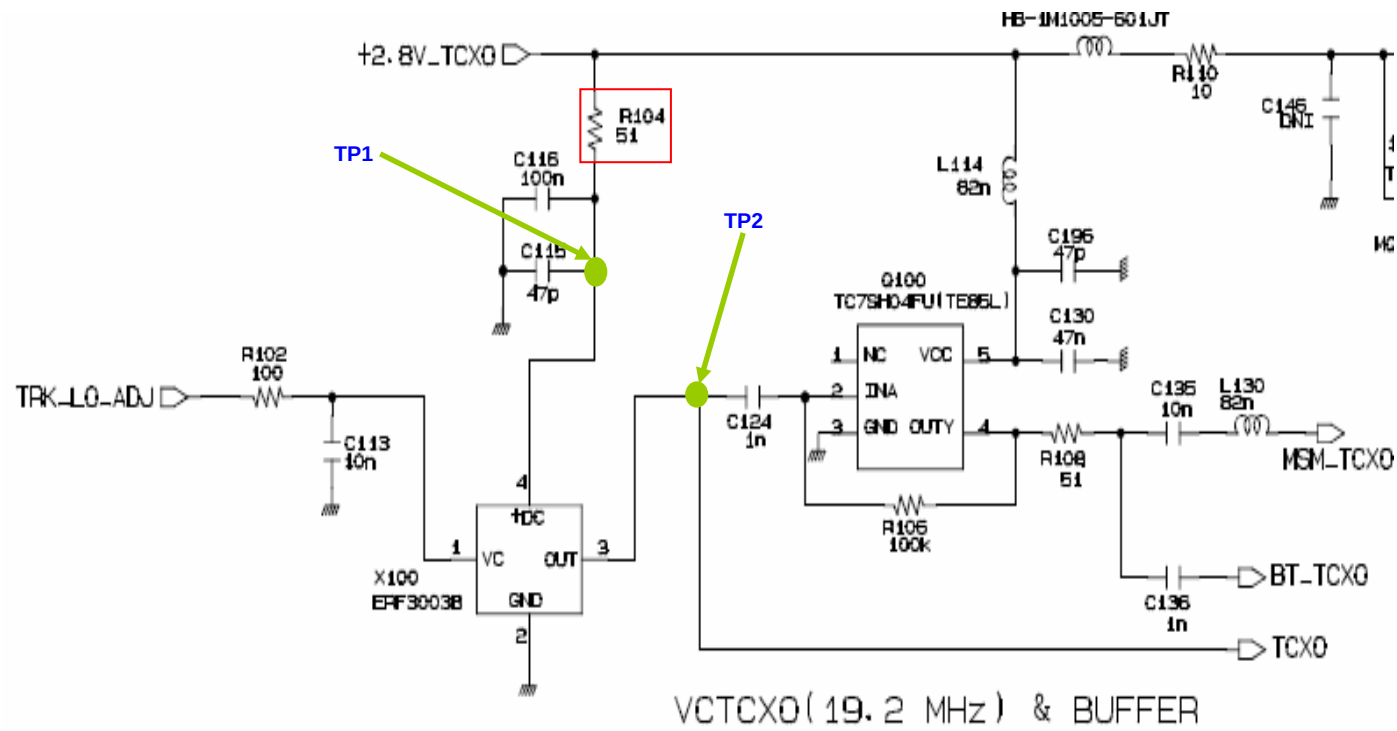


4.2.1.2 Checking VCTCXO circuit

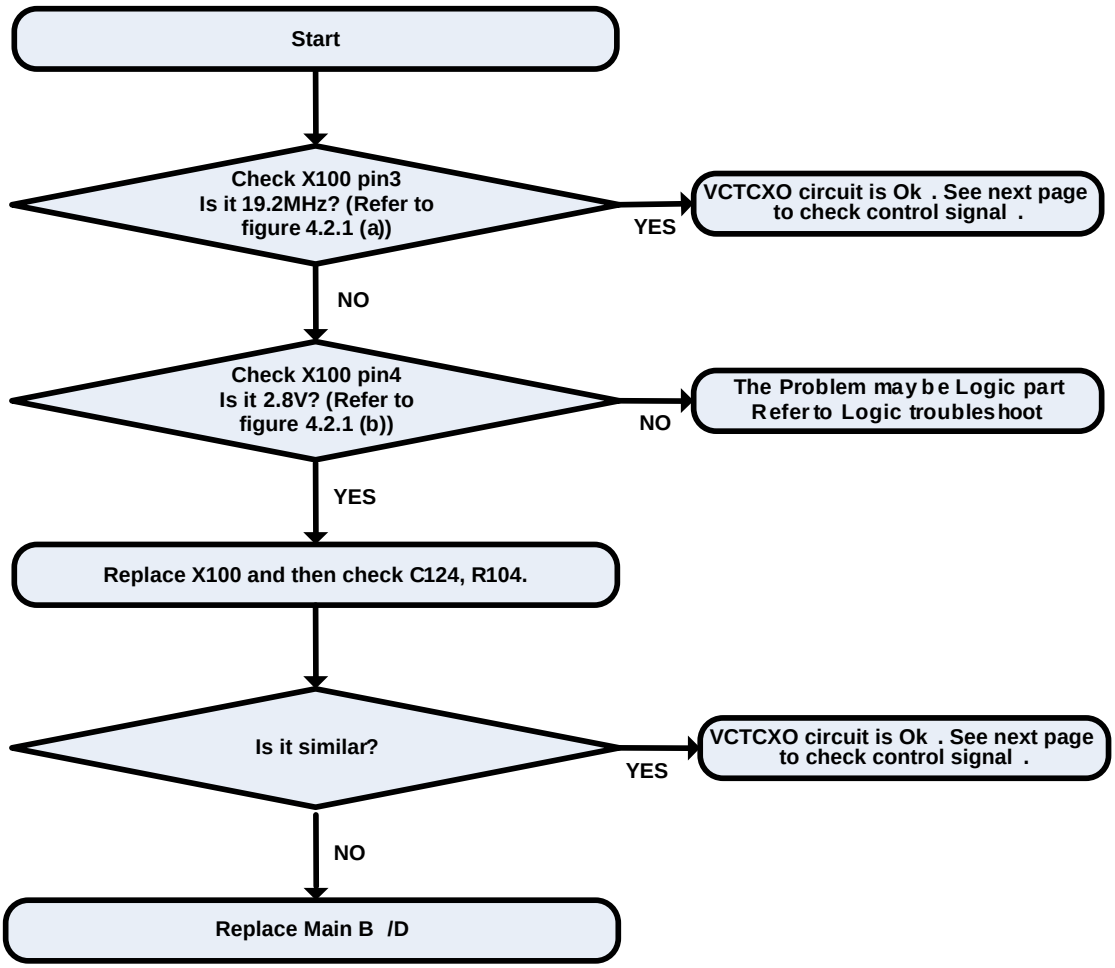
Test Point



Circuit Diagram



Checking Flow



Waveform

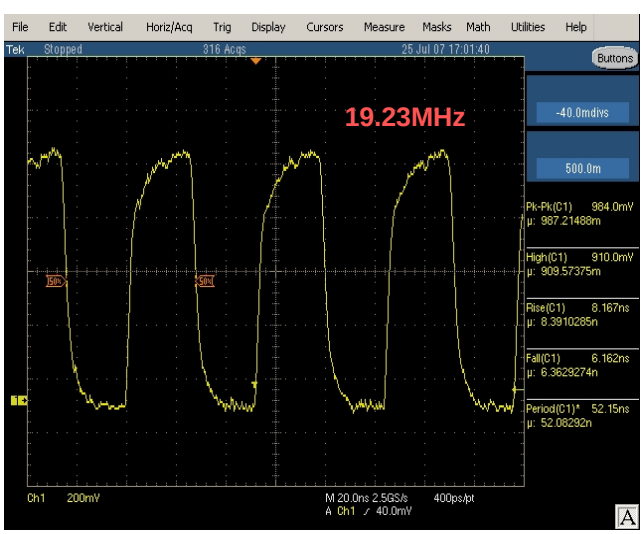


Figure 4.2.1 (a)

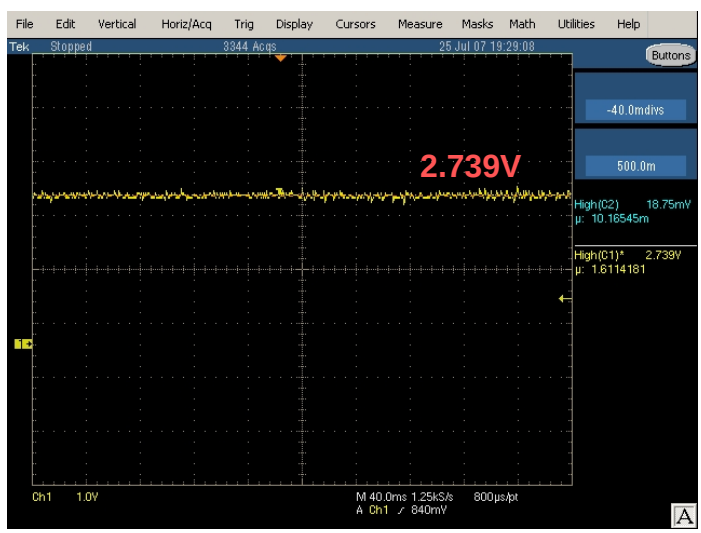
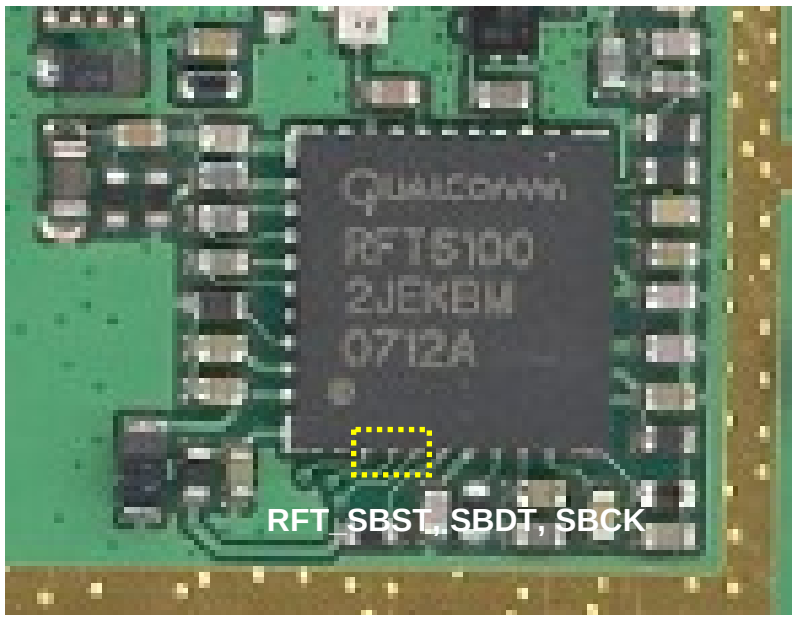


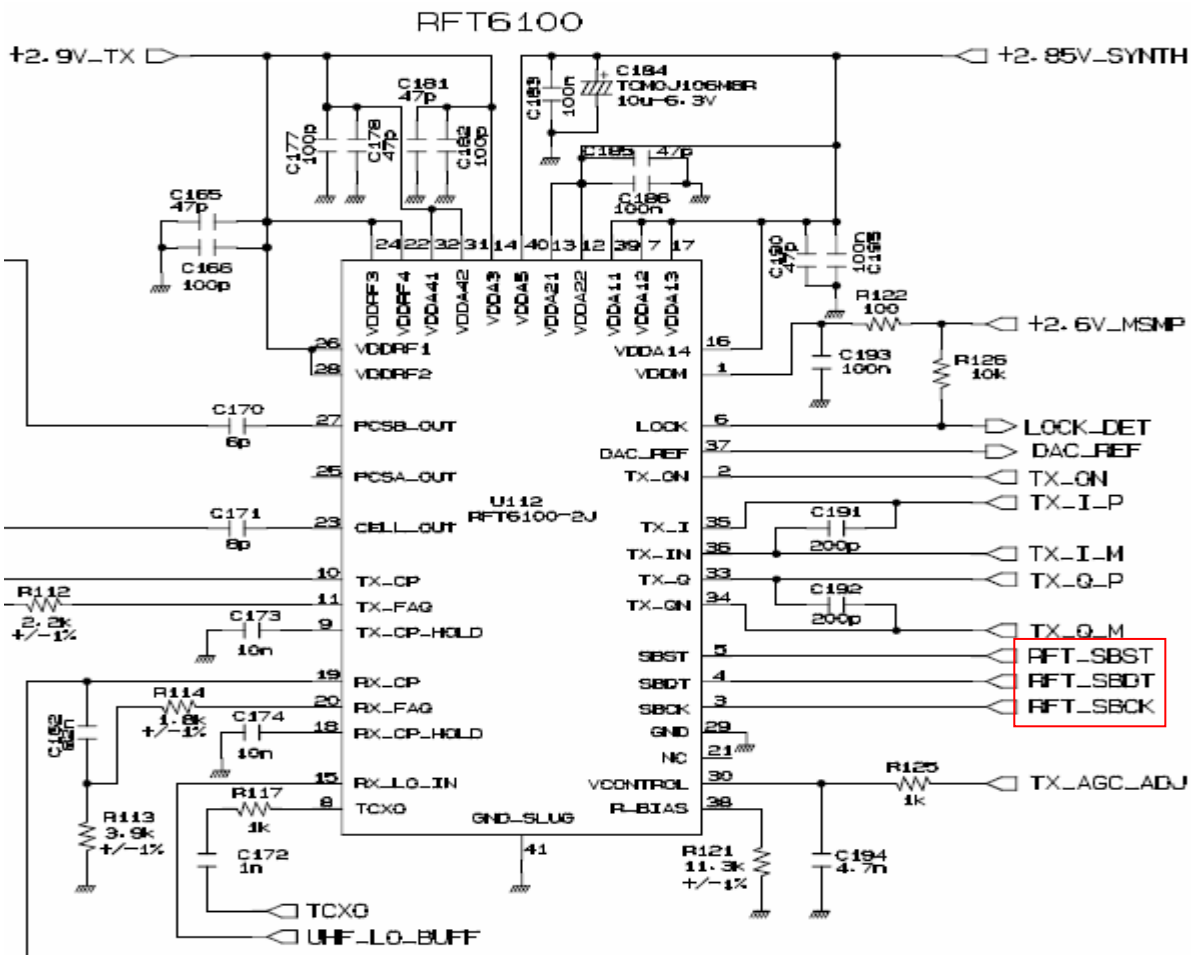
Figure 4.2.1 (b)

4.2.1.3 Checking SBI Control Signal

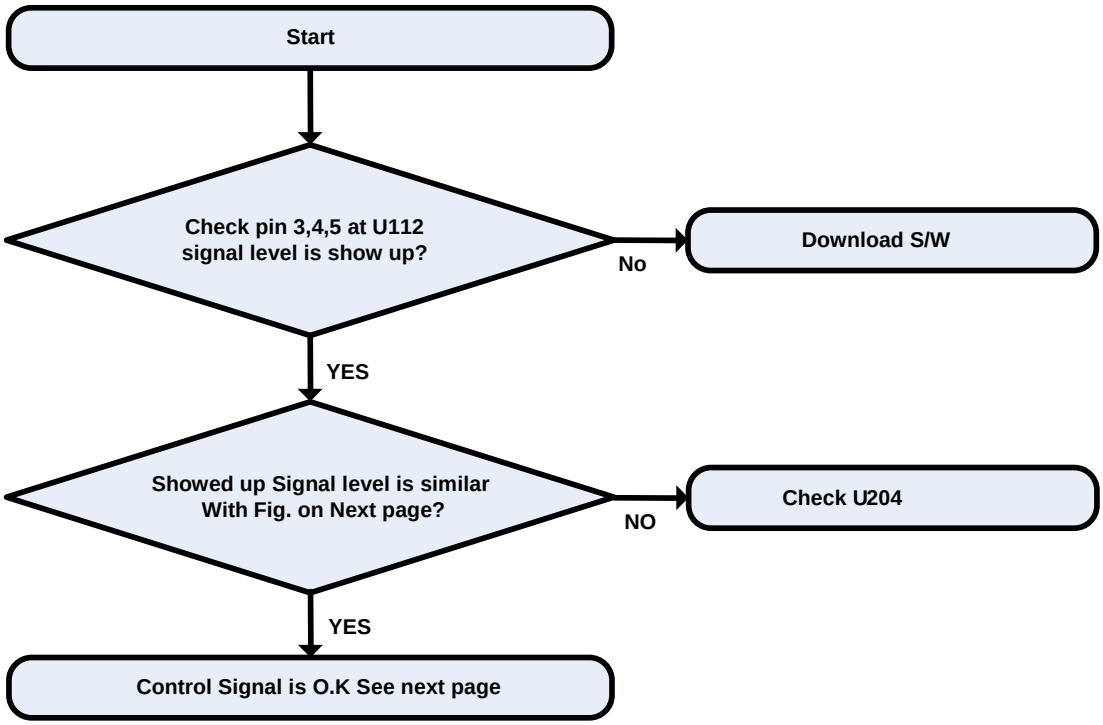
Test Point



Circuit Diagram



Checking Flow



Waveform

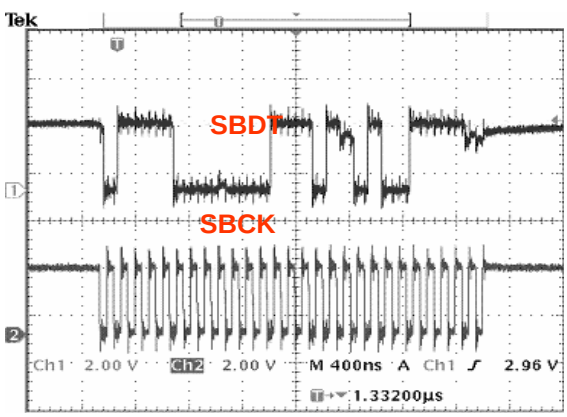


Figure 4.2.1 (c)

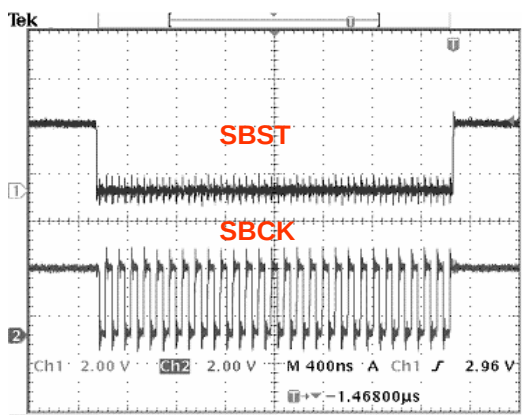
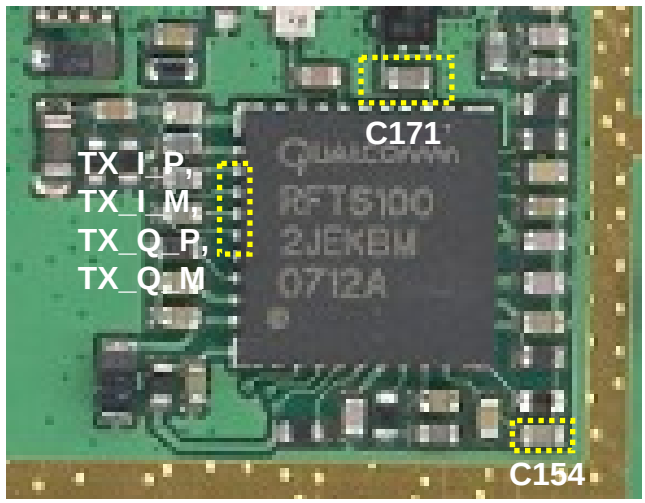


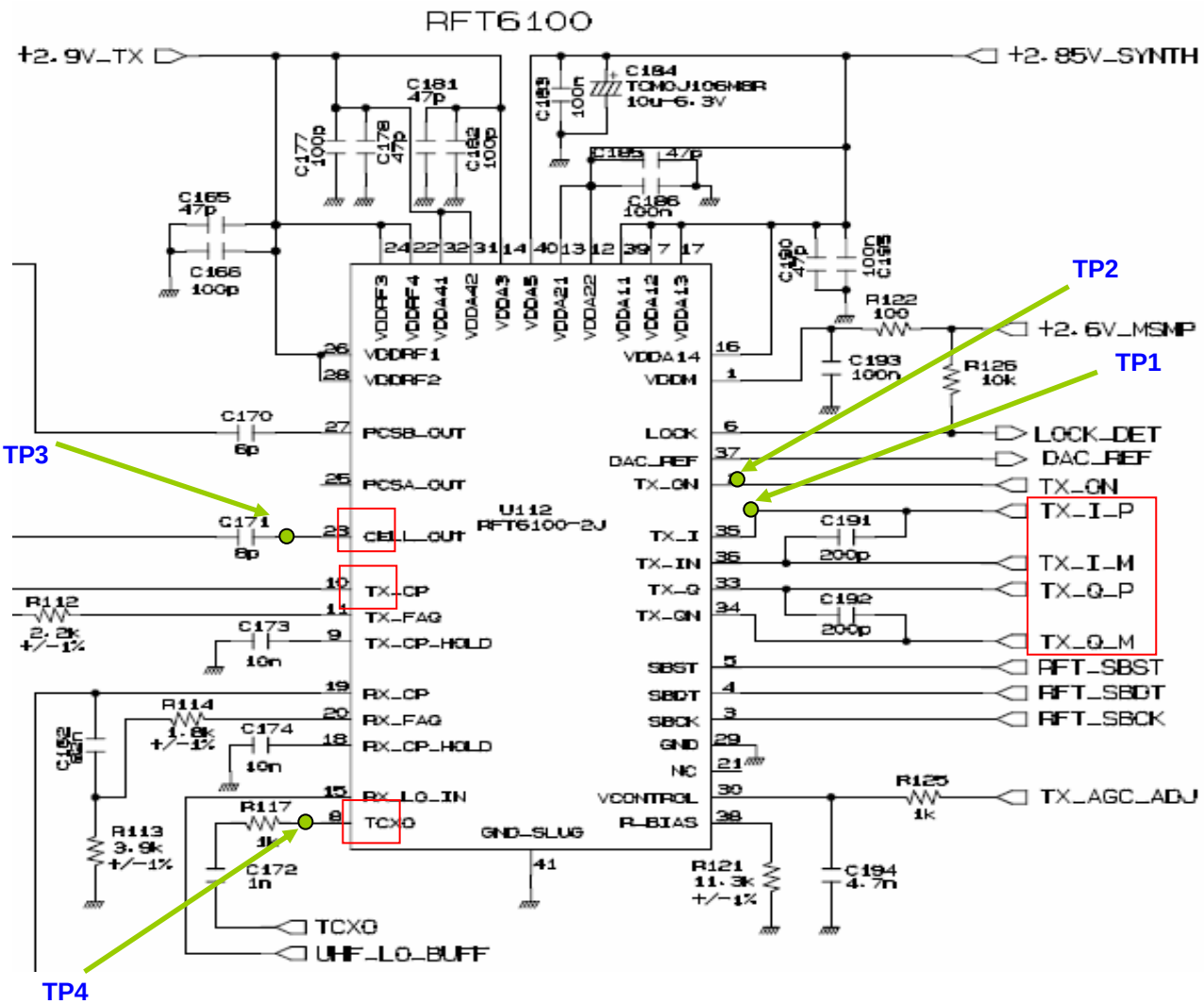
Figure 4.2.1 (d)

4.2.1.4Checking RFT6100 circuit

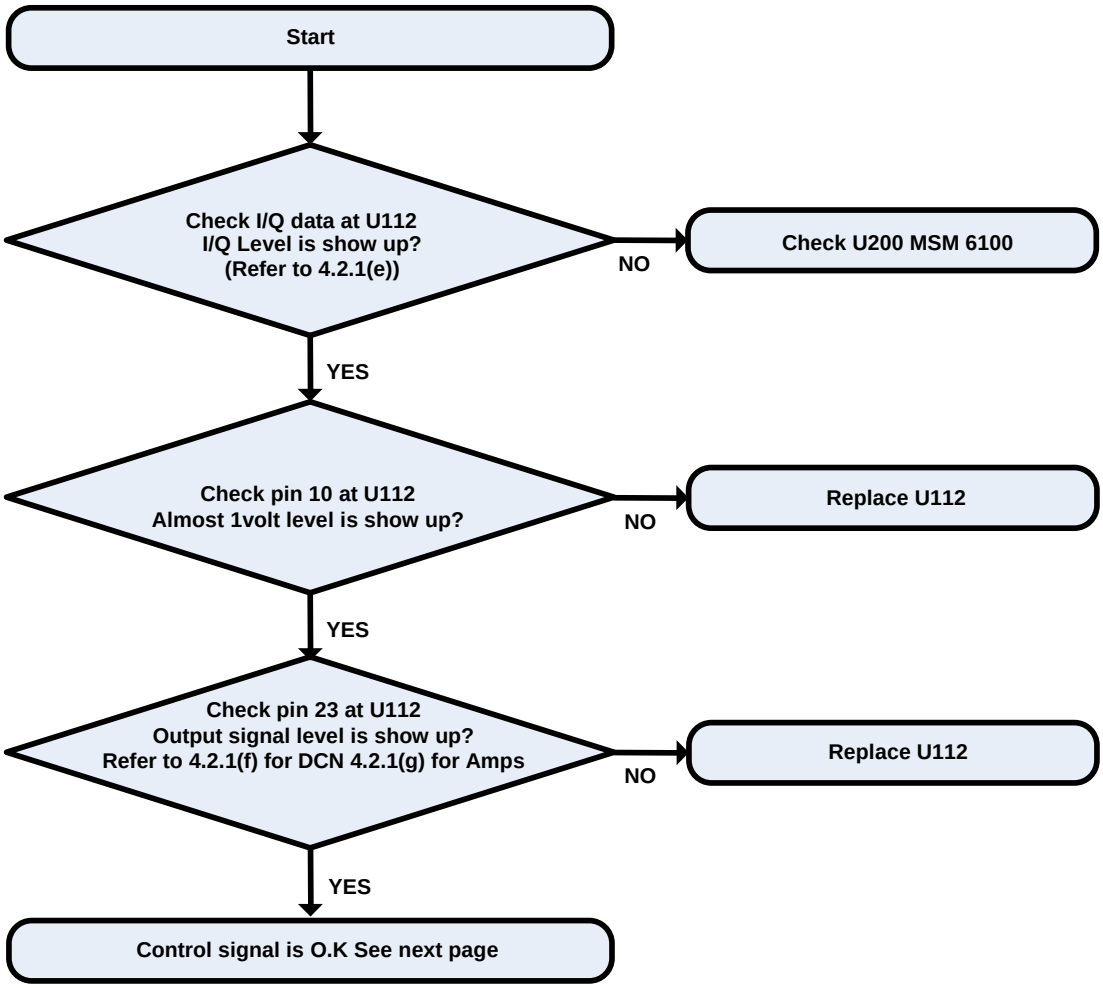
Test Point



Circuit Diagram



Checking Flow



Waveform

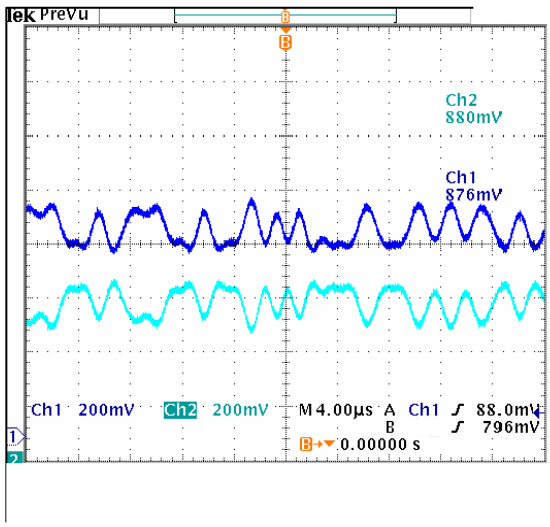


Figure 4.2.1 (e)

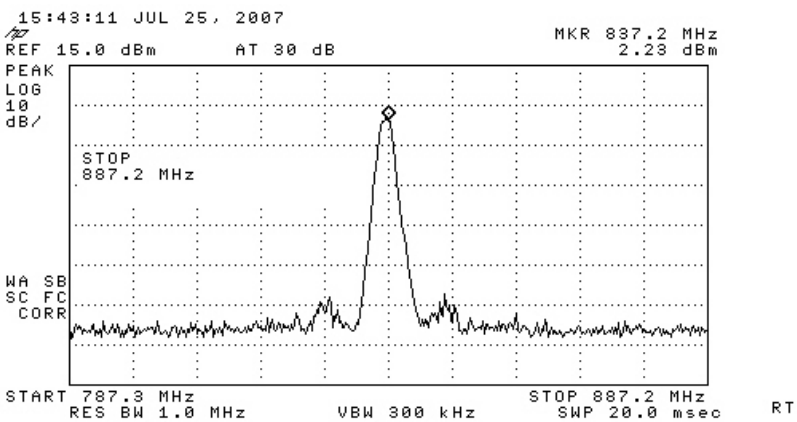


Figure 4.2.1 (f)

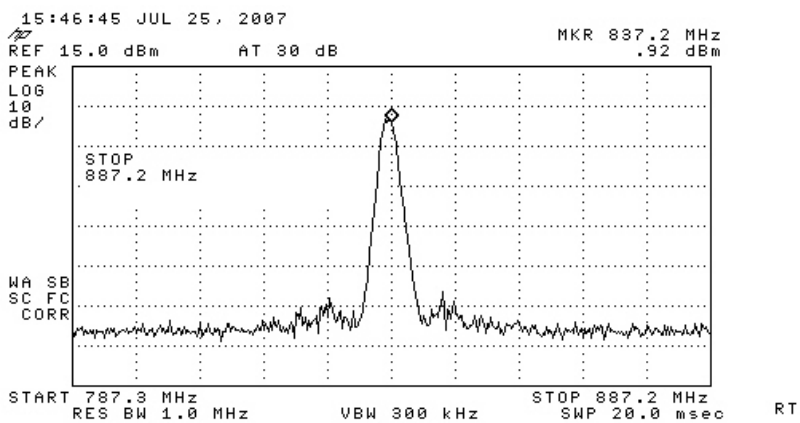
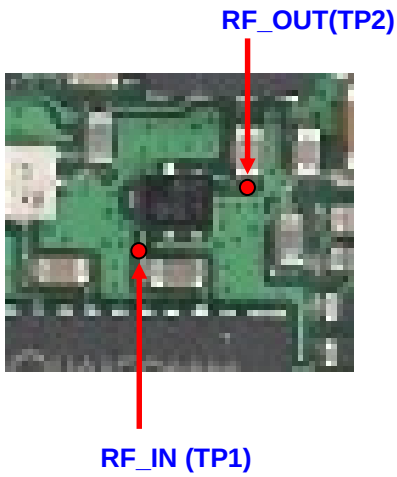


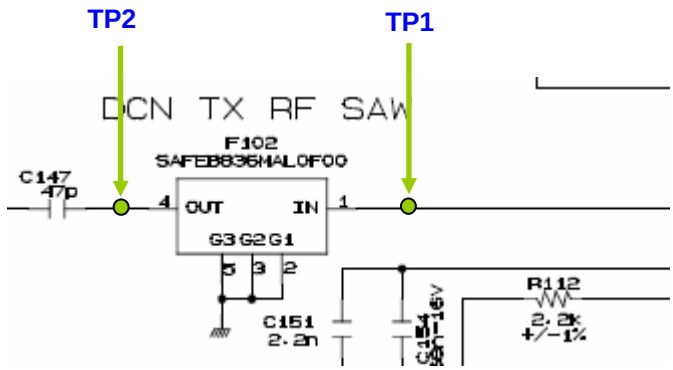
Figure 4.2.1 (g)

4.2.1.5 Check DCN RF Tx SAW

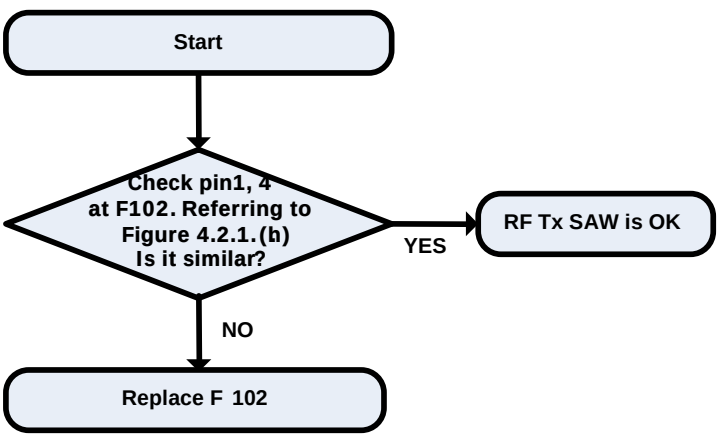
Test Point



Circuit Diagram



Checking Flow



Waveform

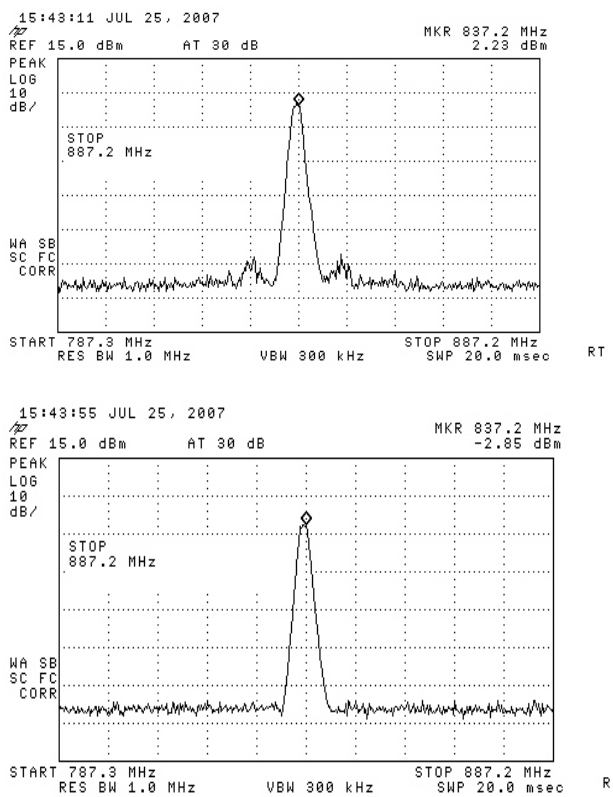
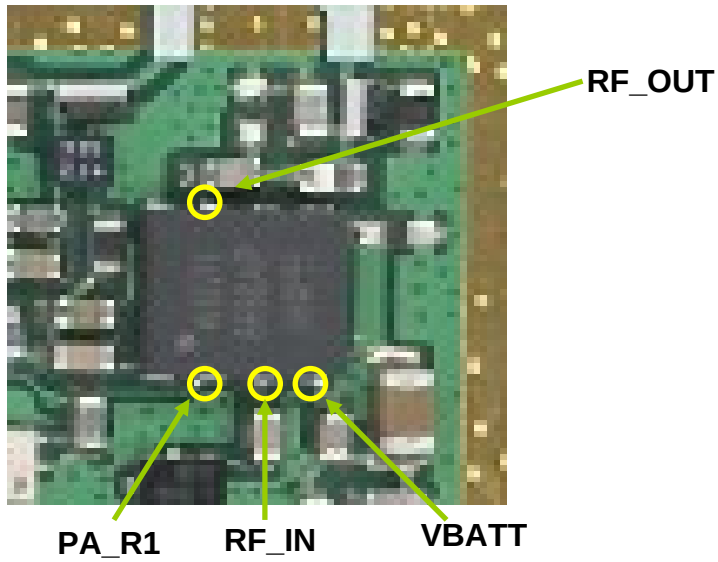


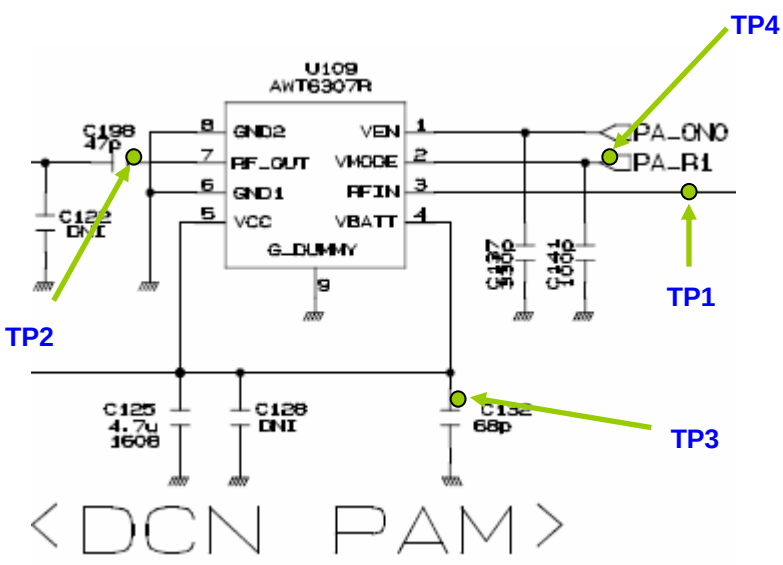
Figure 4.2.1(h)

4.2.1.6 Check DCN PAM circuit

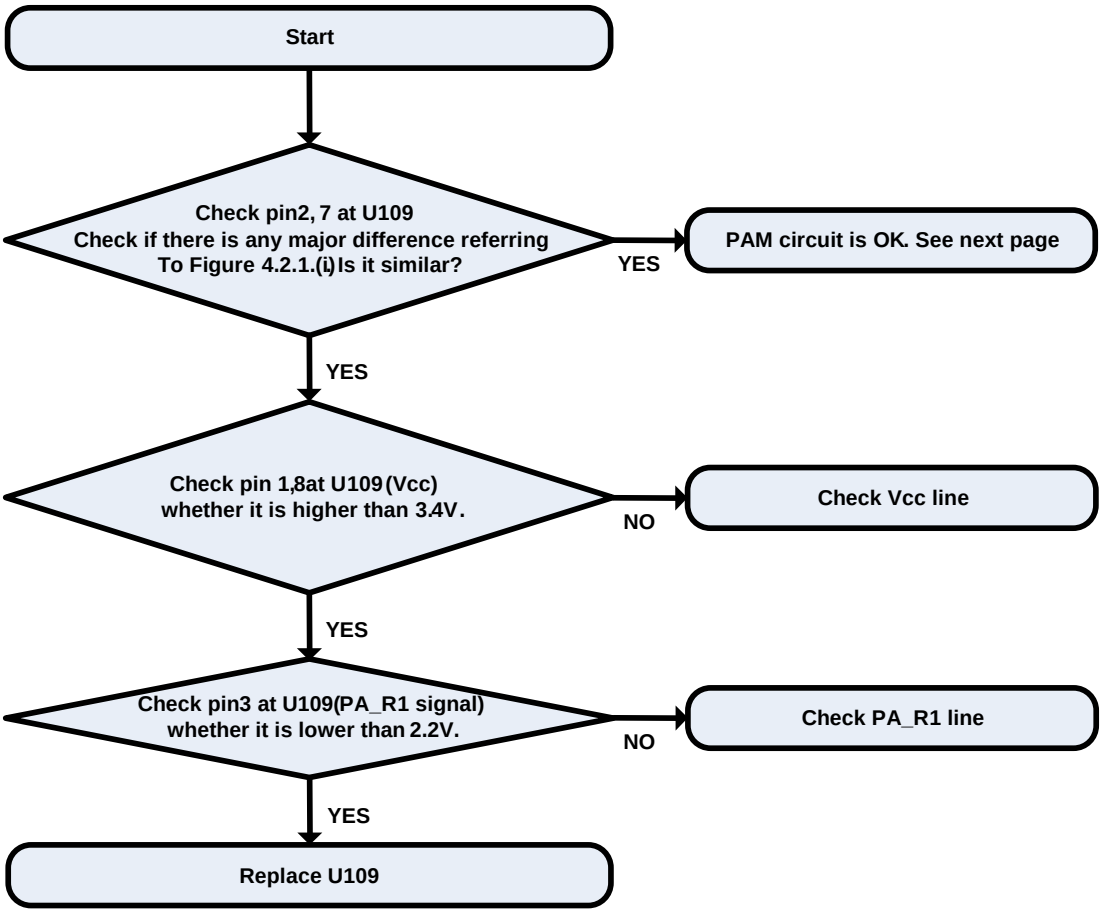
Test Point



Circuit Diagram



Checking Flow



Waveform

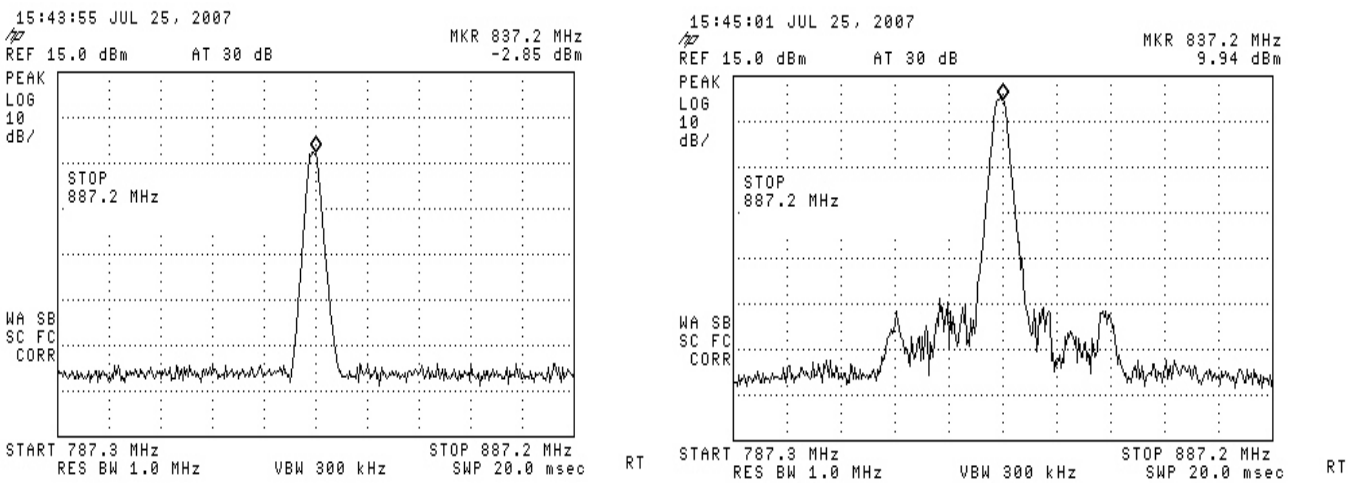
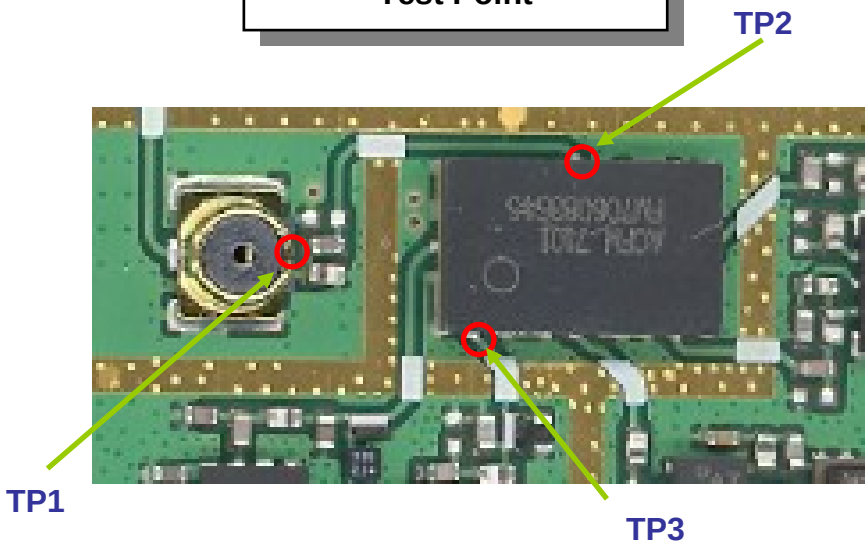


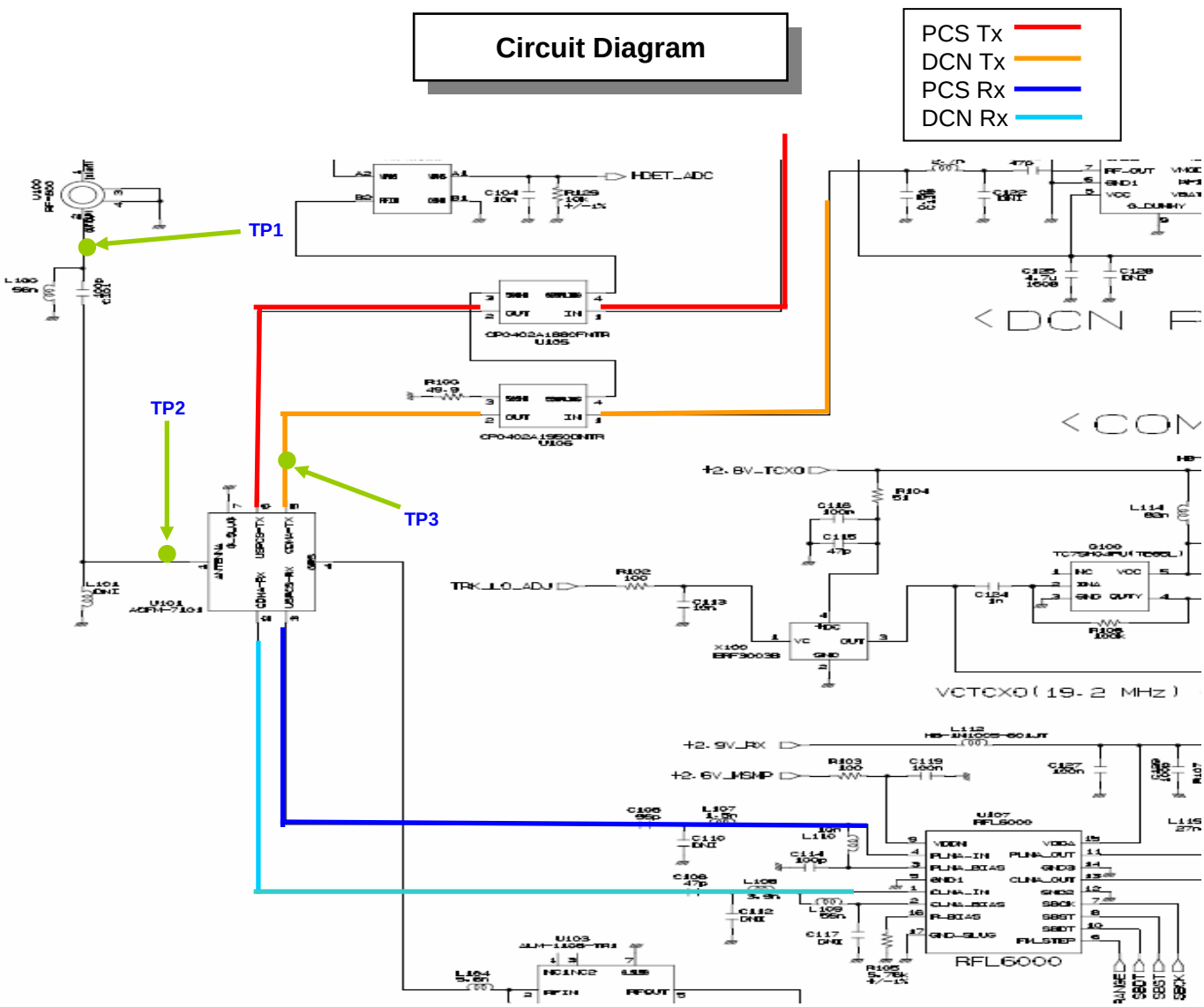
Figure 4.2.1(i)

4.2.1.7 Check Quintplexer & Mobile Switch

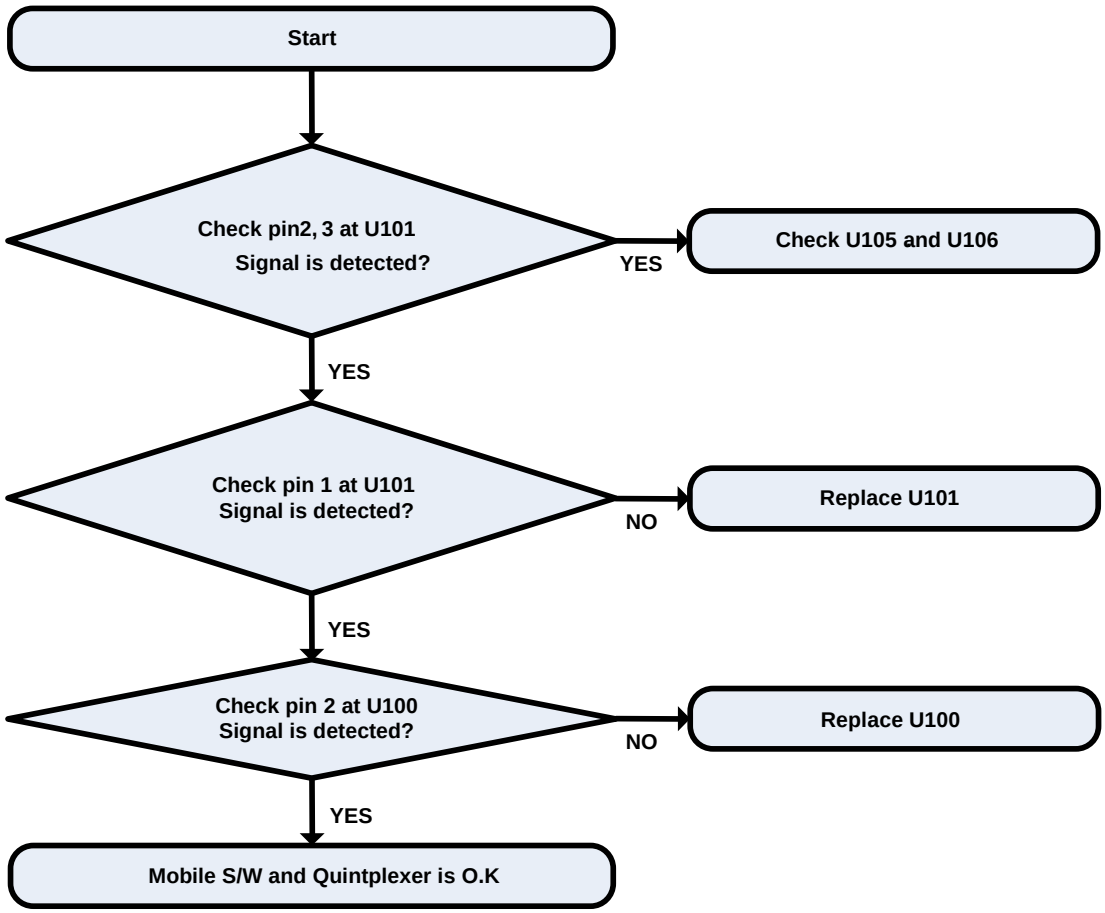
Test Point



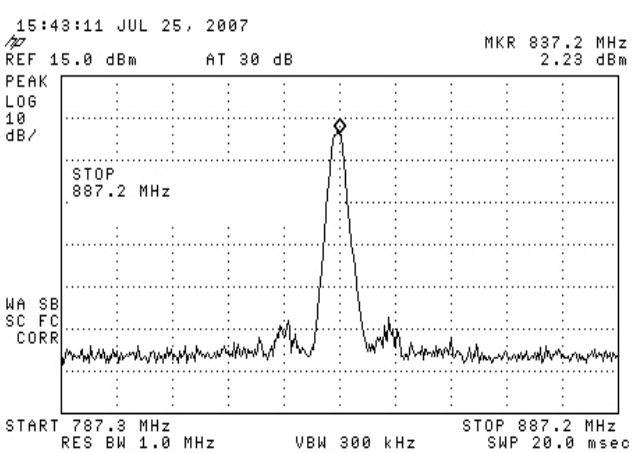
Circuit Diagram



Checking Flow



Waveform



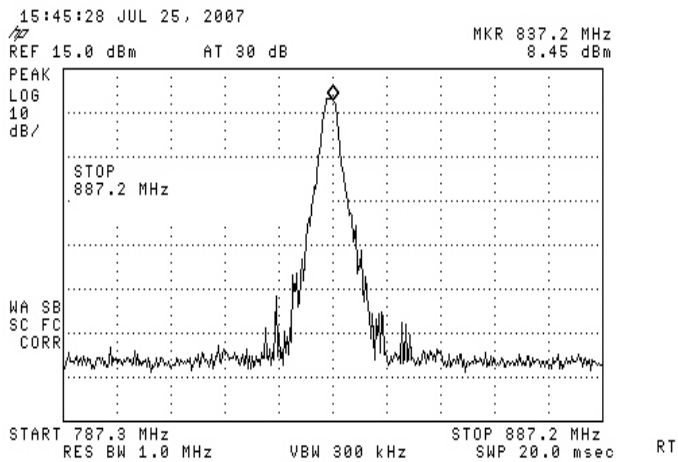
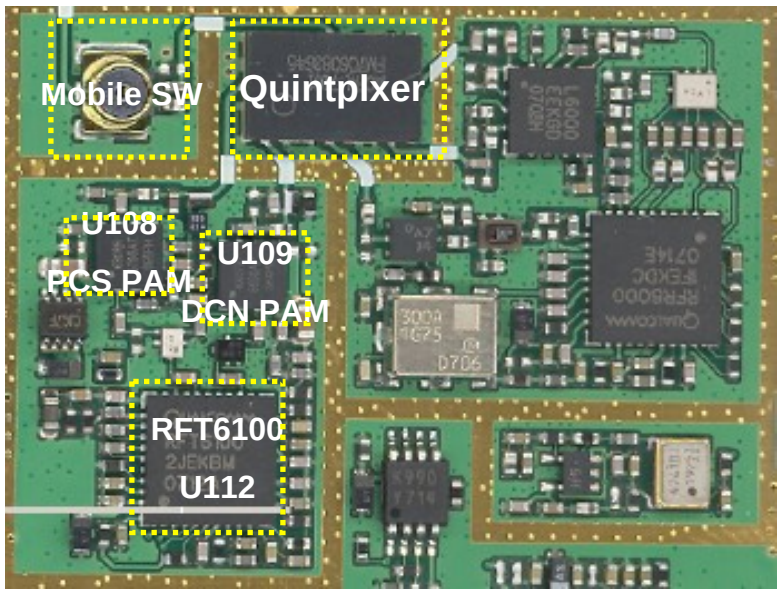


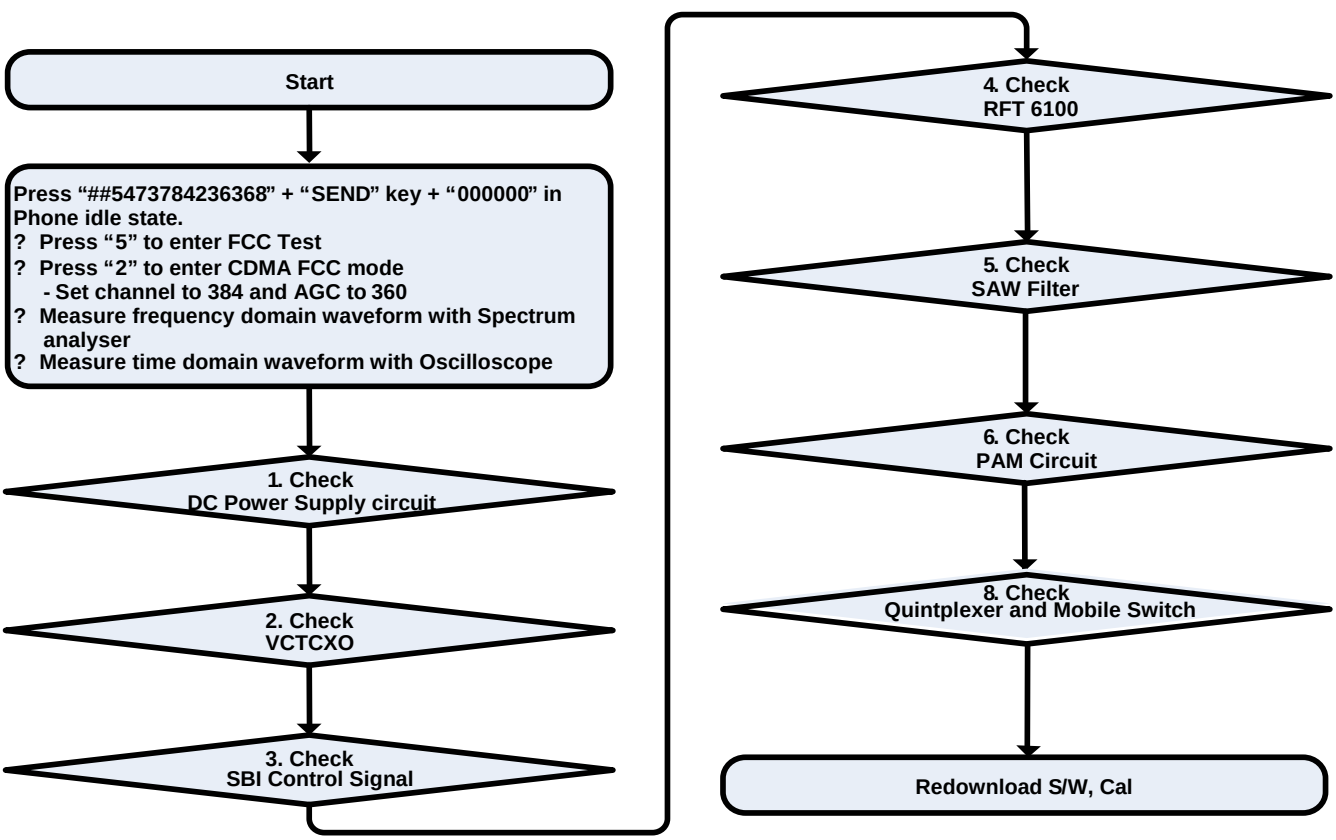
Figure 4.2.1(j)

4.2.2 PCS Tx

Test Point

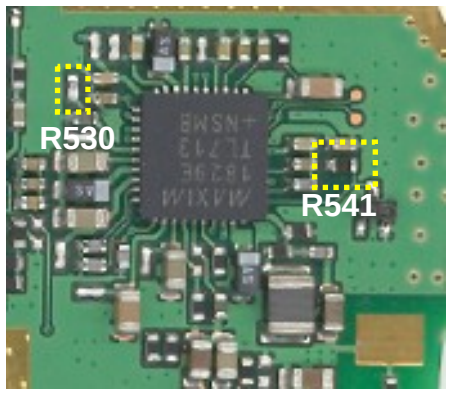


Circuit Diagram

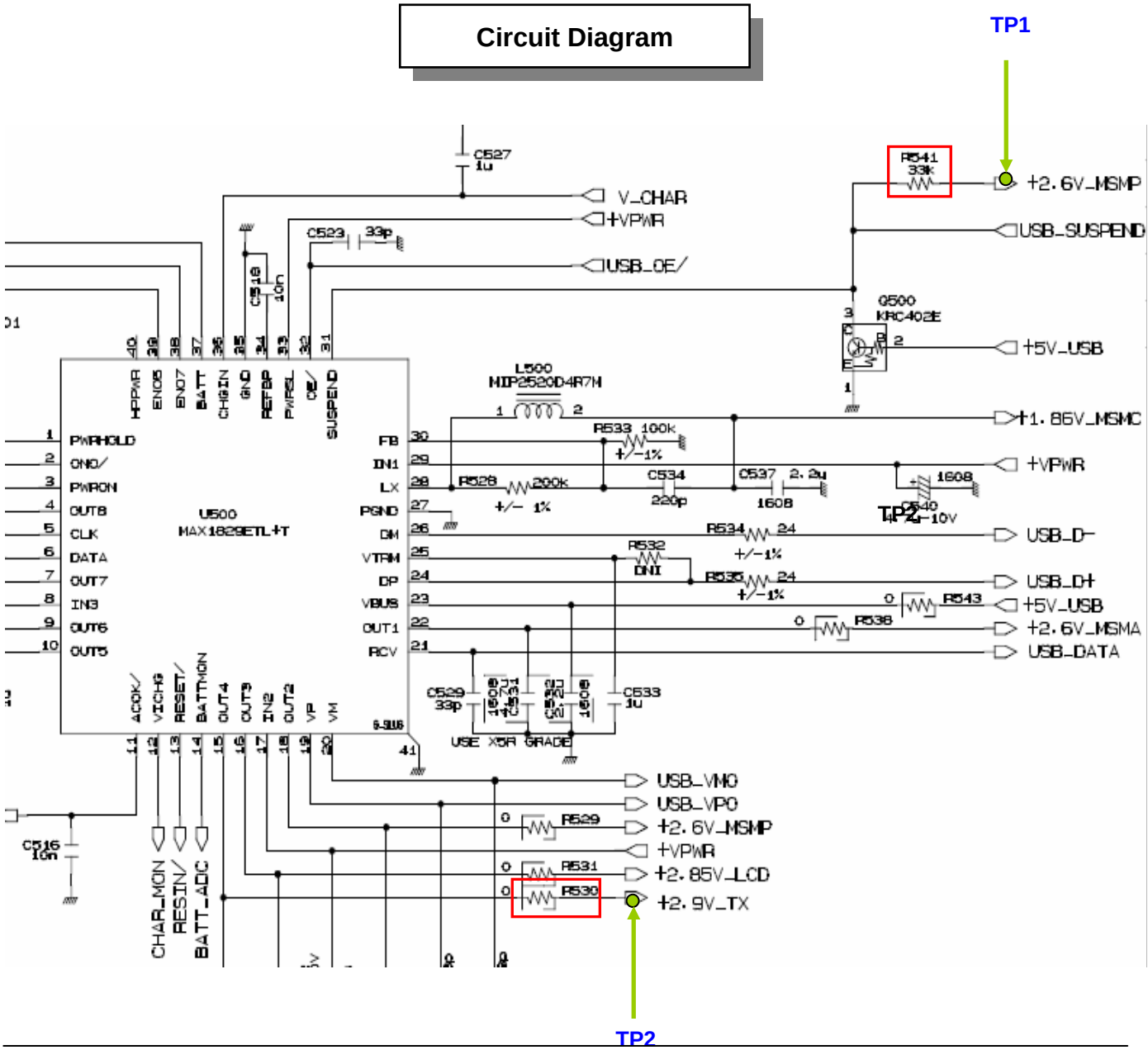


4.2.2.1 Checking DC Power supply circuit (PMIC)

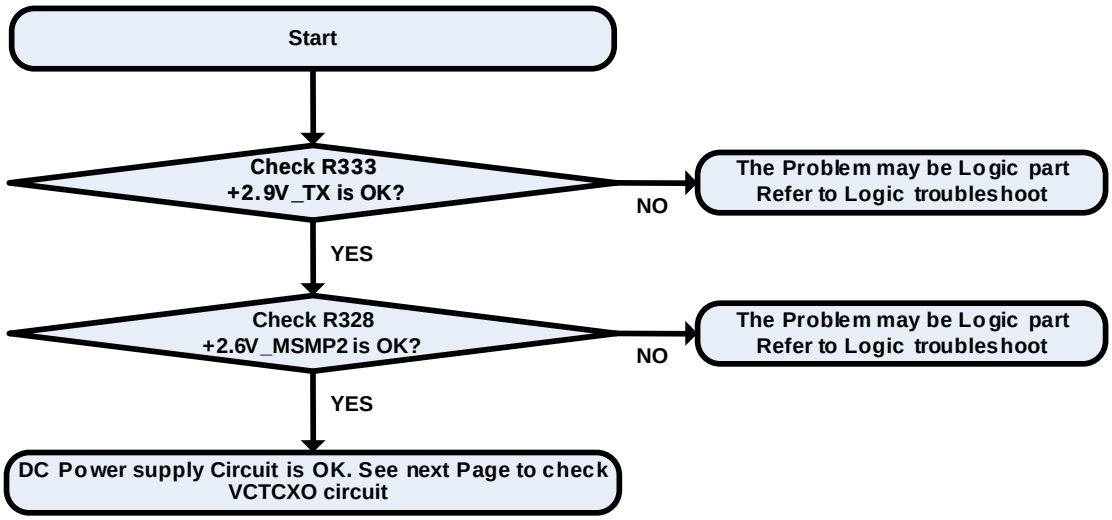
Test Point



Circuit Diagram

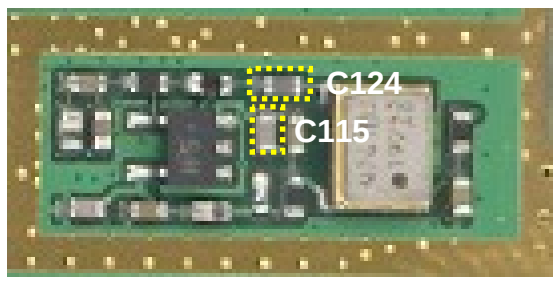


Checking Flow

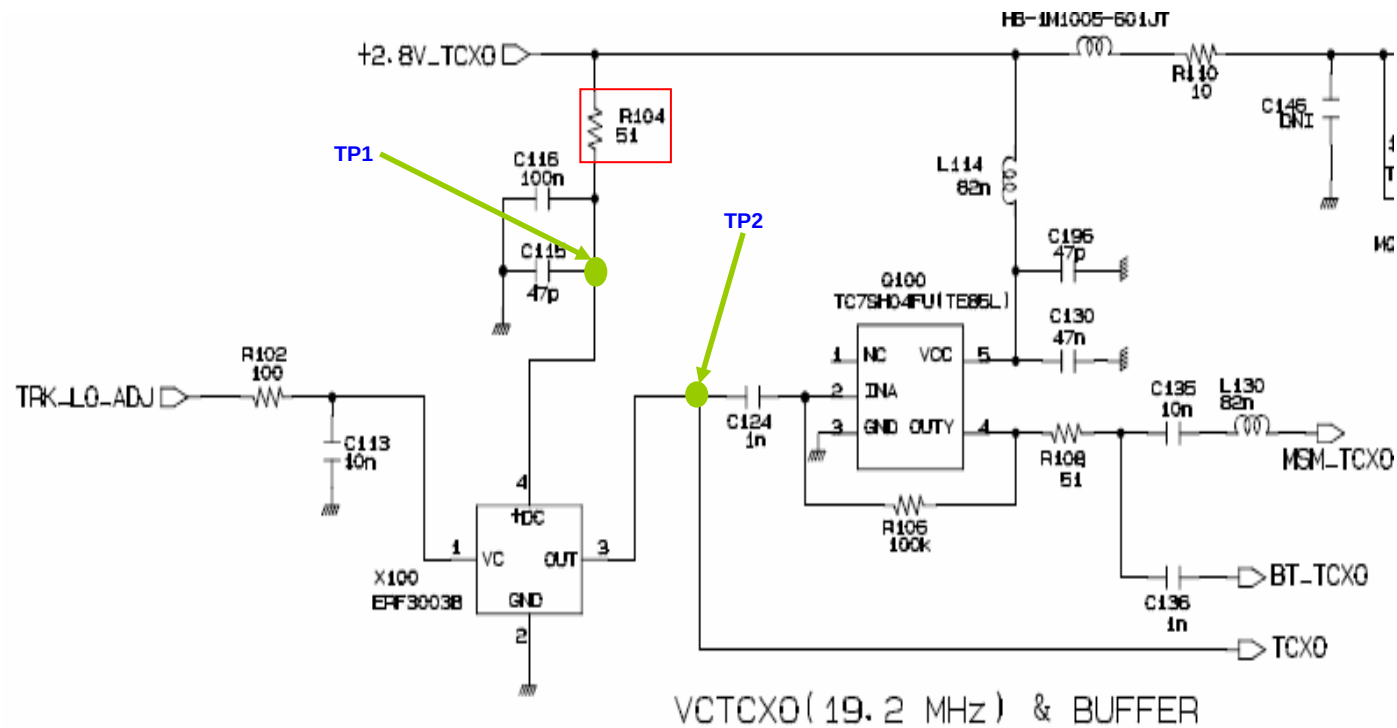


4.2.2.2 Checking VCTCXO circuit

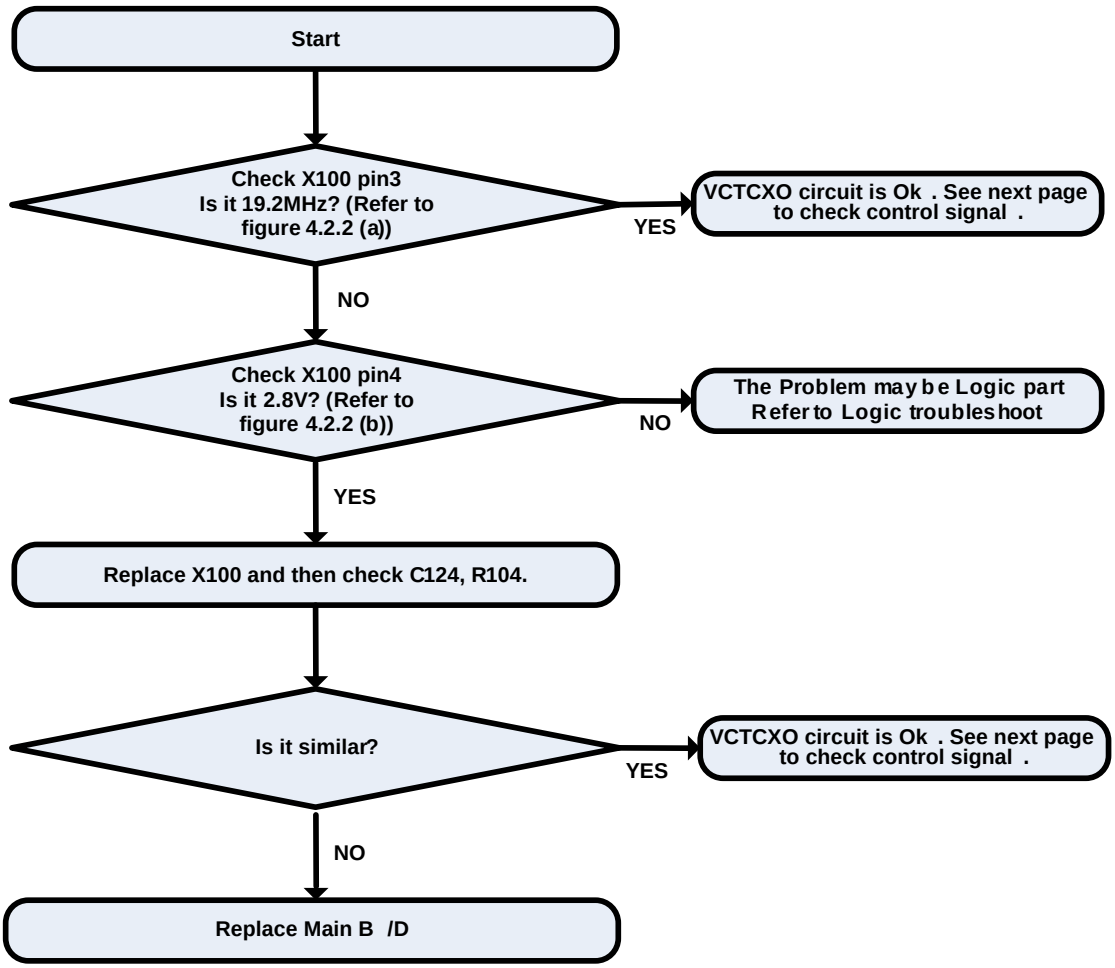
Test Point



Circuit Diagram



Checking Flow



Waveform

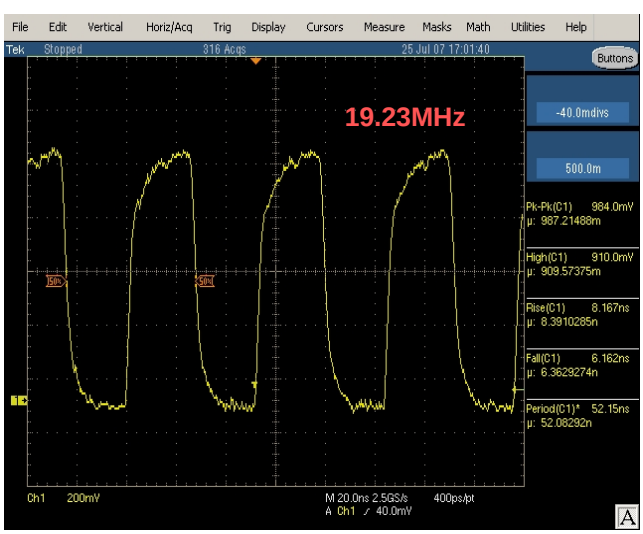
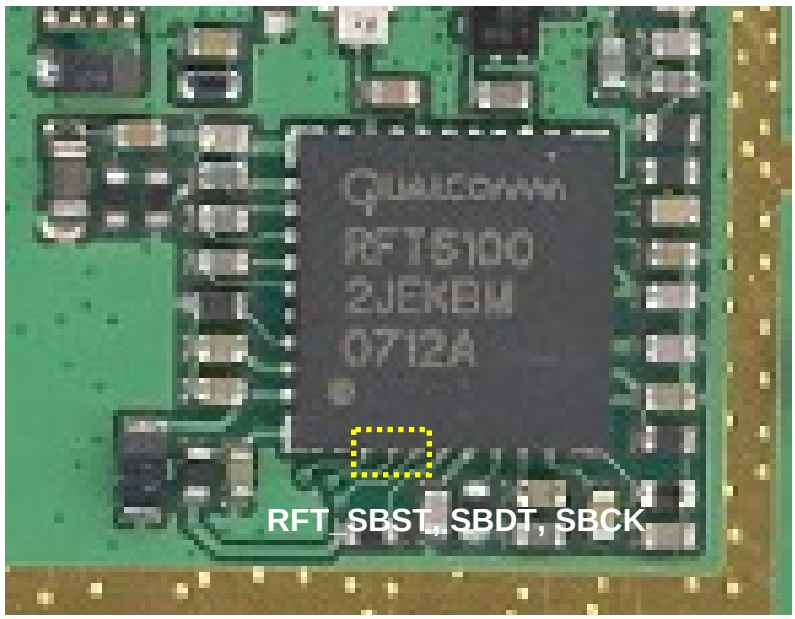


Figure 4.2.2 (a)

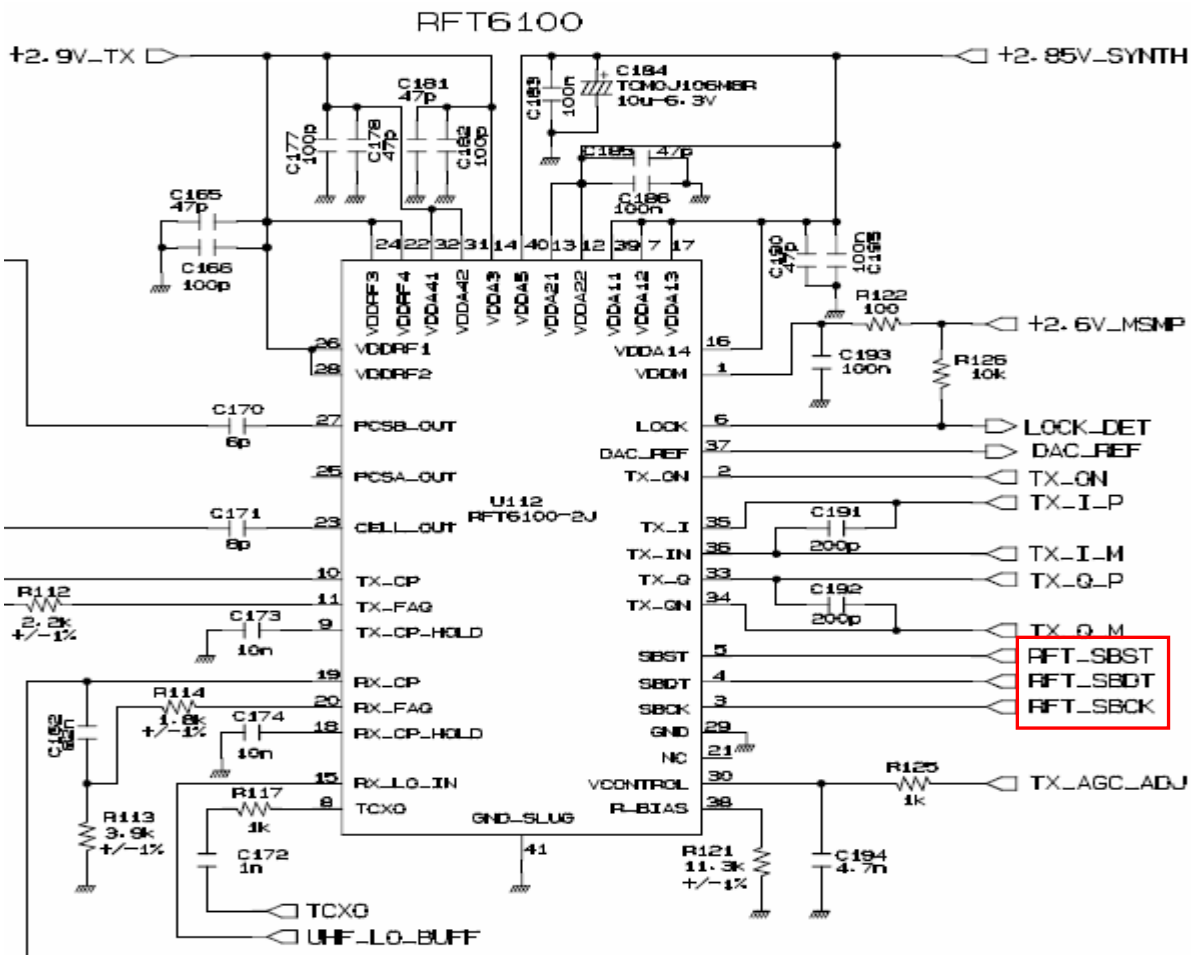
Figure 4.2.2 (b)

4.2.2.3 Checking SBI Control Signal

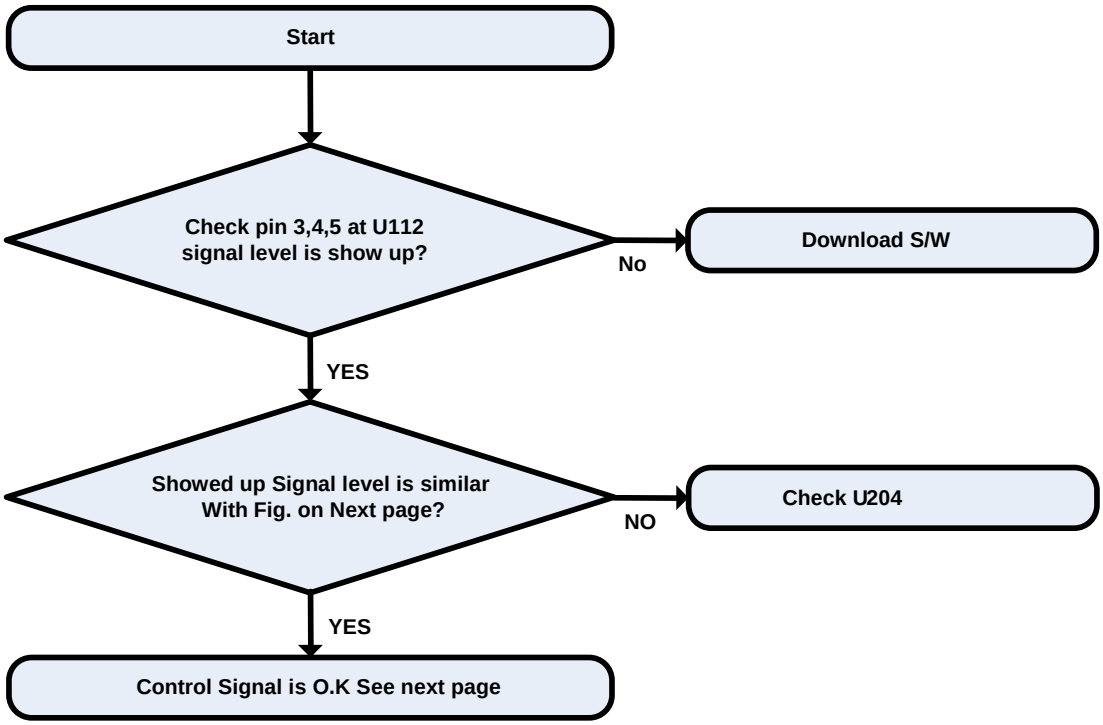
Test Point



Circuit Diagram



Checking Flow



Waveform

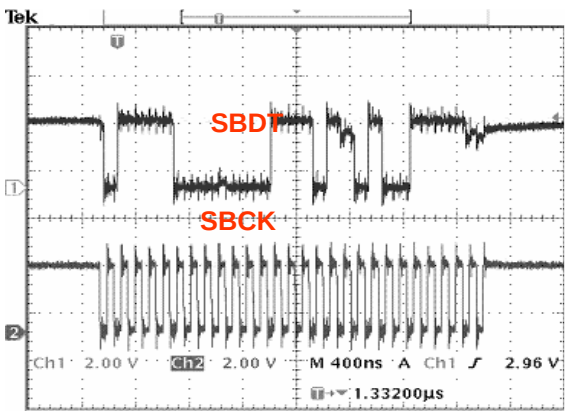


Figure 4.2.2 (c)

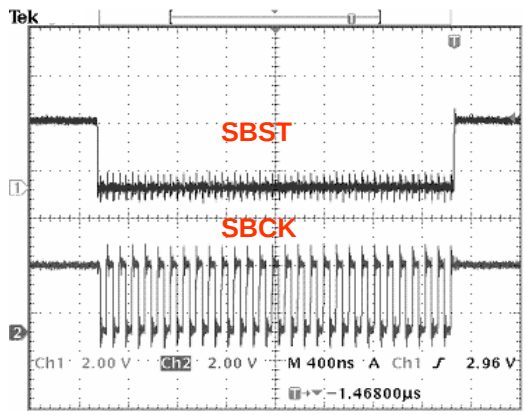
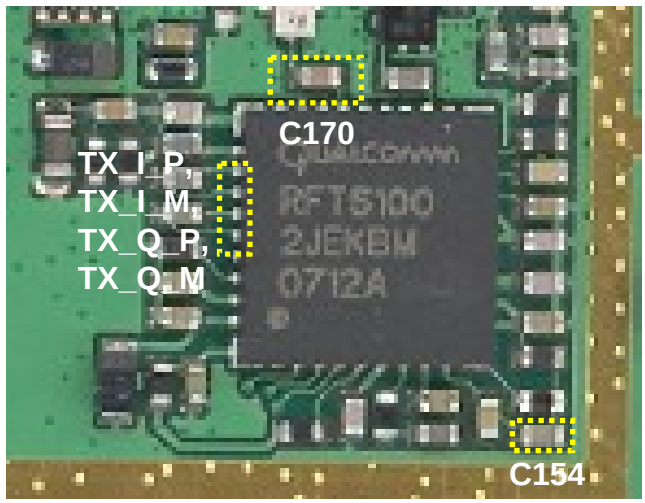


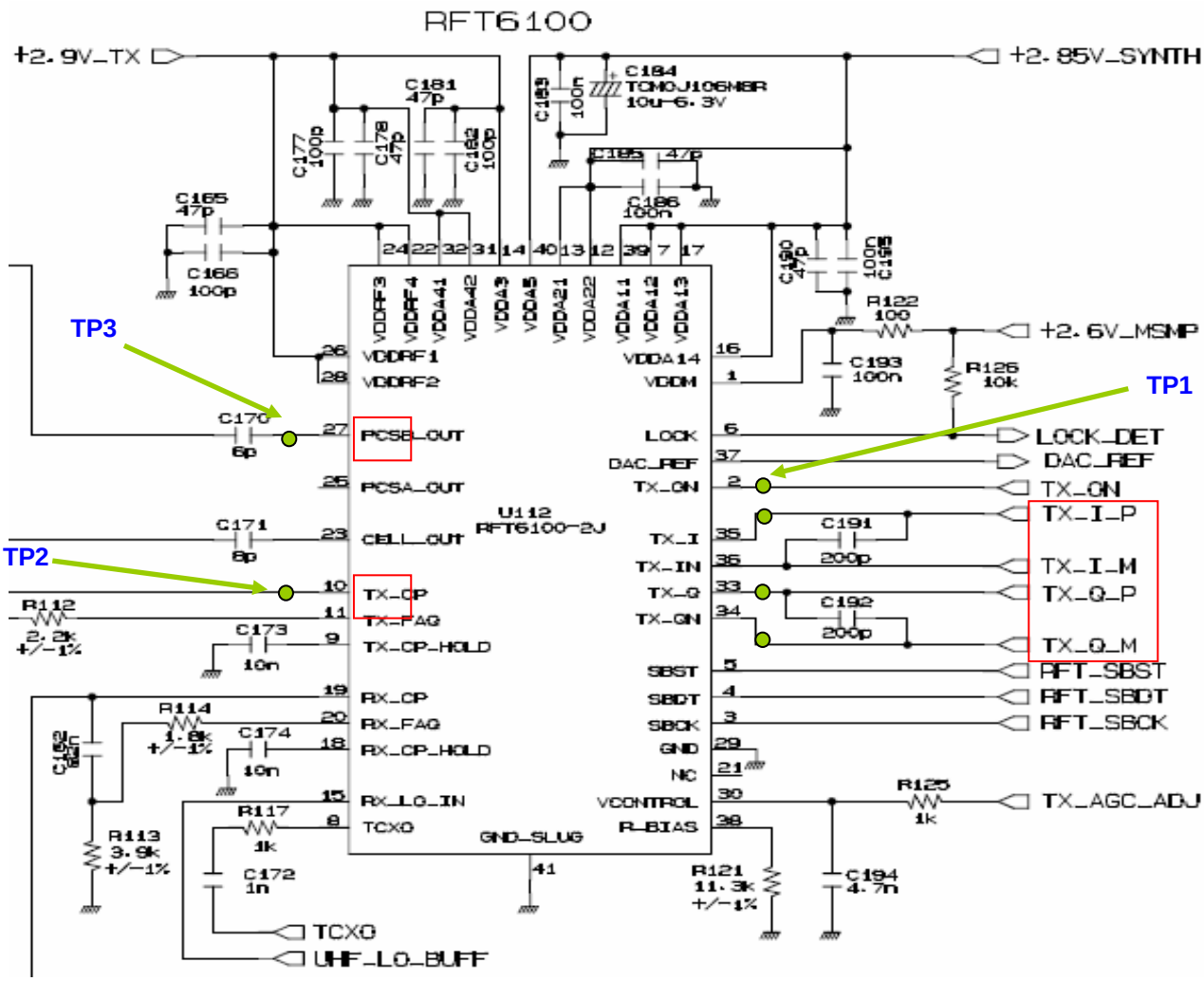
Figure 4.2.2 (d)

4.2.2.4 Checking RFT6100 circuit

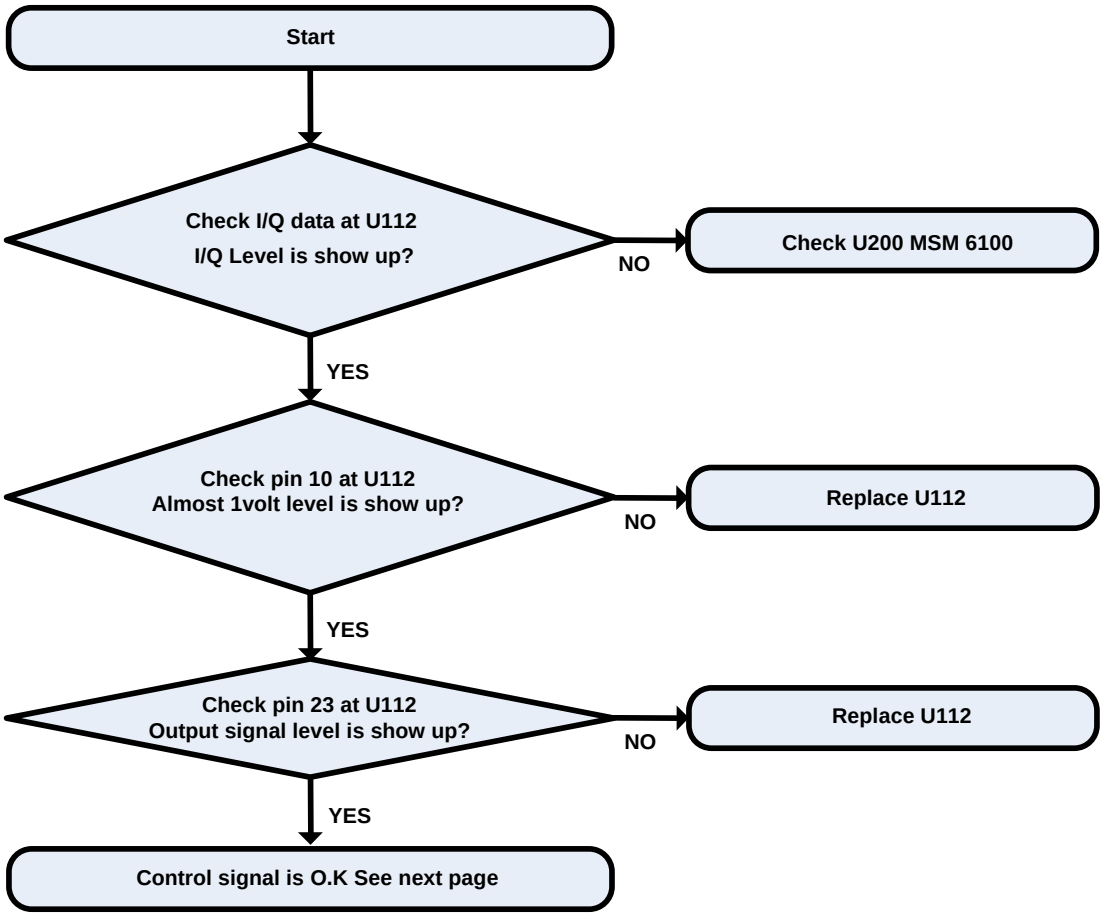
Test Point



Circuit Diagram



Checking Flow



Waveform

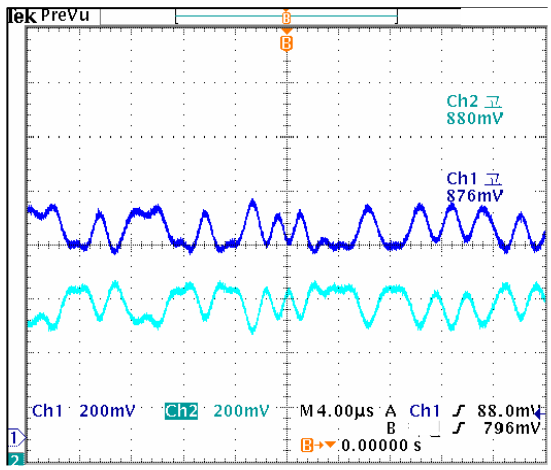


Figure 4.2.1 (e)

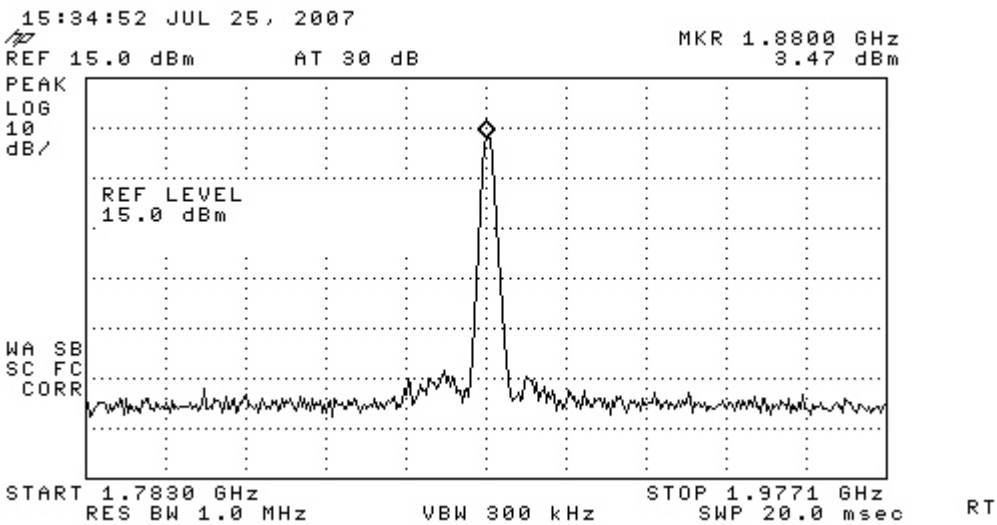
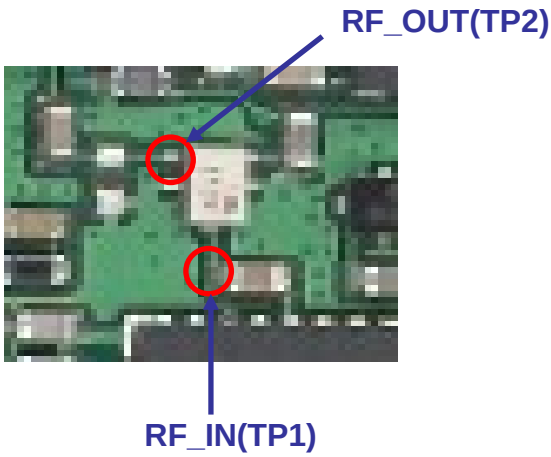


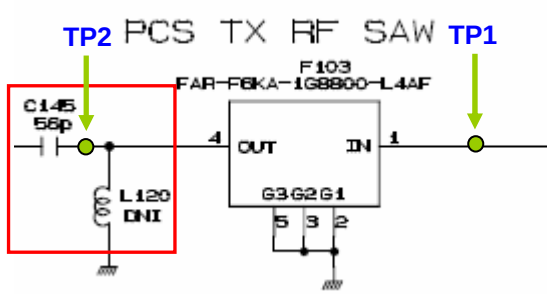
Figure 4.2.1 (f)

4.2.2.5 Check PCS RF Tx SAW

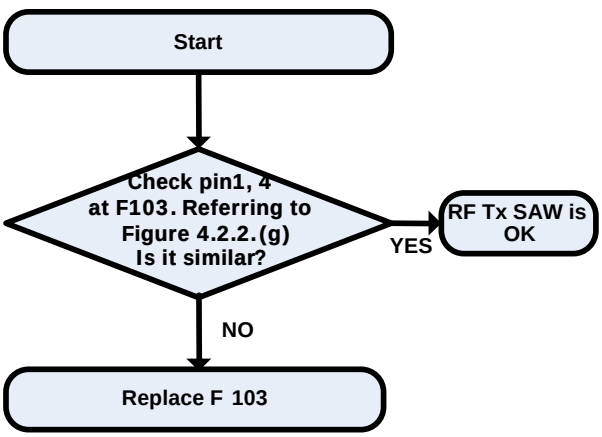
Test Point



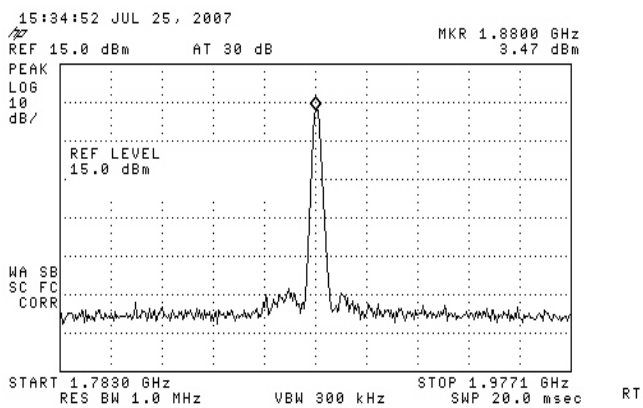
Circuit Diagram



Checking Flow



Waveform



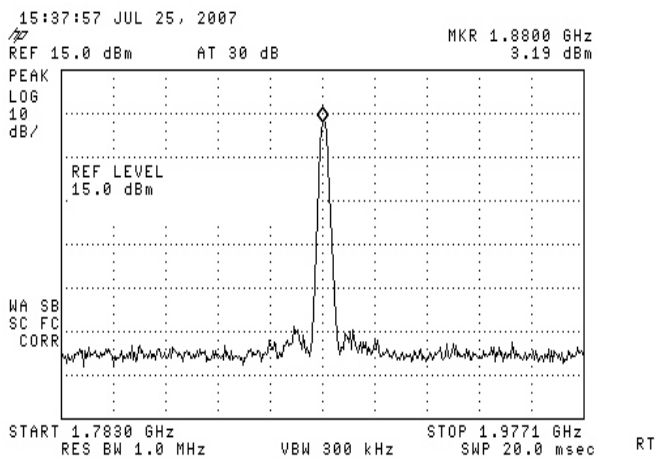
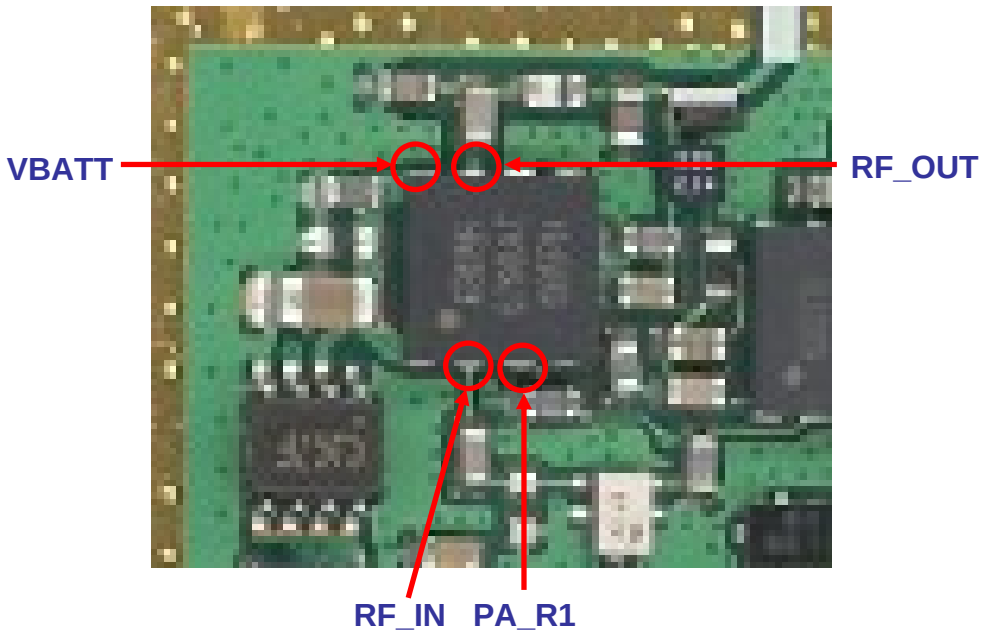


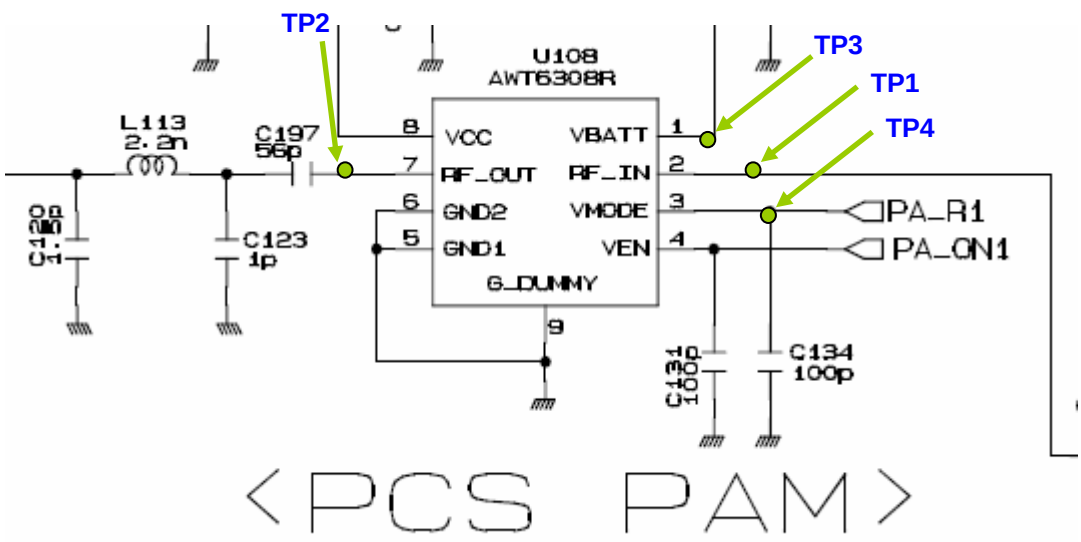
Figure 4.2.2(g)

4.2.2.6 Check PCS PAM circuit

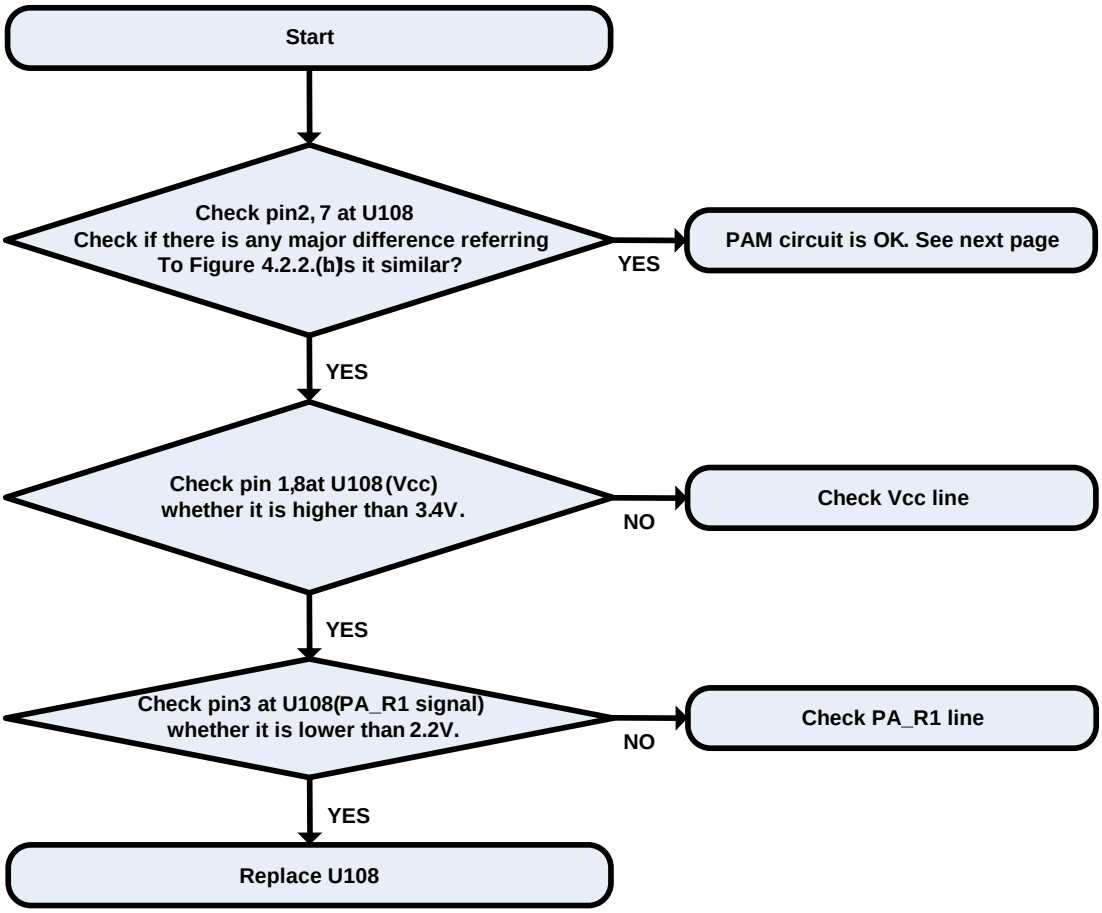
Test Point



Circuit Diagram



Checking Flow



Waveform

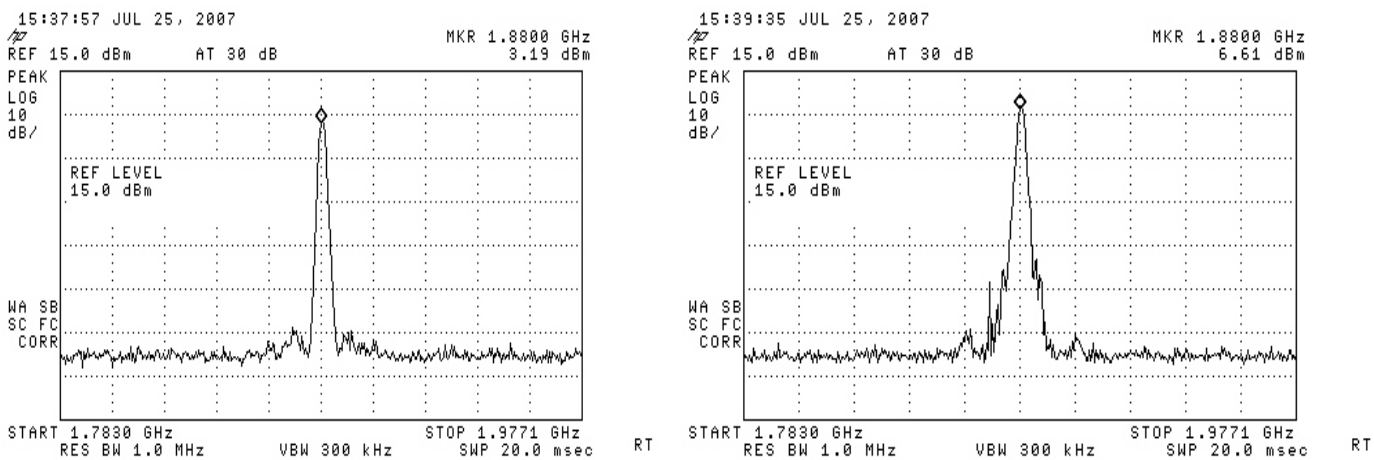
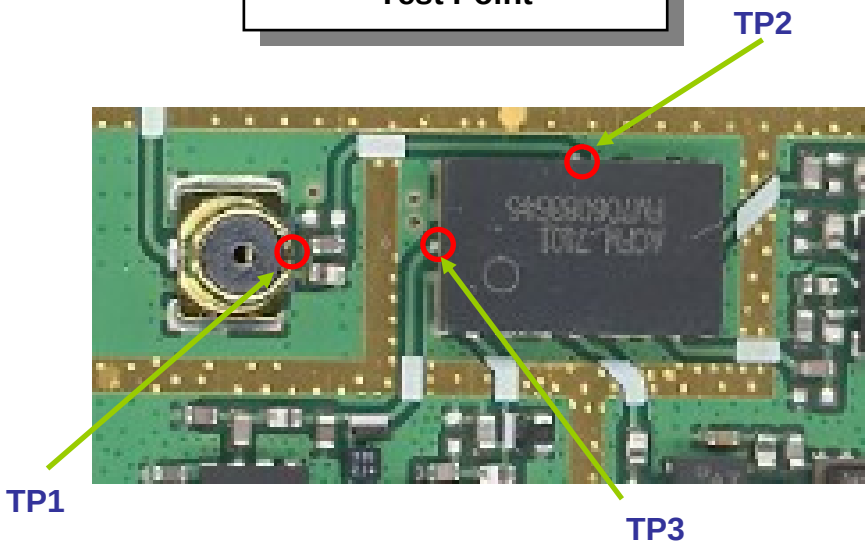


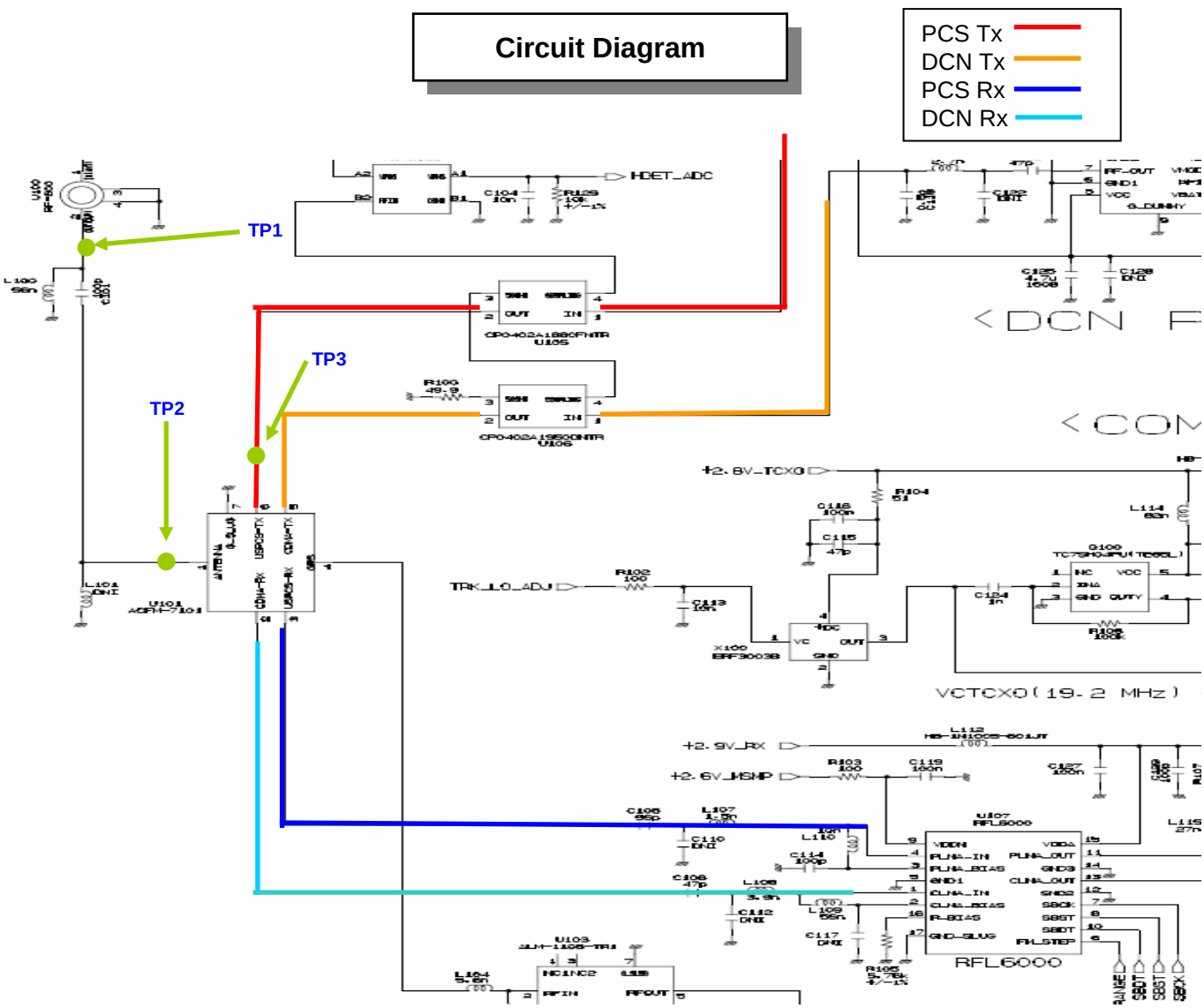
Figure 4.2.2(h)

4.2.2.7 Check Quintplexer & Mobile Switch

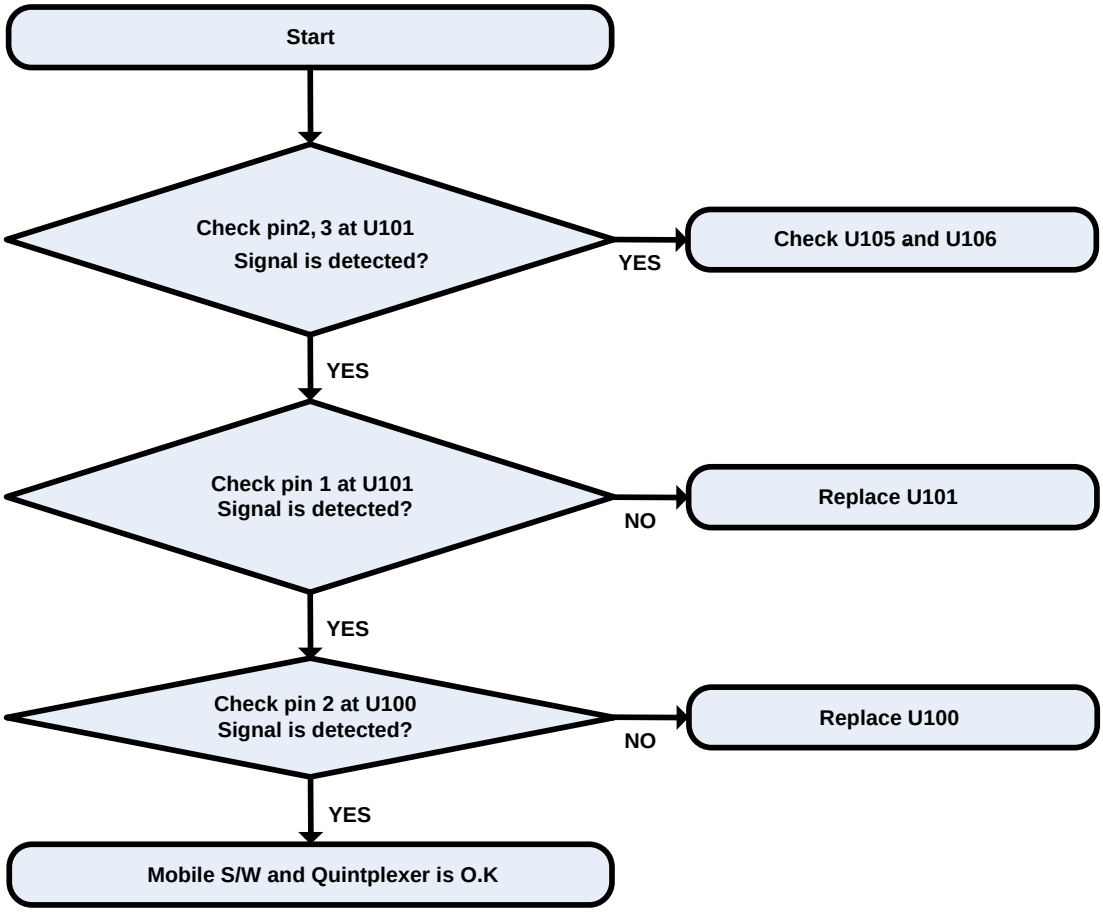
Test Point



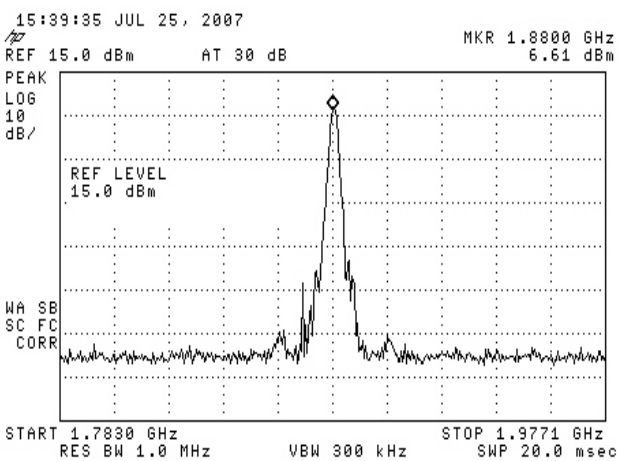
Circuit Diagram

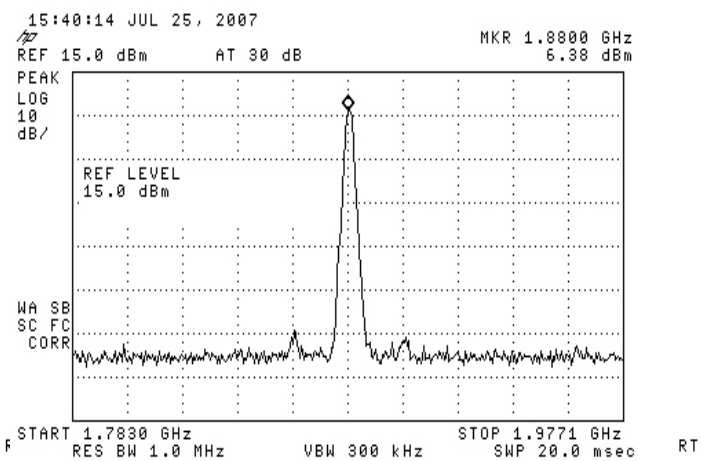


Checking Flow



Waveform





4.3 Logic Part Trouble Shooting

4.3.1 POWER-ON TROUBLE

Circuit Diagram

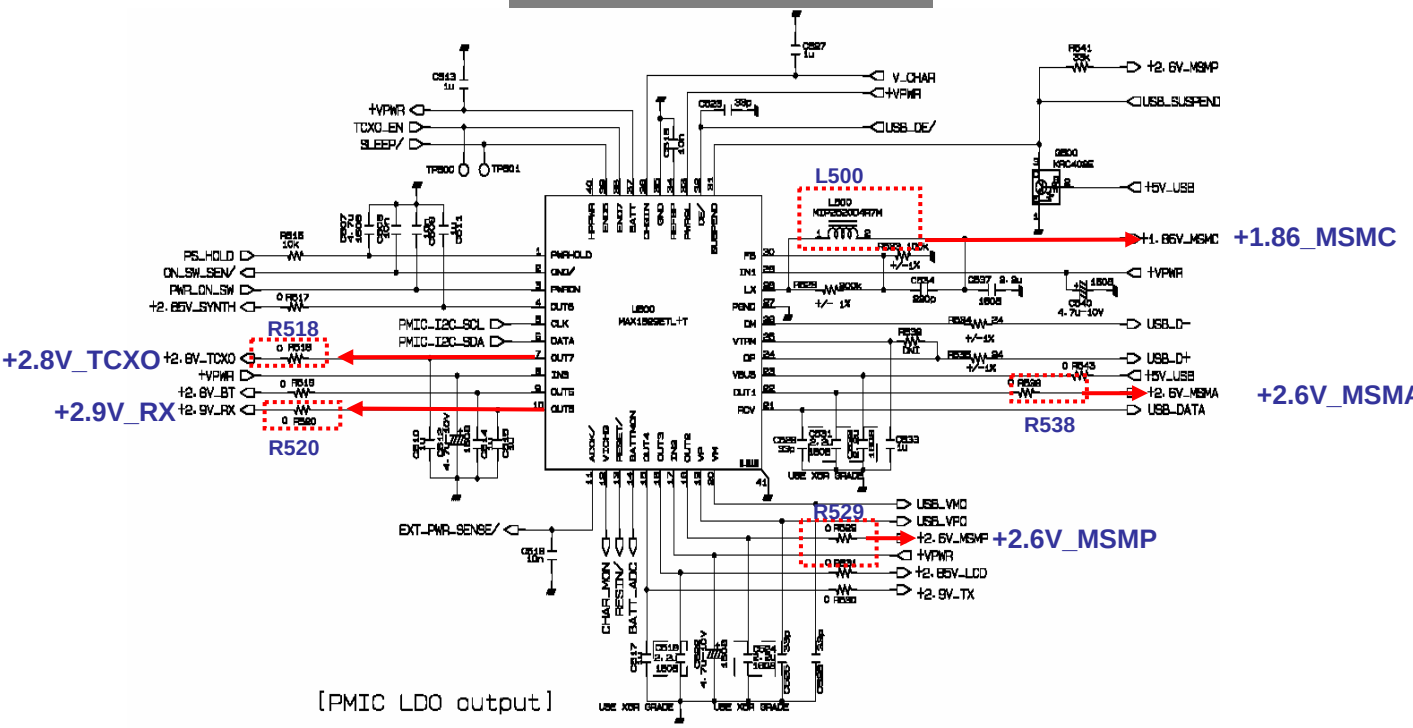
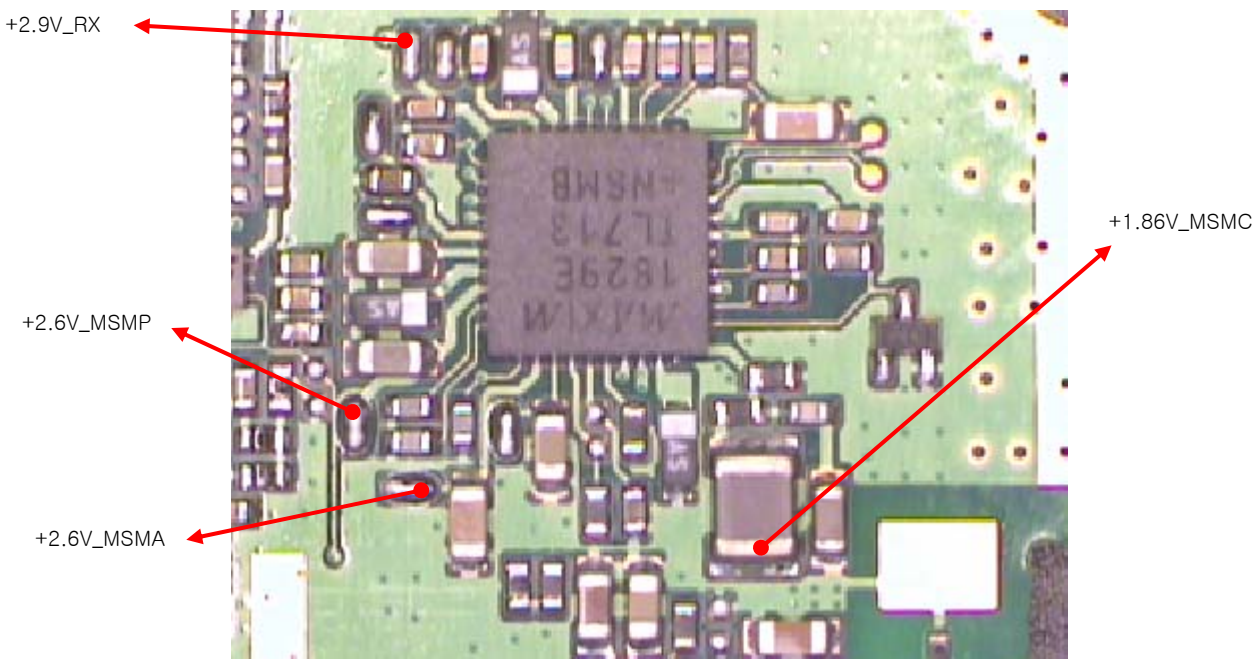
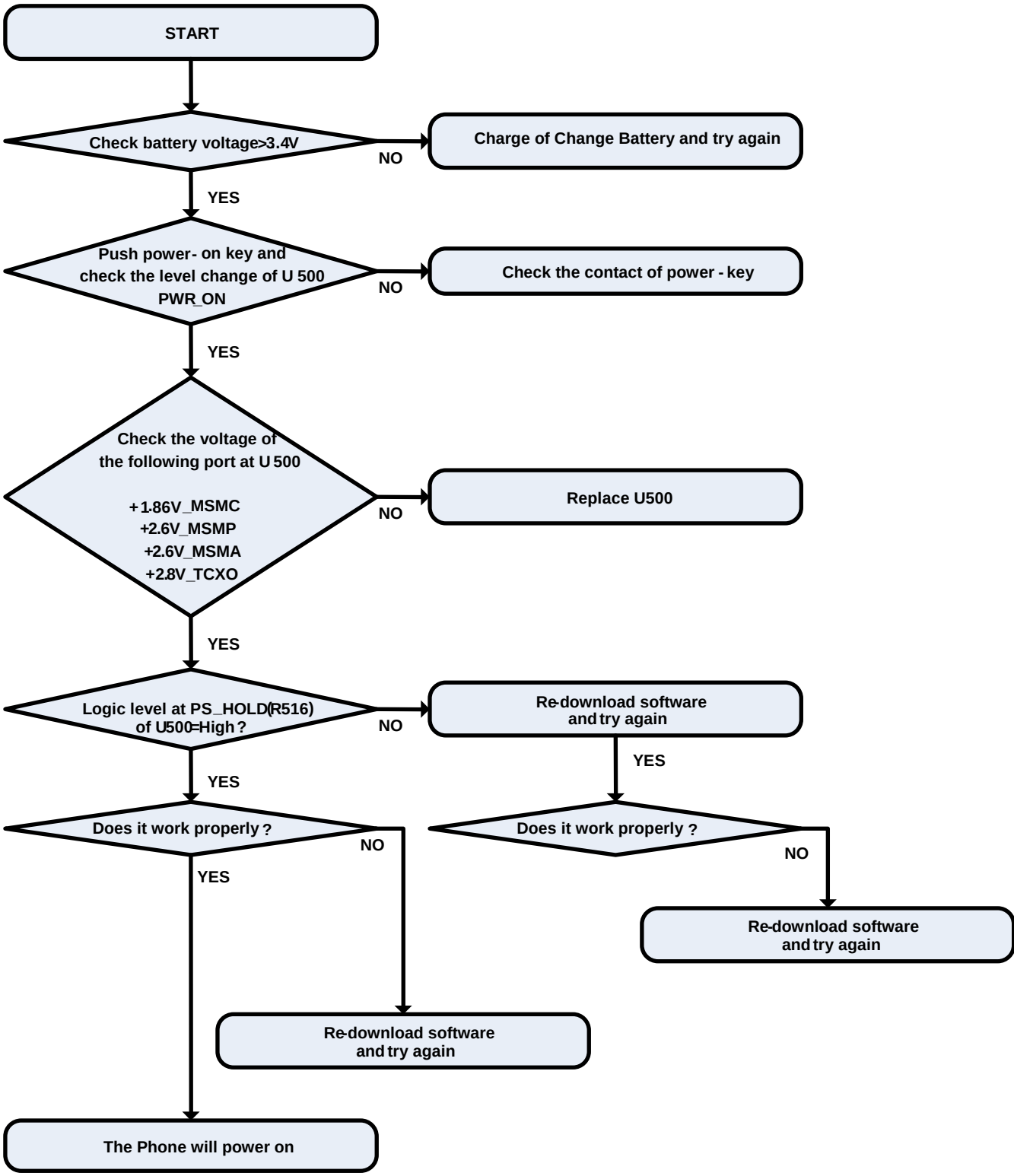


Figure 4- Power circuit diagram

Test point

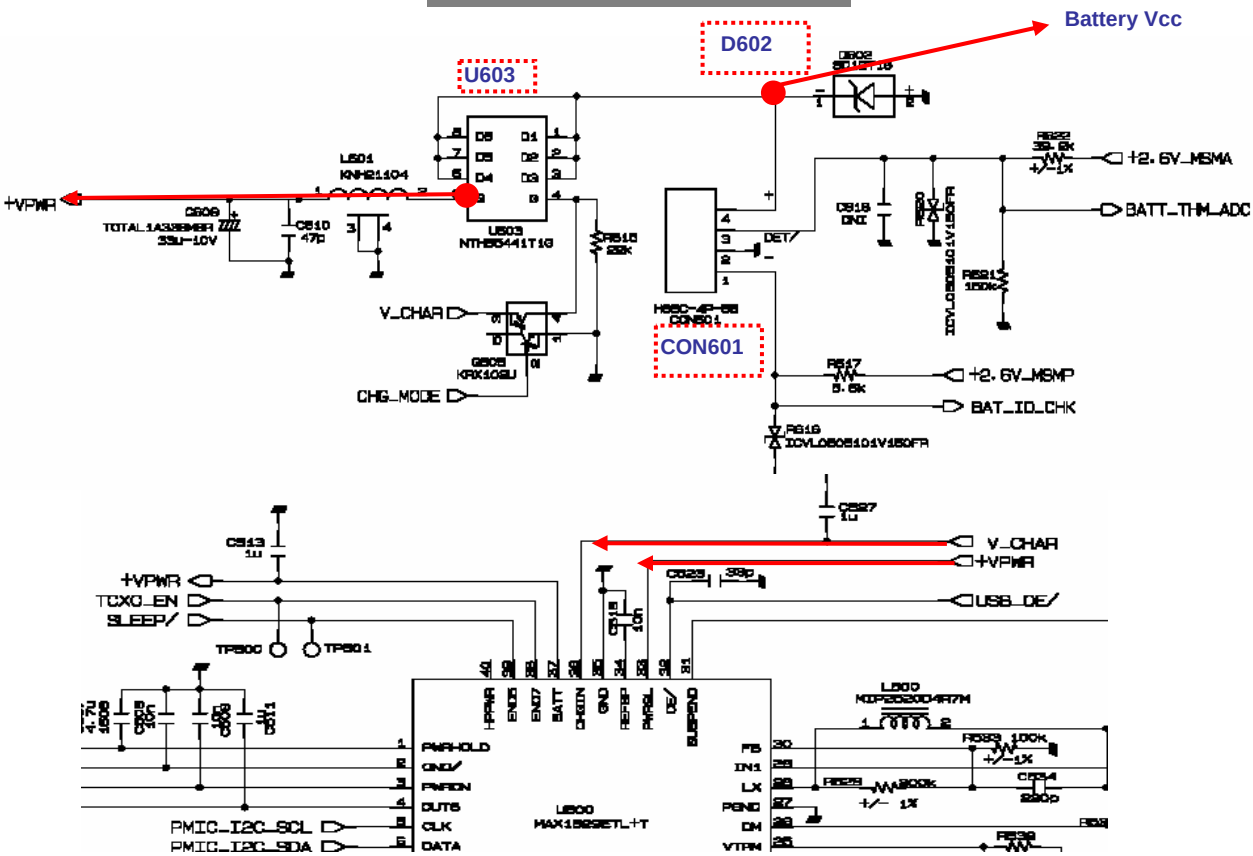


Checking Flow

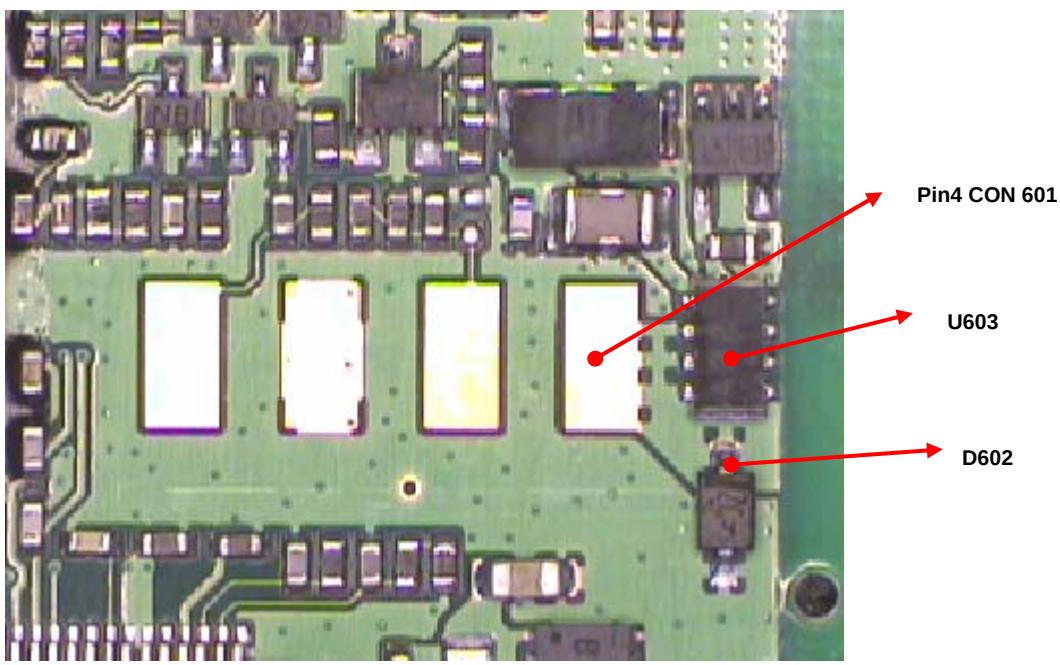


4.3.2 CHARGING TROUBLE

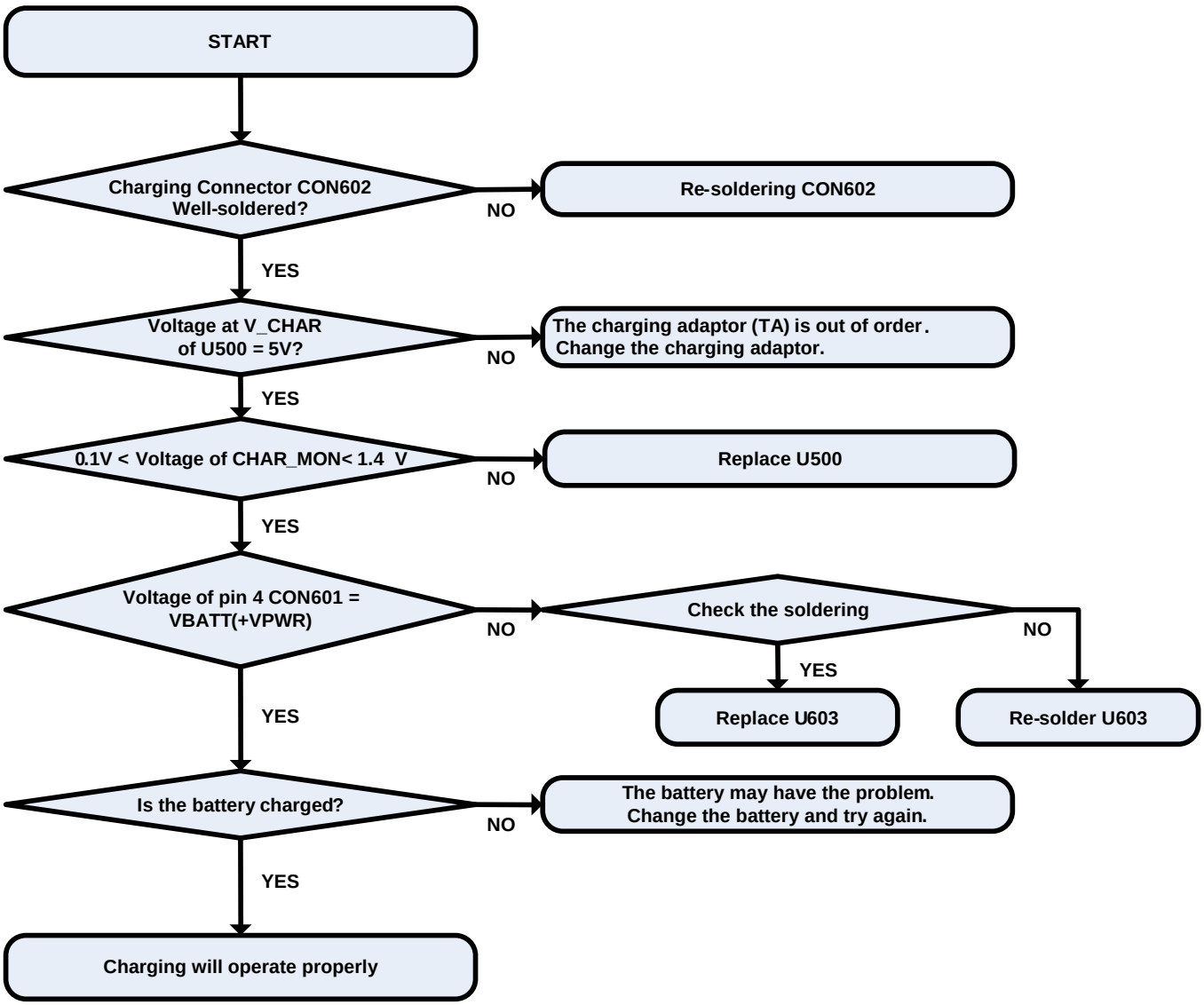
Circuit Diagram



Test point

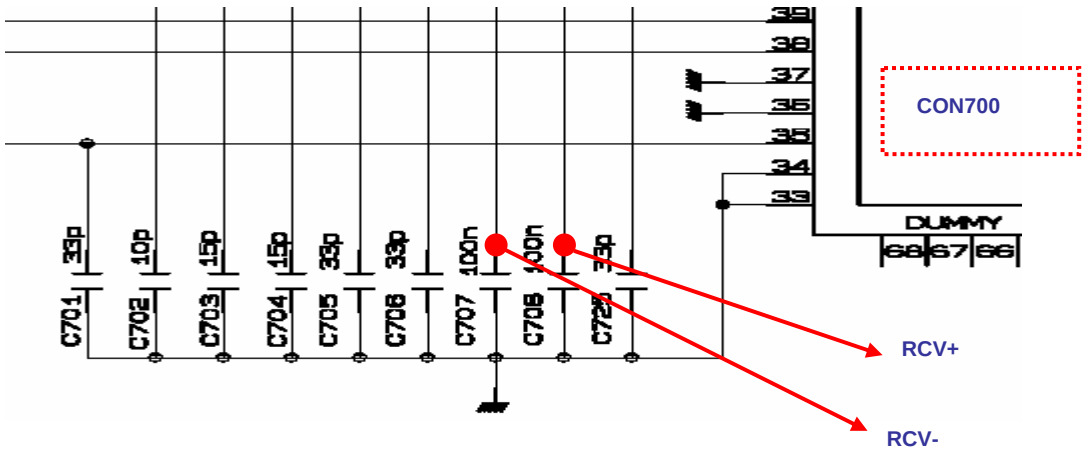


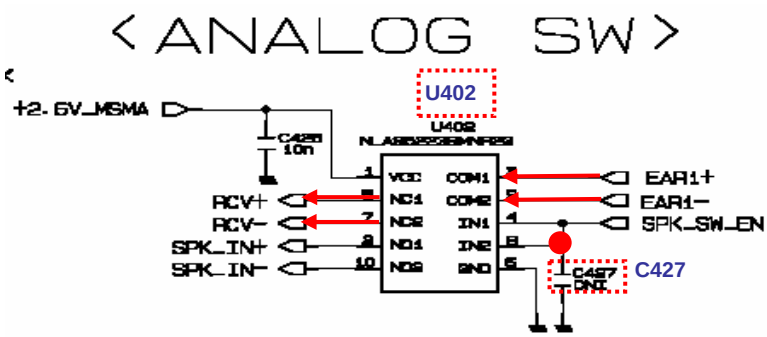
Checking Flow



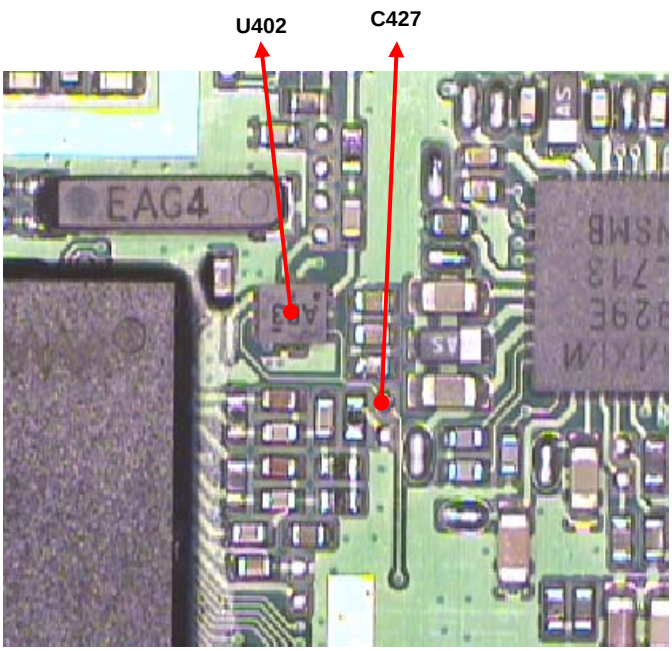
4.3.3 AUDIO - Receiver Trouble

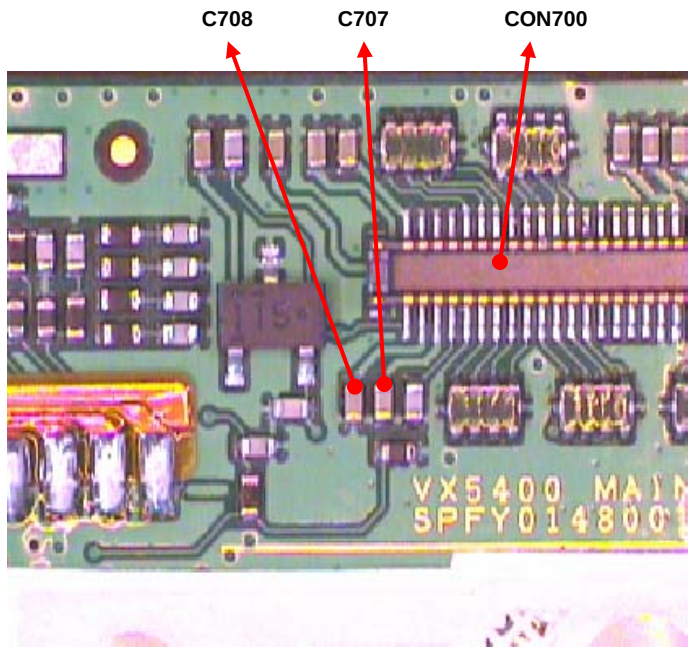
Circuit Diagram



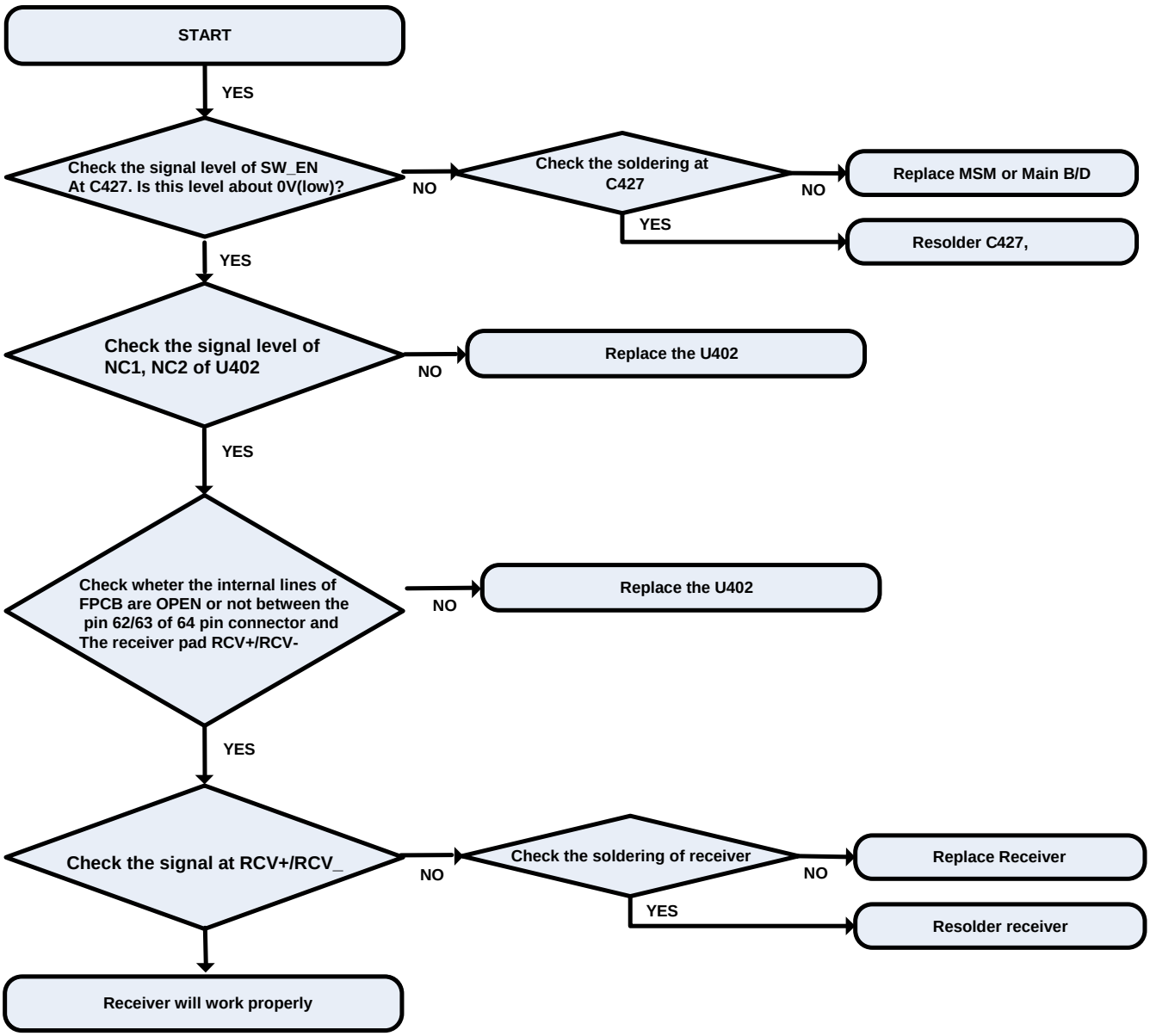


Test point

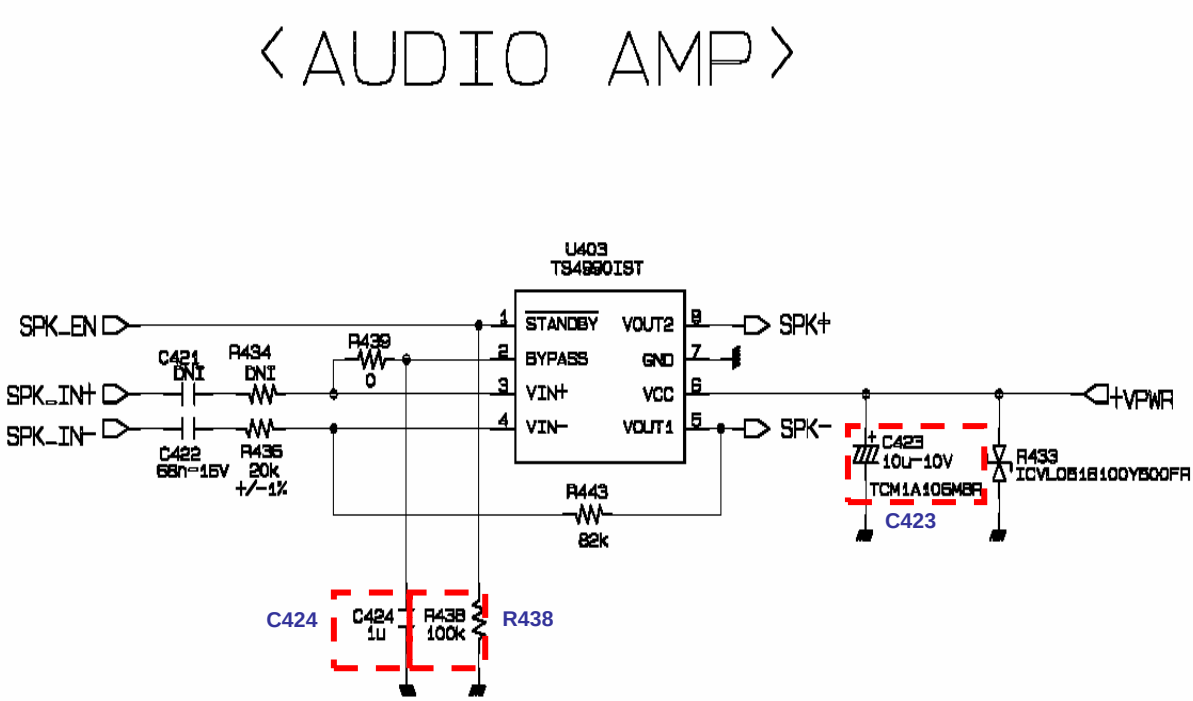




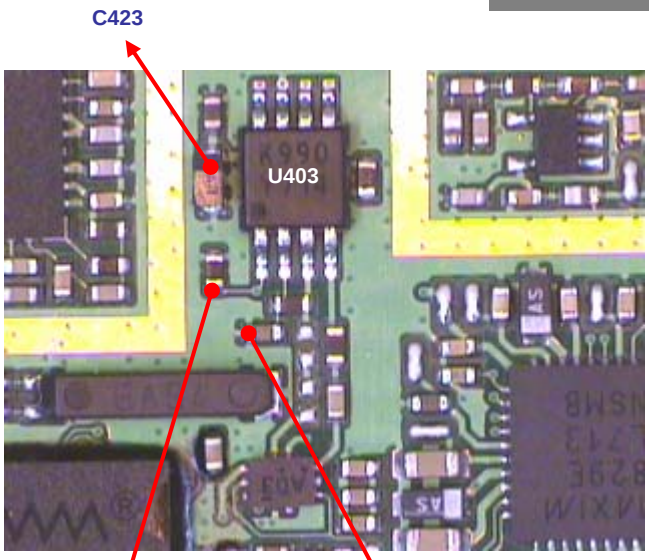
Checking Flow

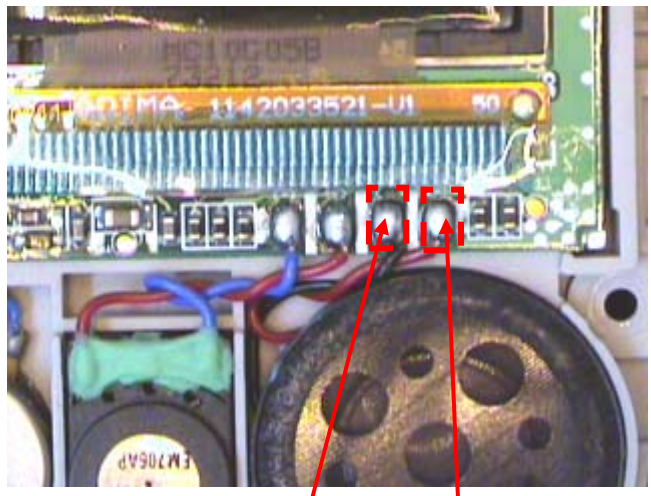


Circuit Diagram



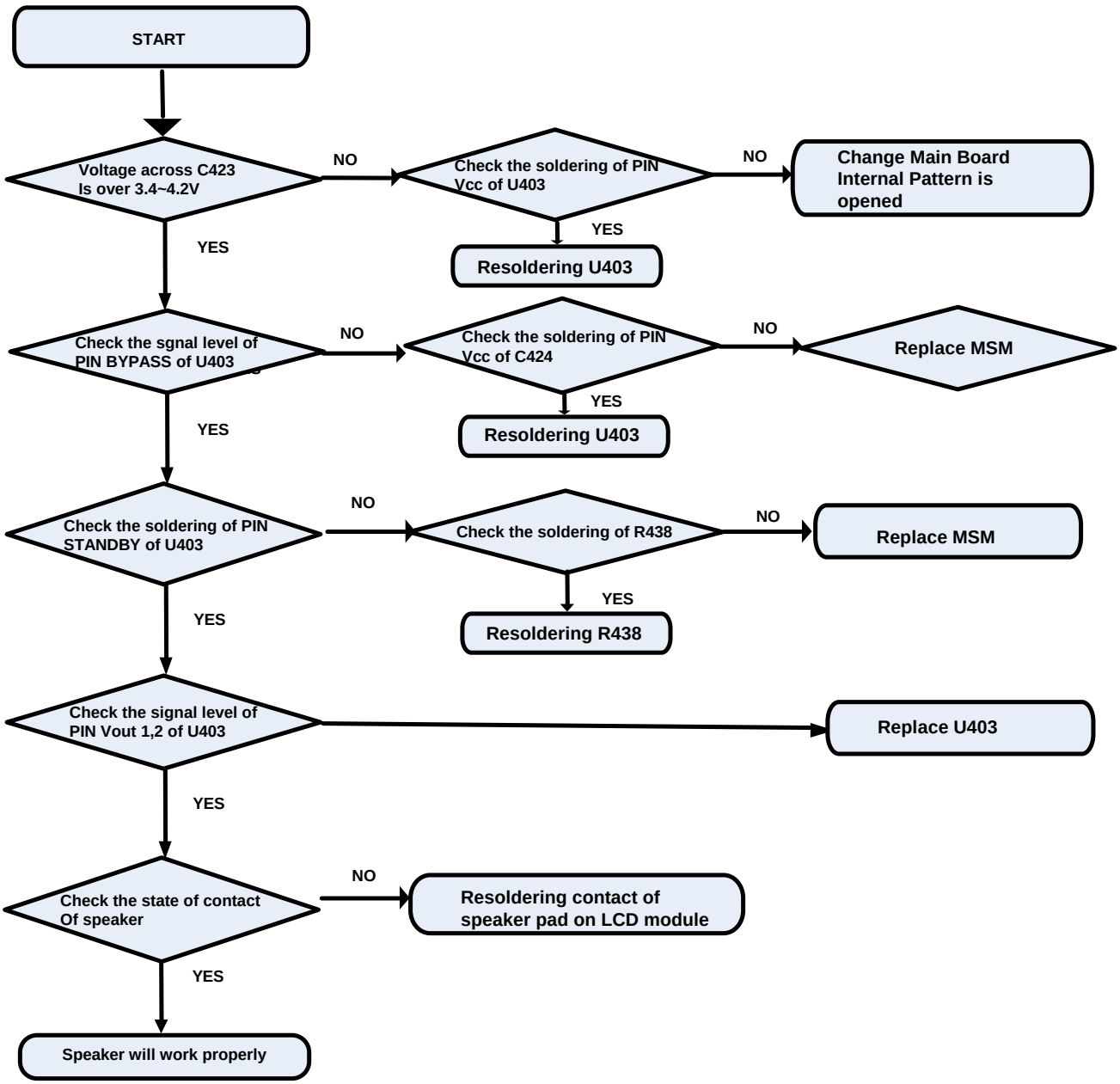
Test point





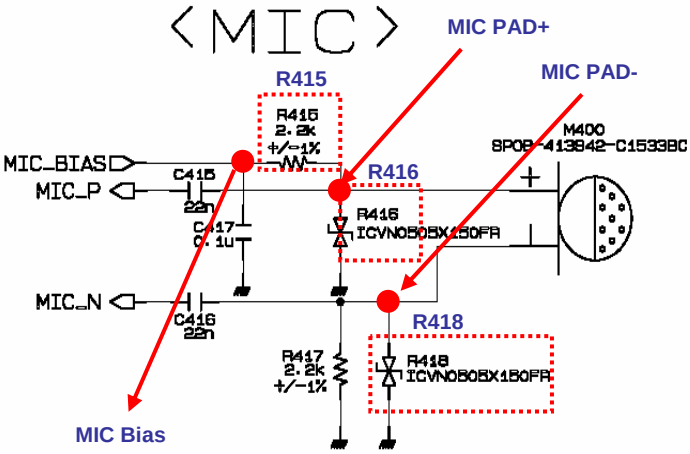
Checking Flow

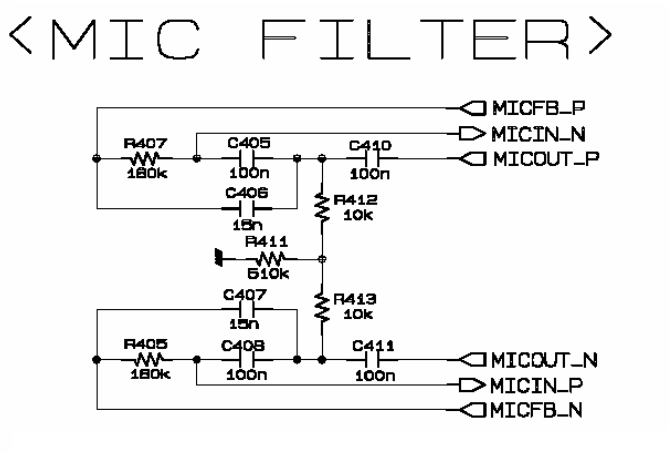
SETTING : “Melody on” at sounds of test menu.



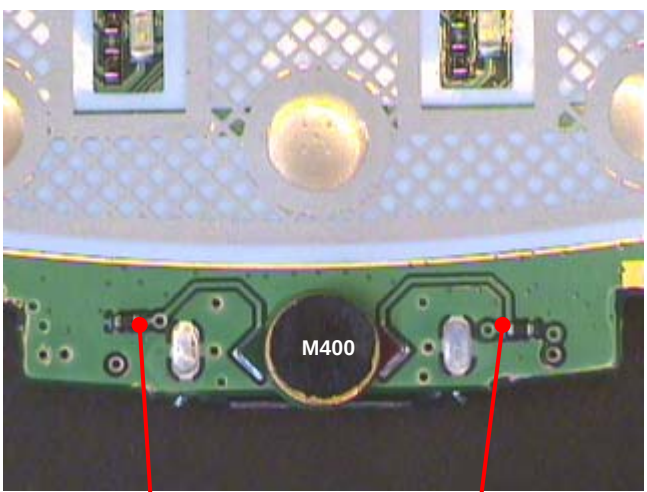
4.3.5 AUDIO - MIC Trouble

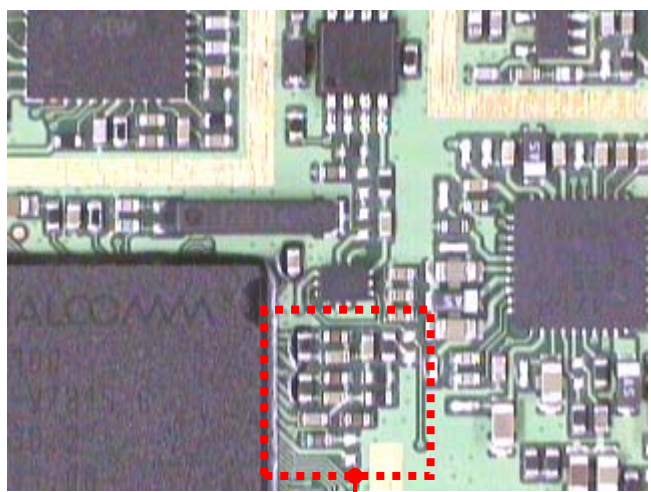
Circuit Diagram





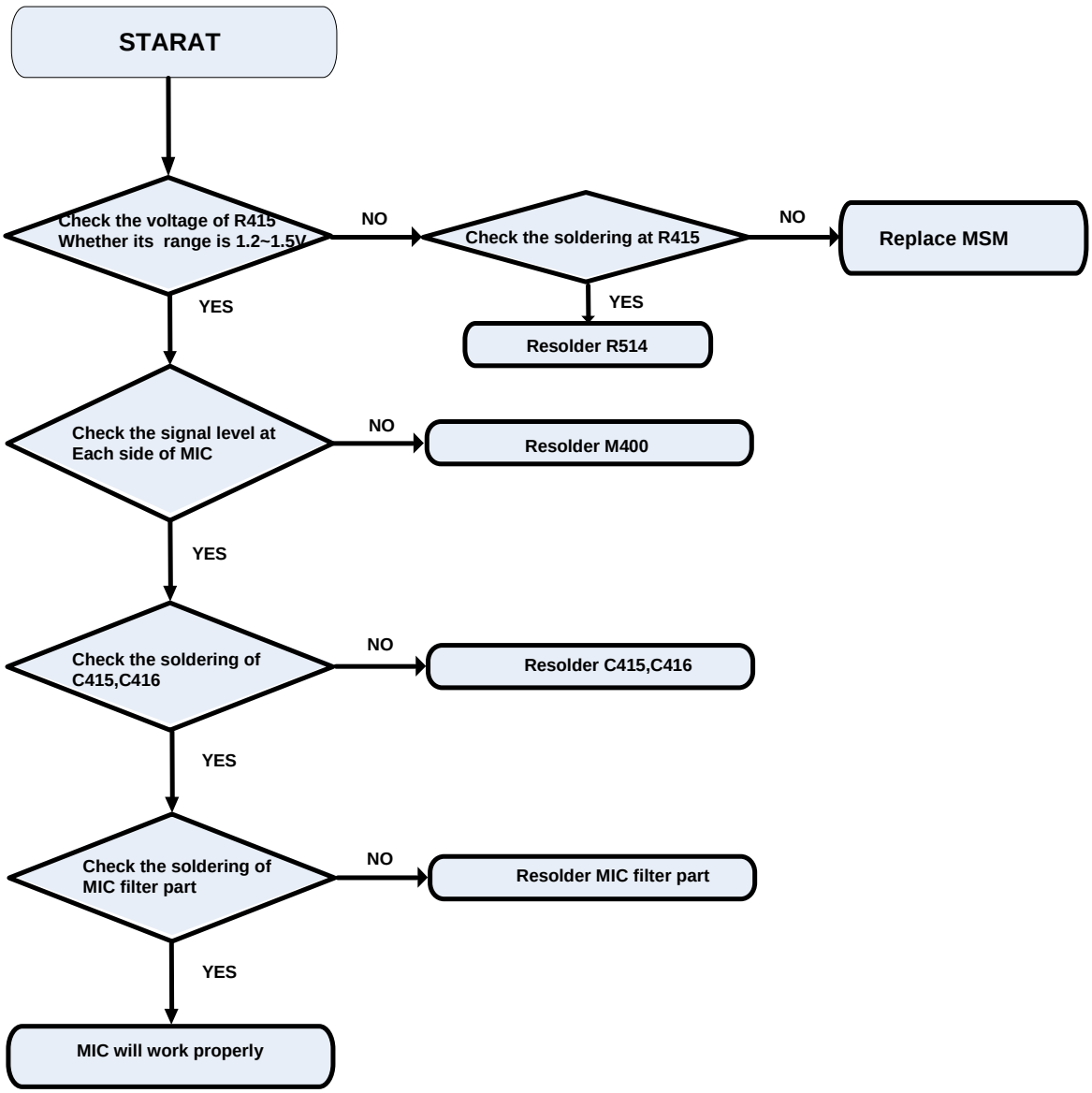
Test point





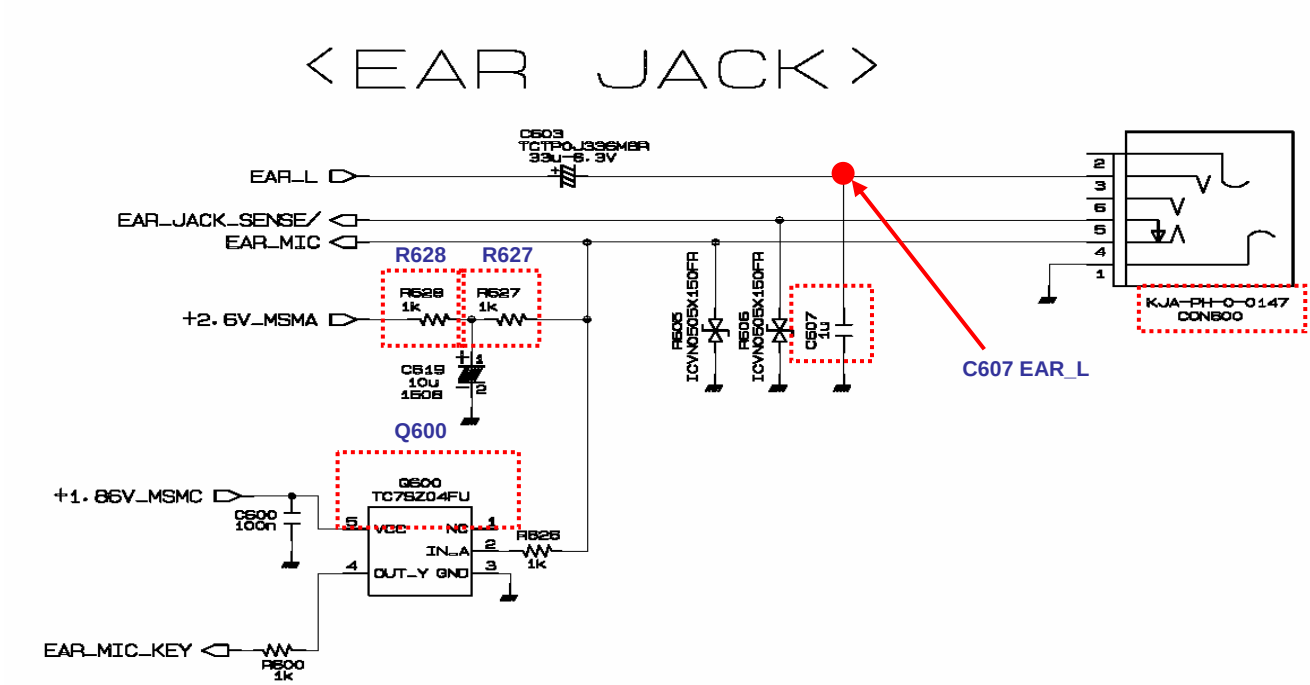
Checking Flow

SETTING : After initialize 5515C, Test Cellular or US PCS

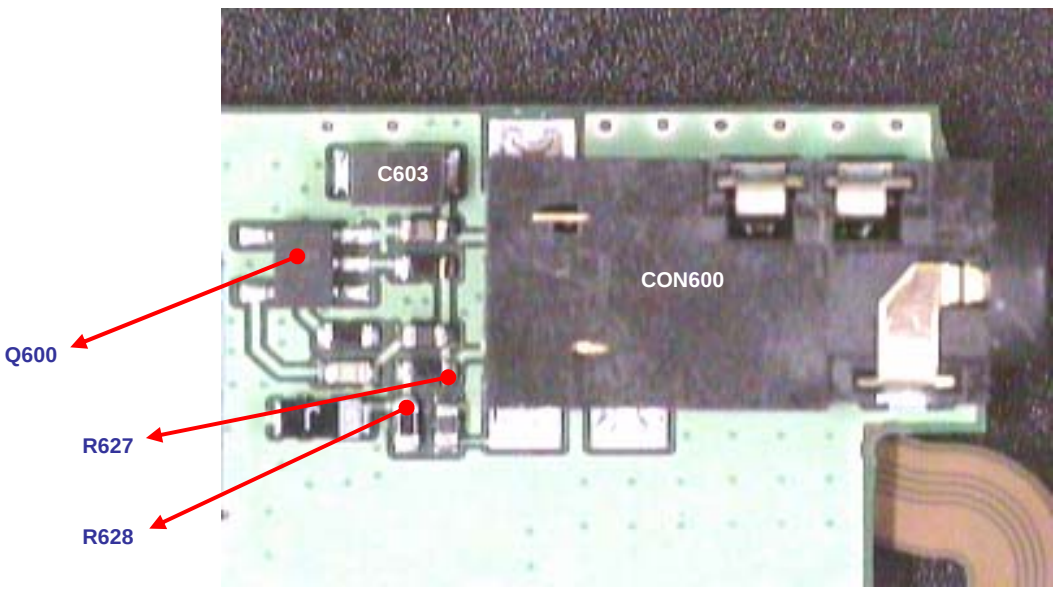


4.3.6 AUDIO - Earphone Trouble

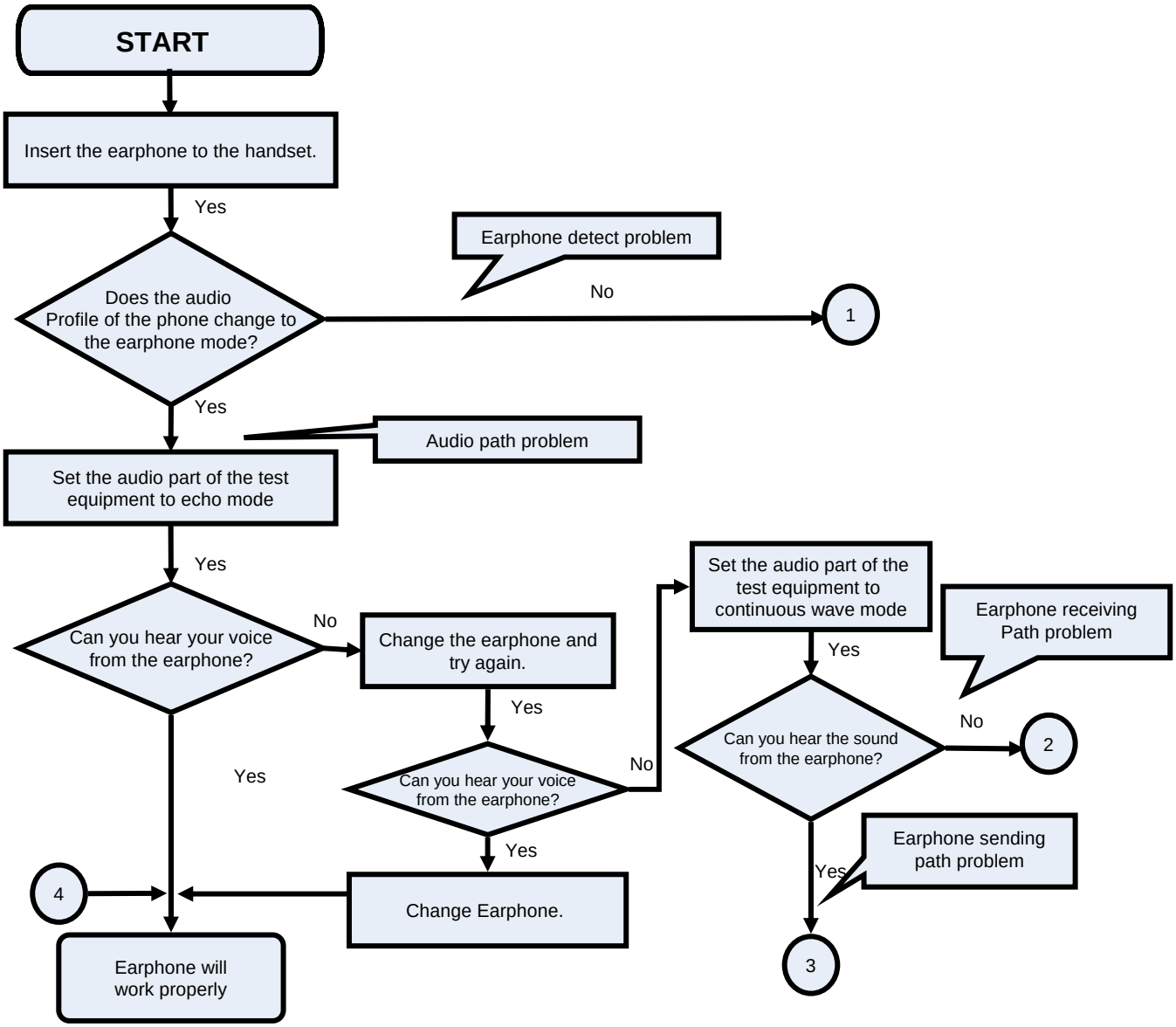
Circuit Diagram



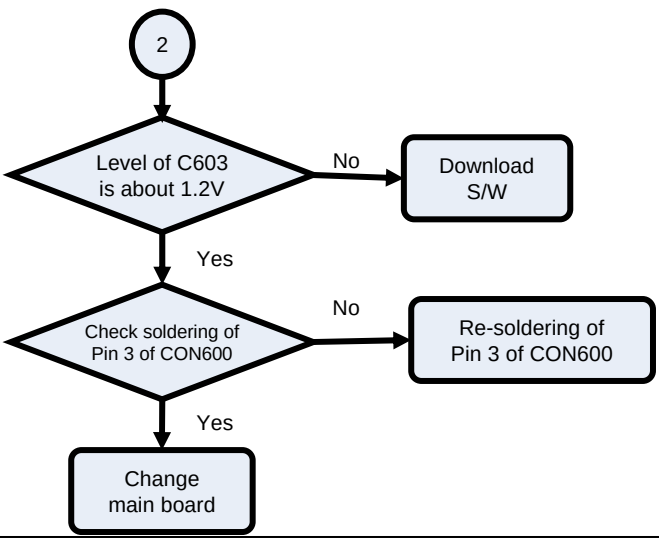
Test point



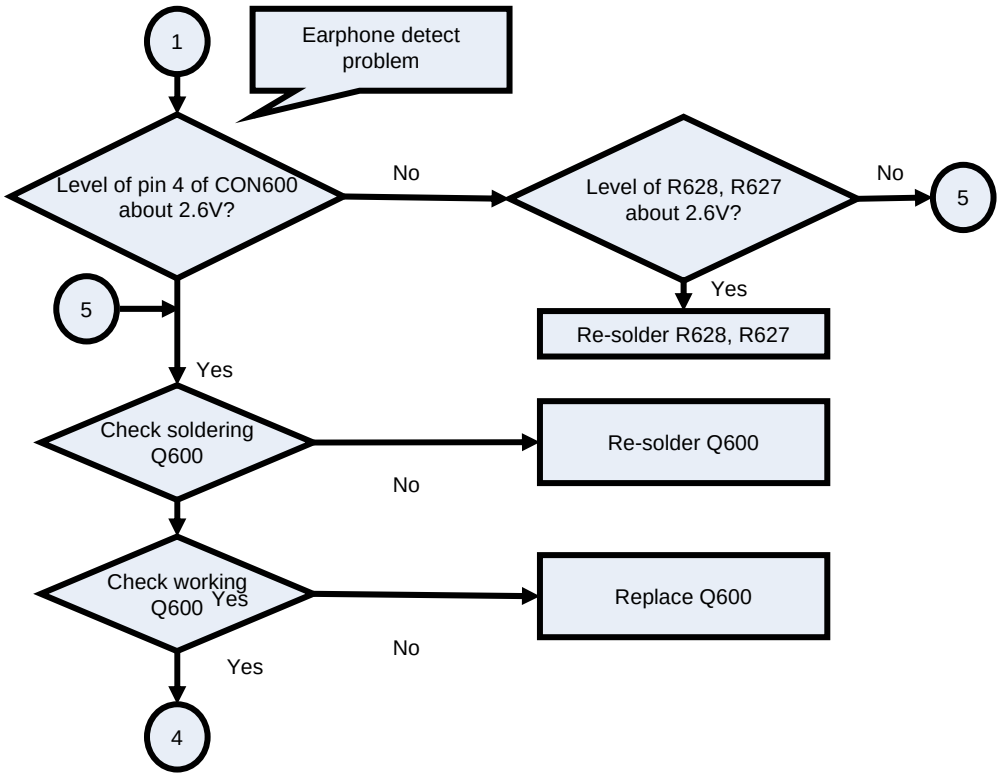
Checking Flow



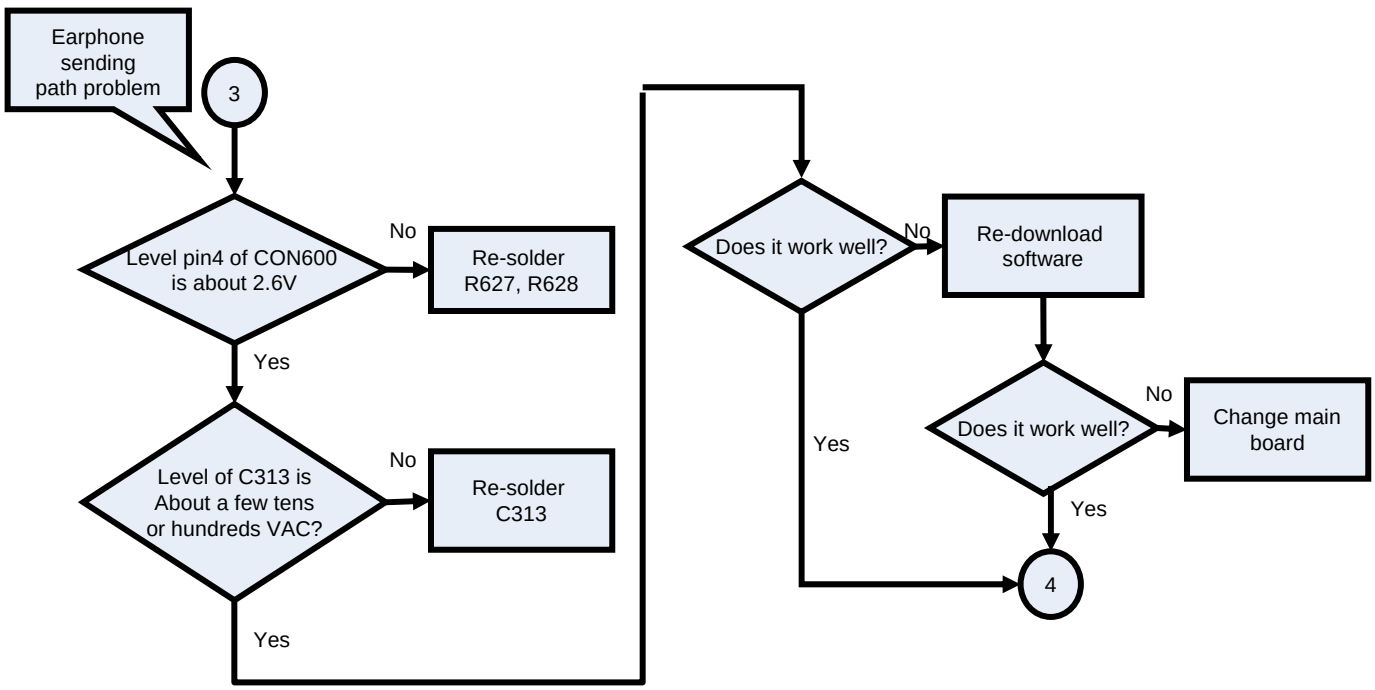
Earphone receiving path problem



Earphone detect problem



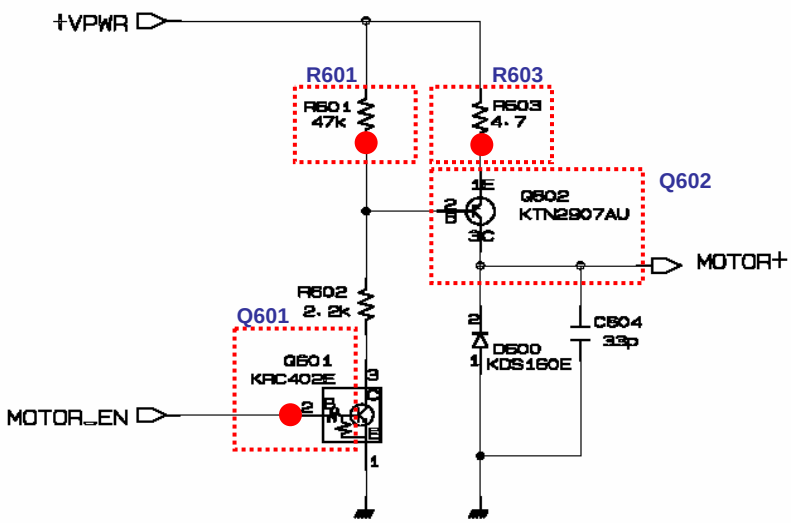
Earphone sending path problem



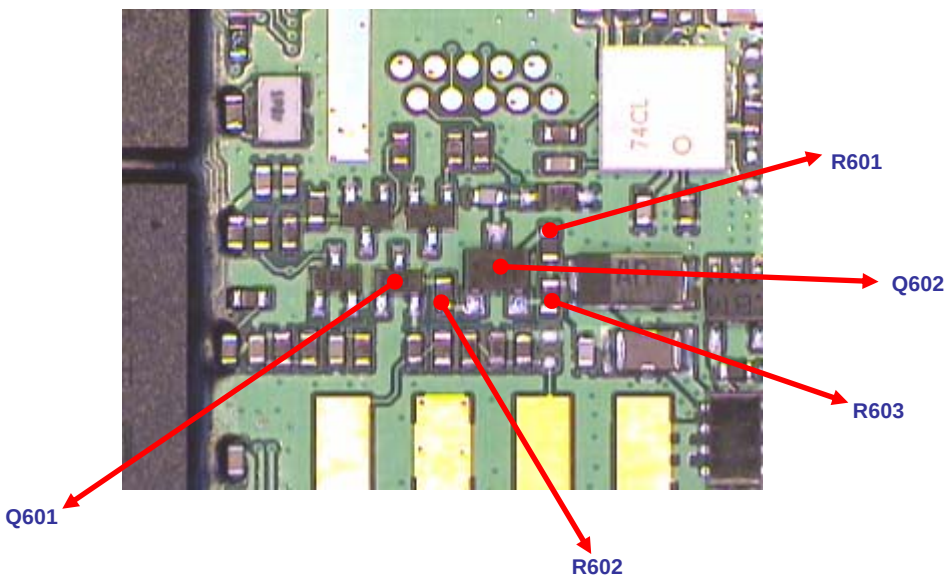
4.3.7 VIBRATOR TROUBLE

Circuit Diagram

< VIBRATOR >

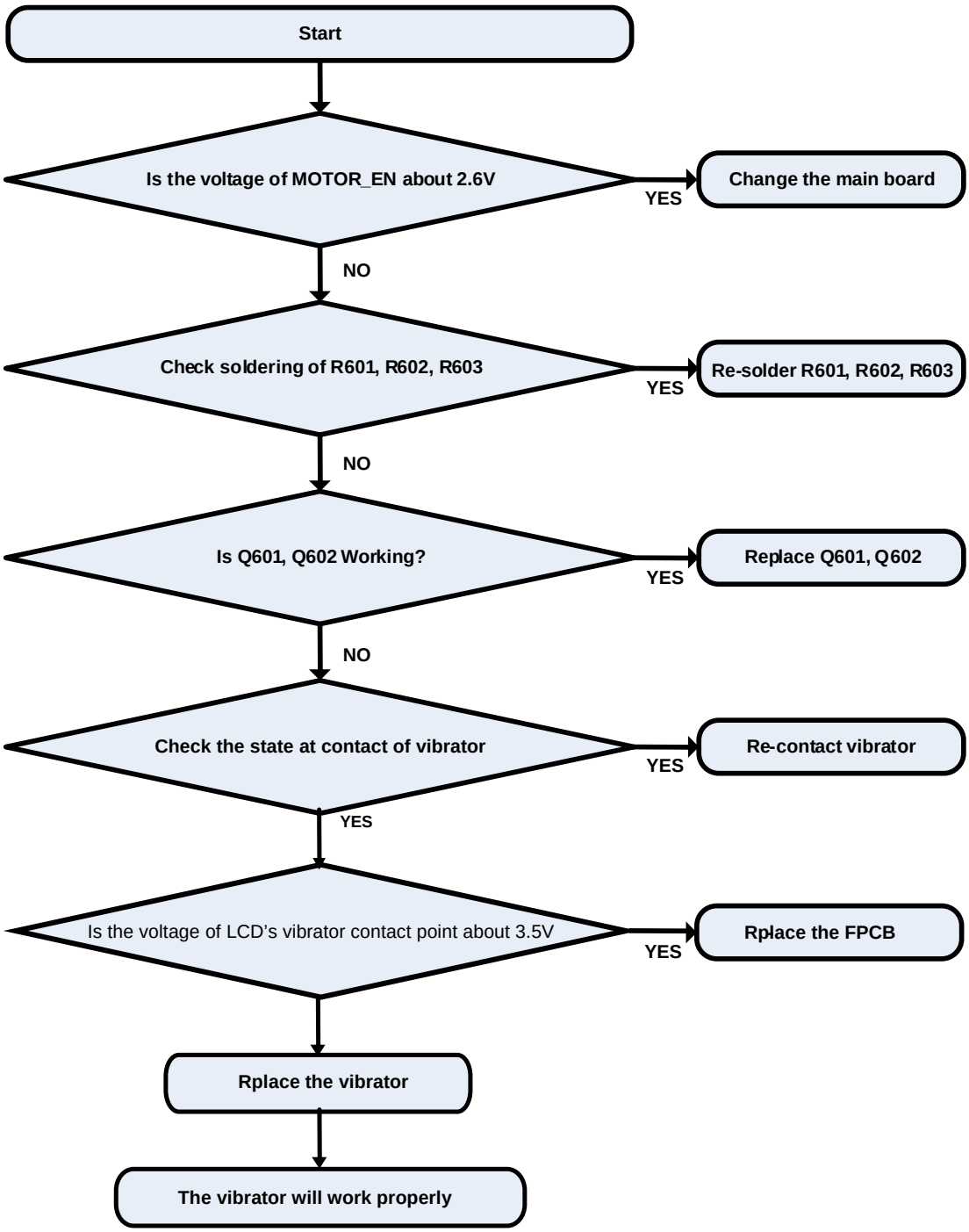


Test point



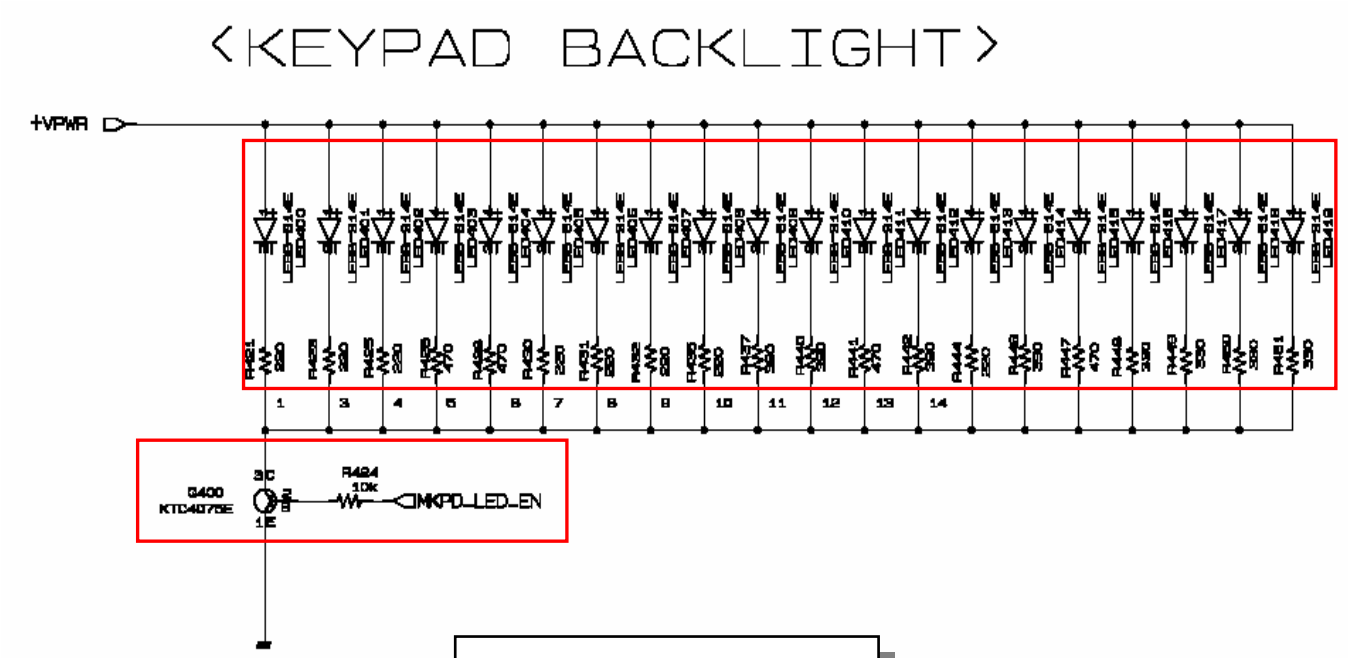
Checking Flow

➢ Setting: “ON” at the motor test of “test mode”

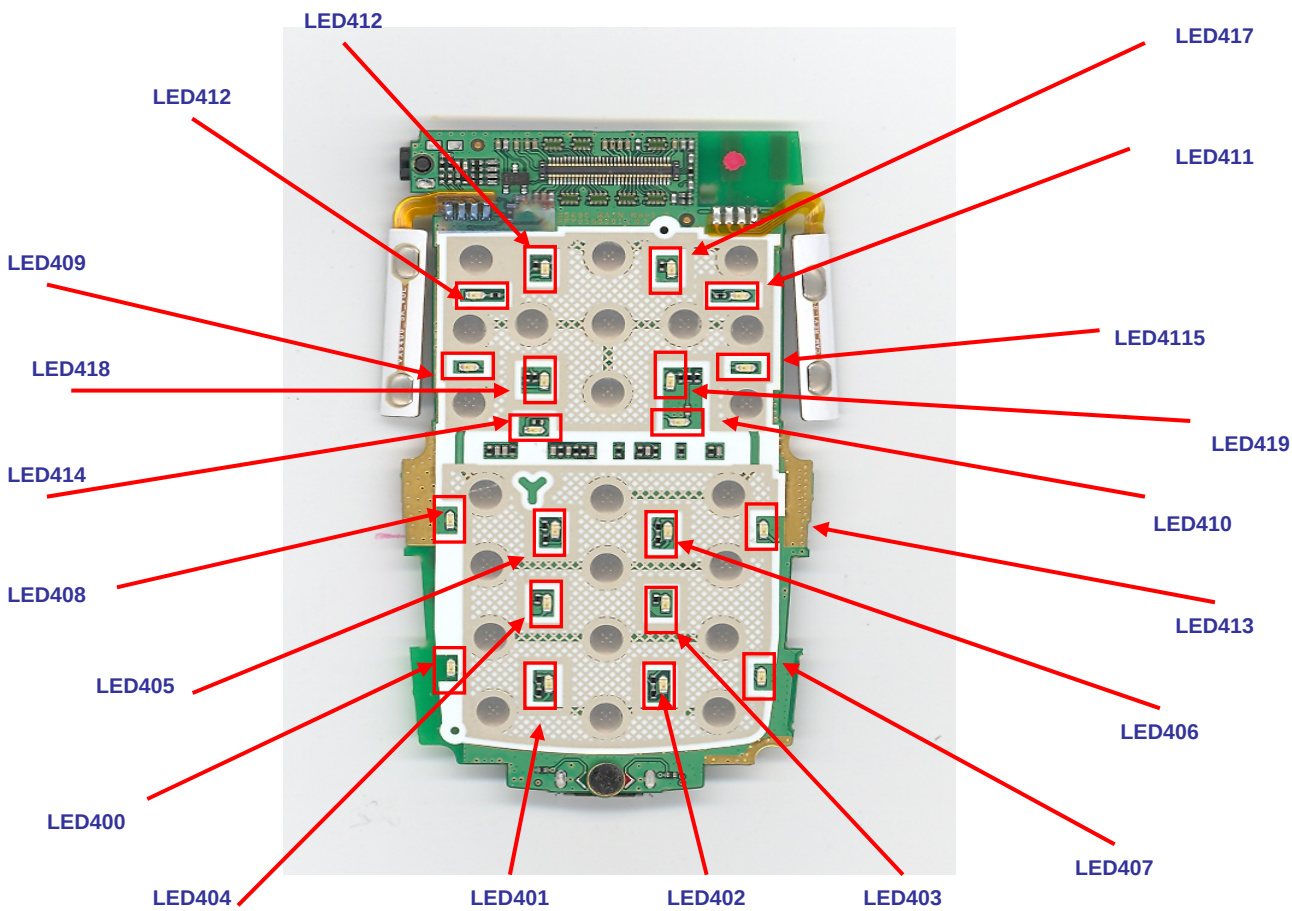


4.3.8 KEY BACKLIGHT LED TROUBLE

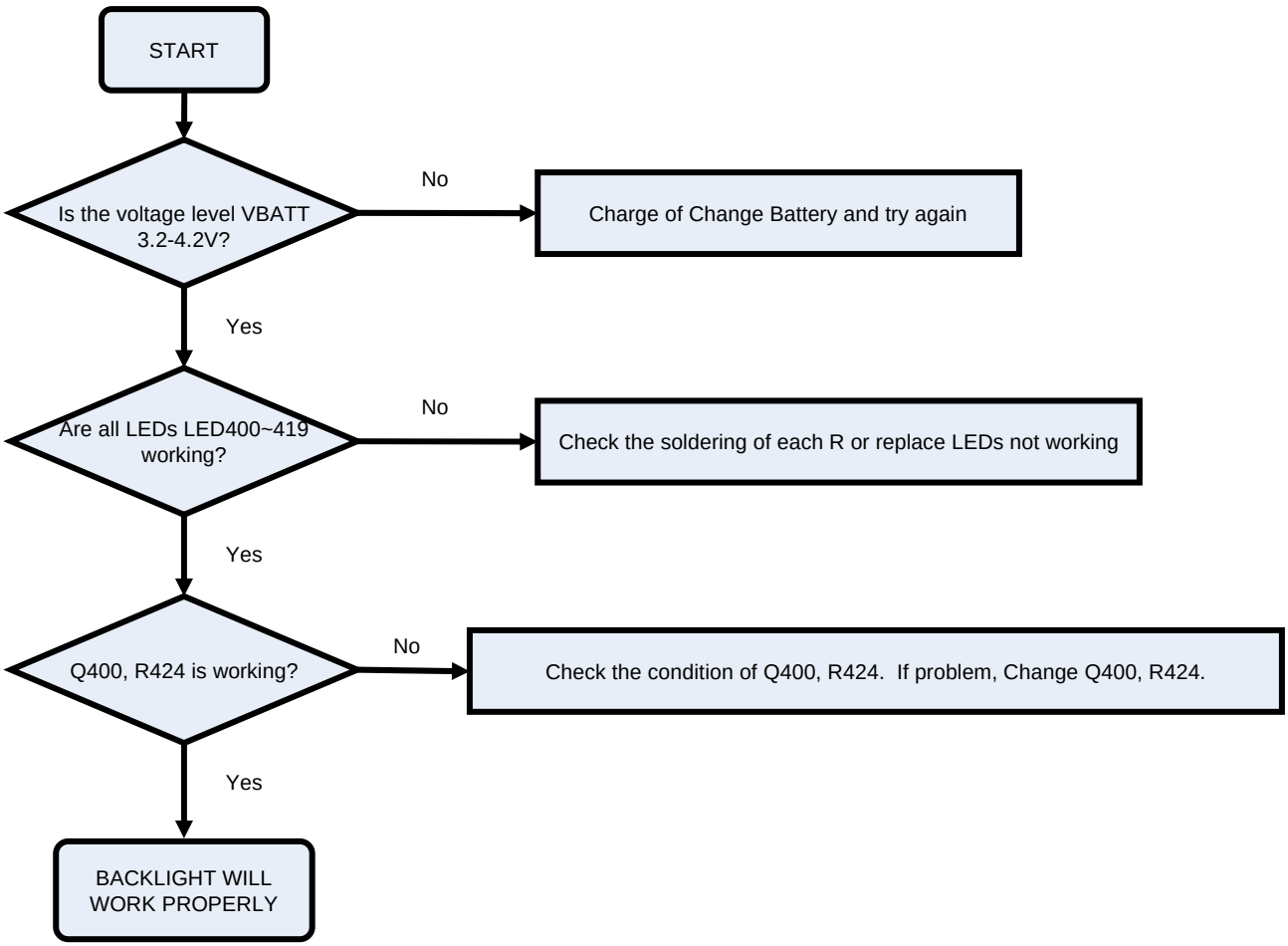
Circuit Diagram



Test point

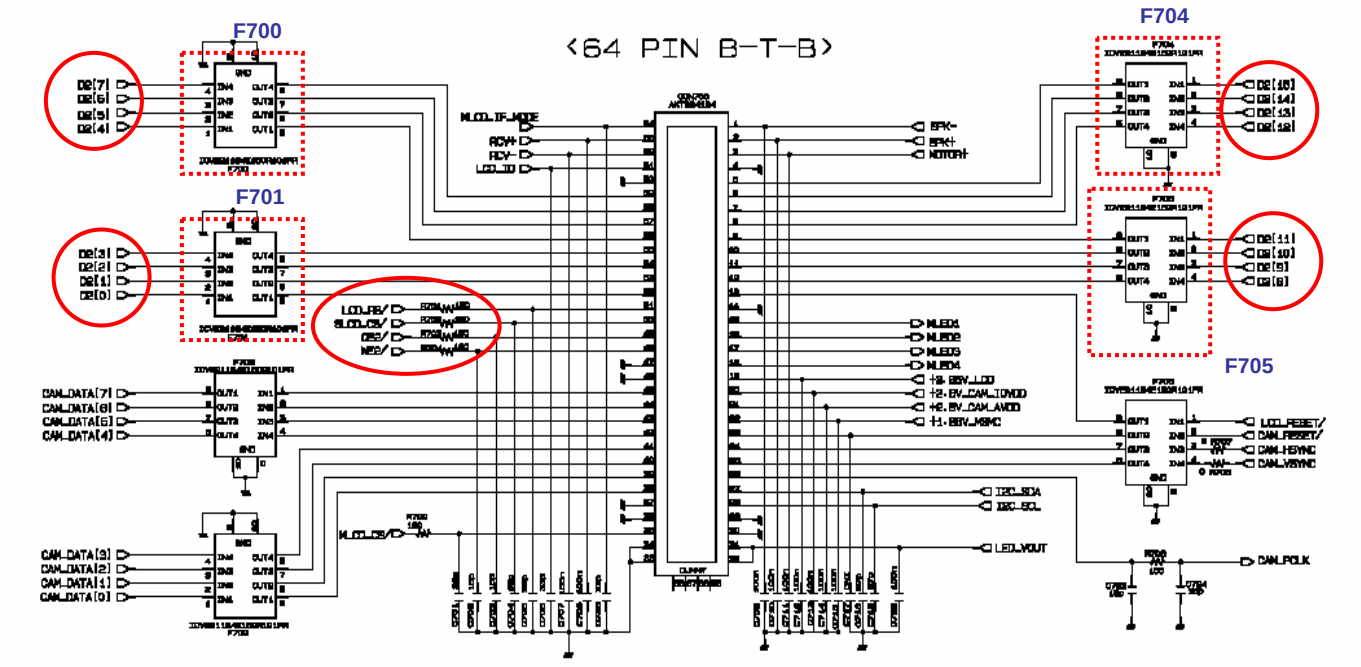


Checking Flow



4.3.9 LCD TROUBLE

Circuit Diagram



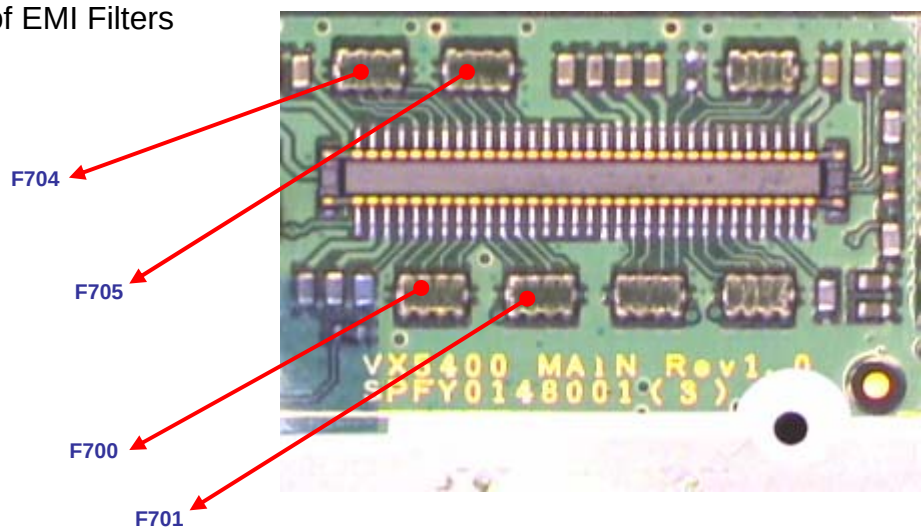
Test point

- **LCD Control signals**

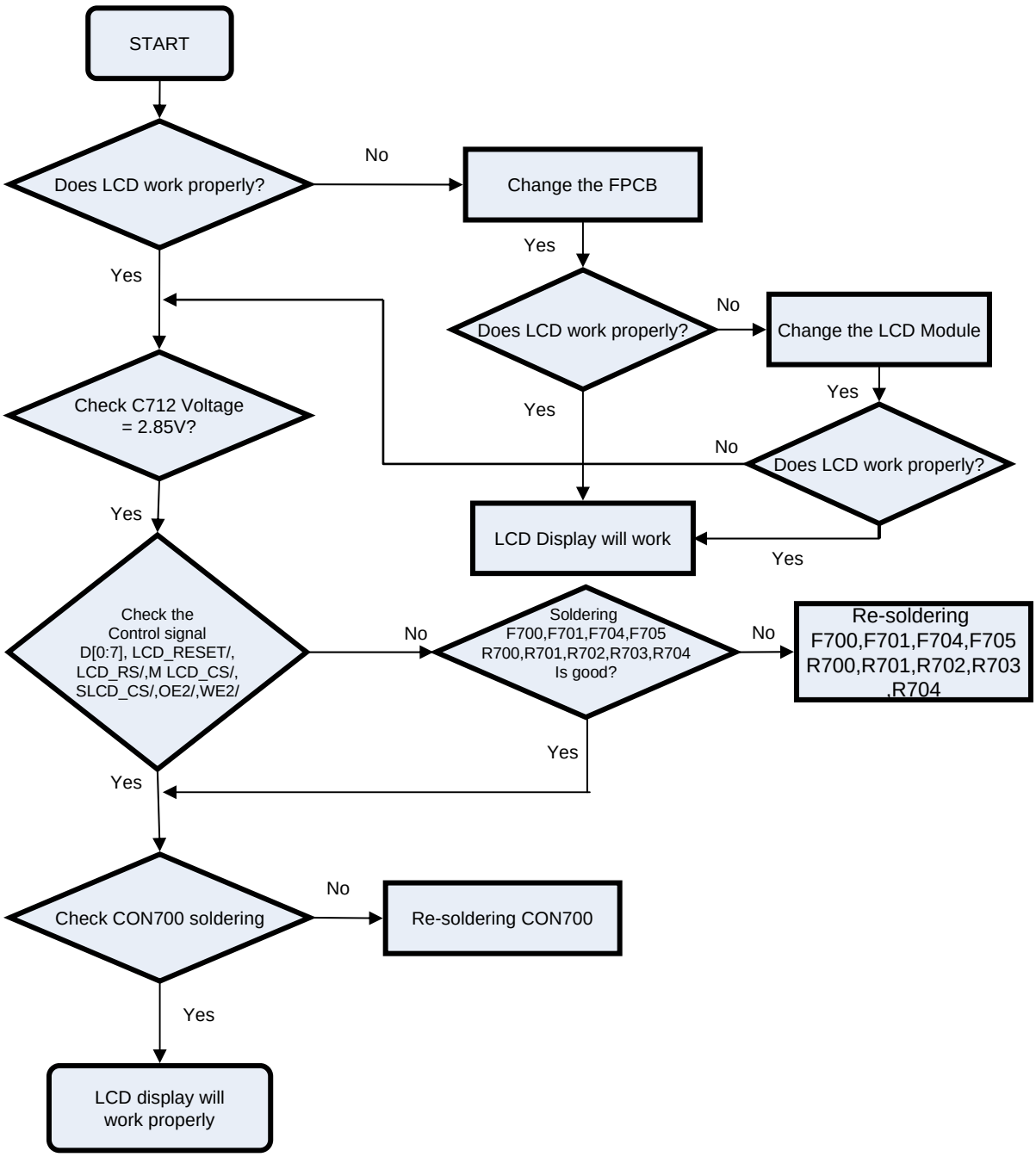
  From MSM : D(0:15), LCD_RESET1/, MLCD_CS/, WE2/,OE2/,SLCD_CS/

- **Check point**

  - The assembly status of the LCD Module
  - The Soldering of connector
  - The Soldering of EMI Filters
  - FPCB

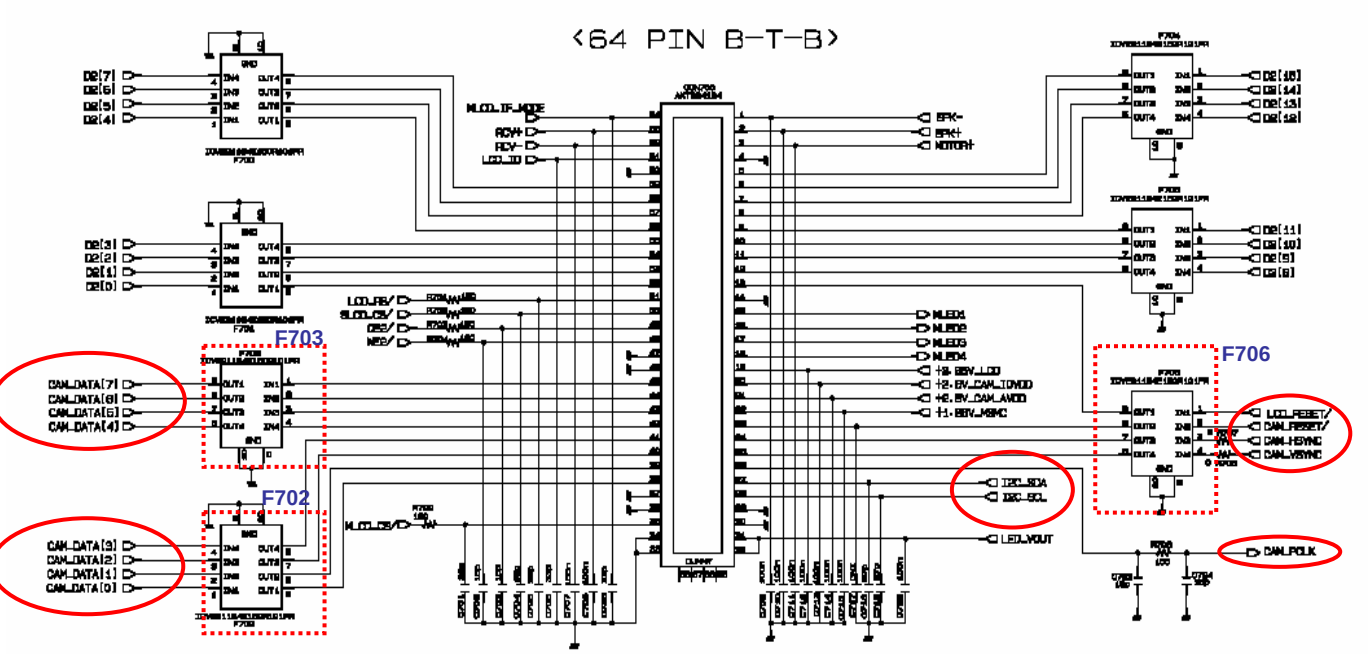


Checking Flow

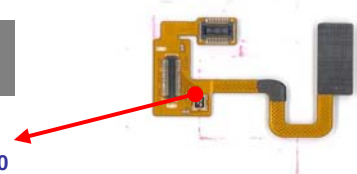


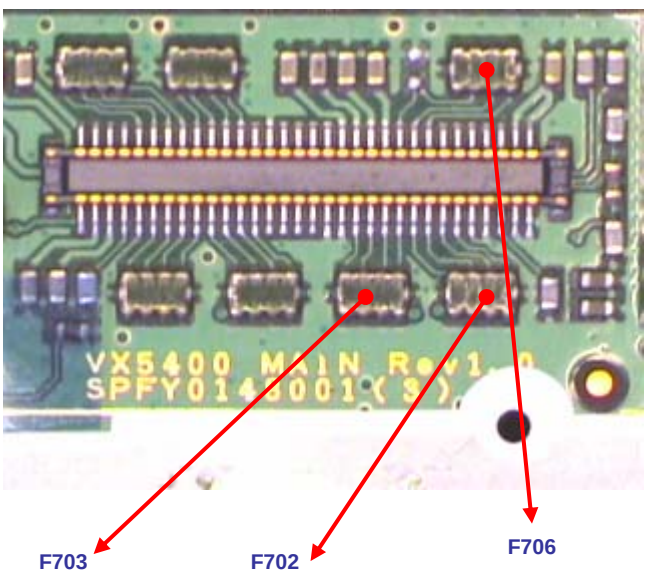
4.3.10 CAMEARA TROUBLE

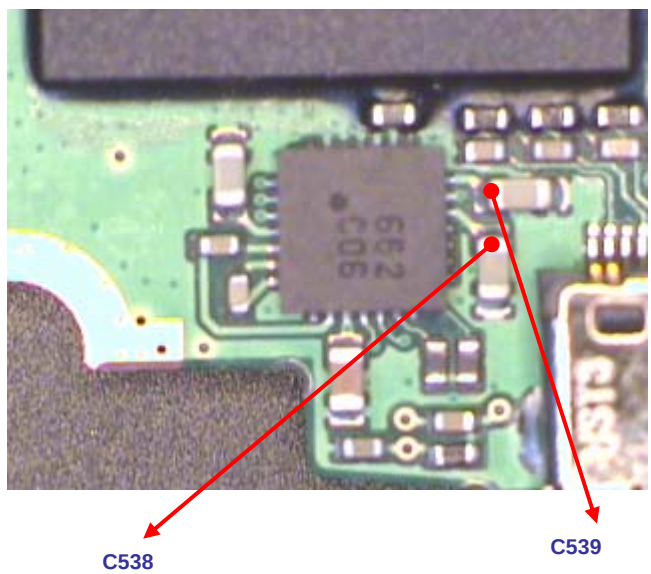
Circuit Diagram



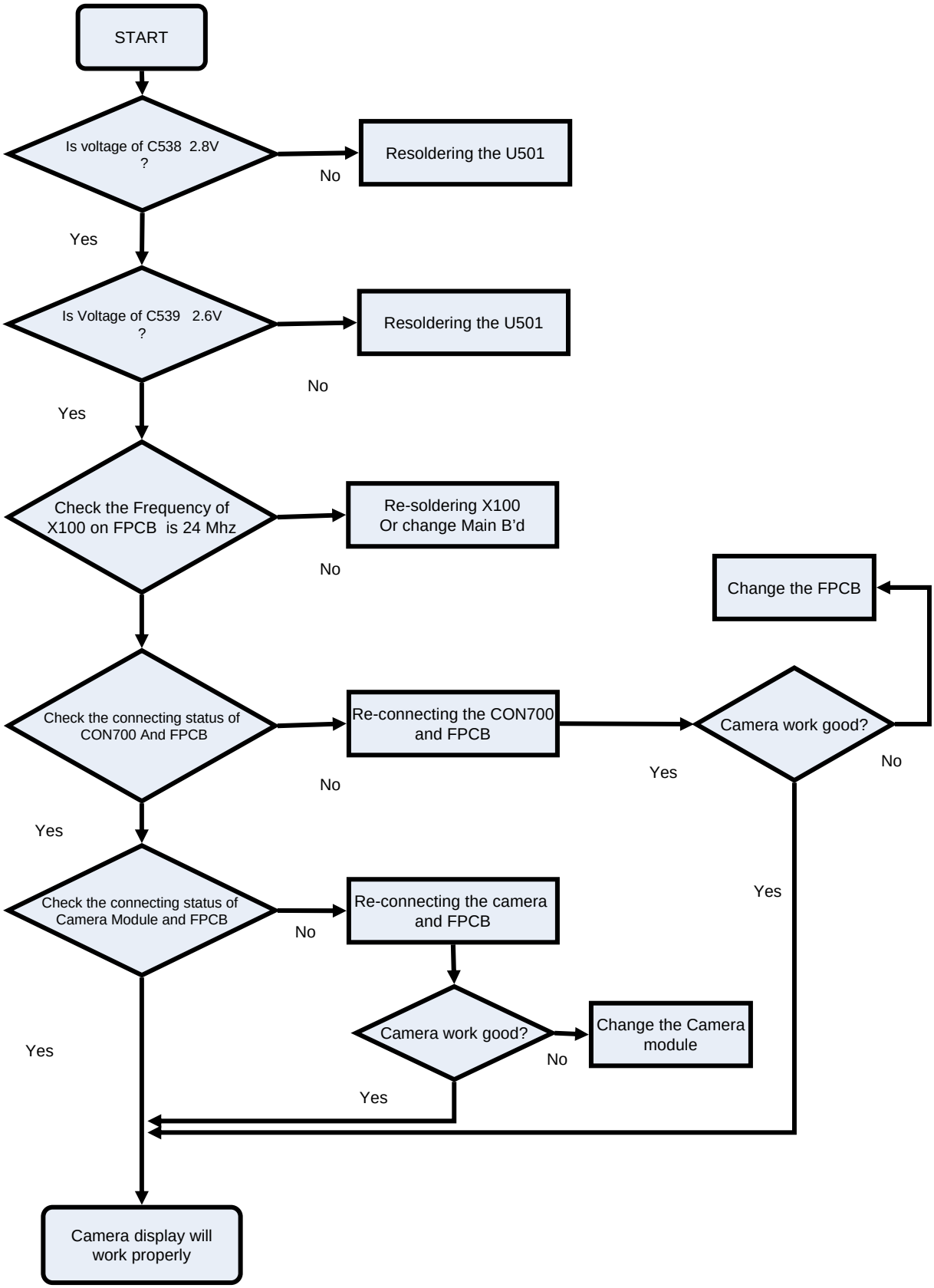
Test point





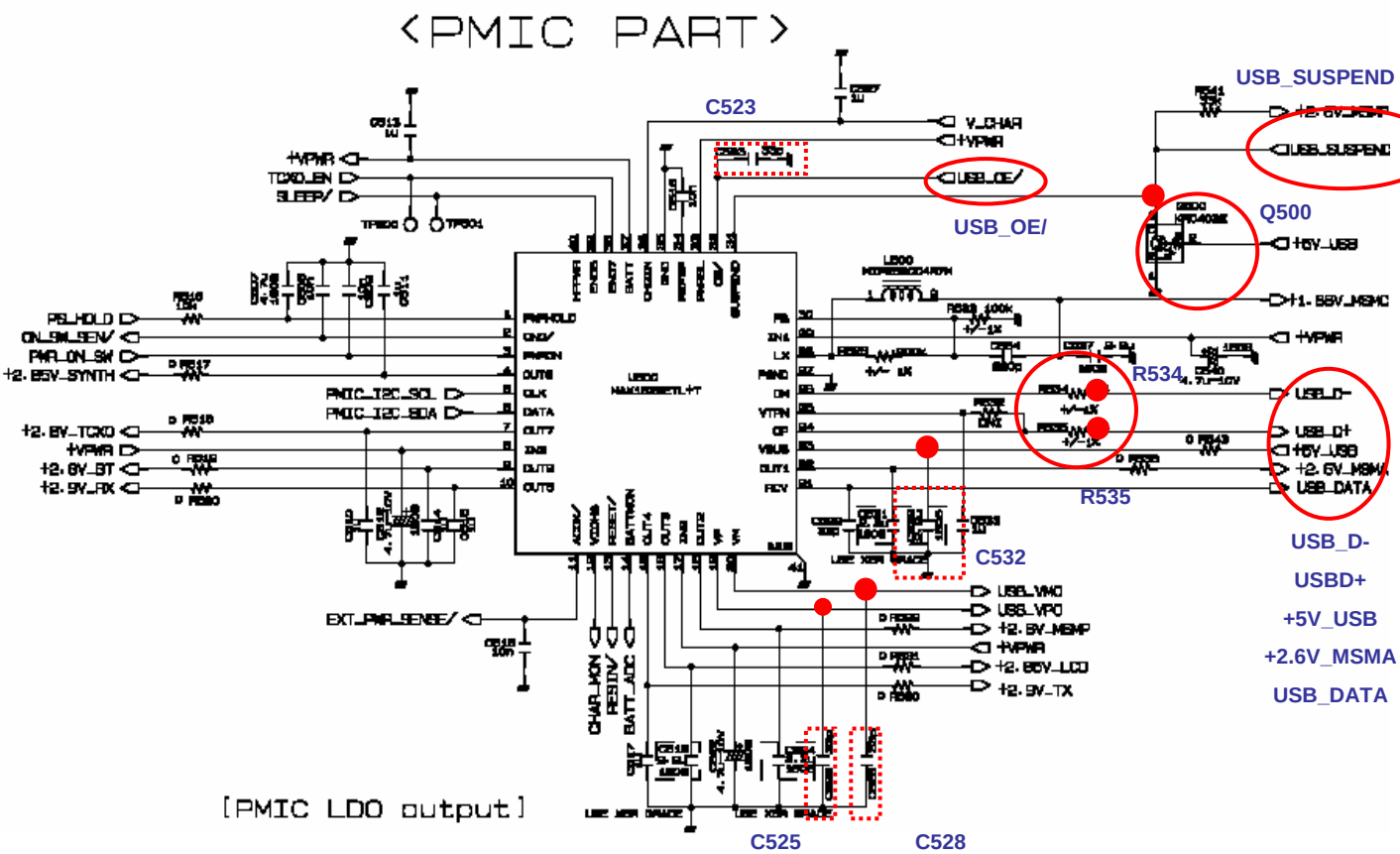


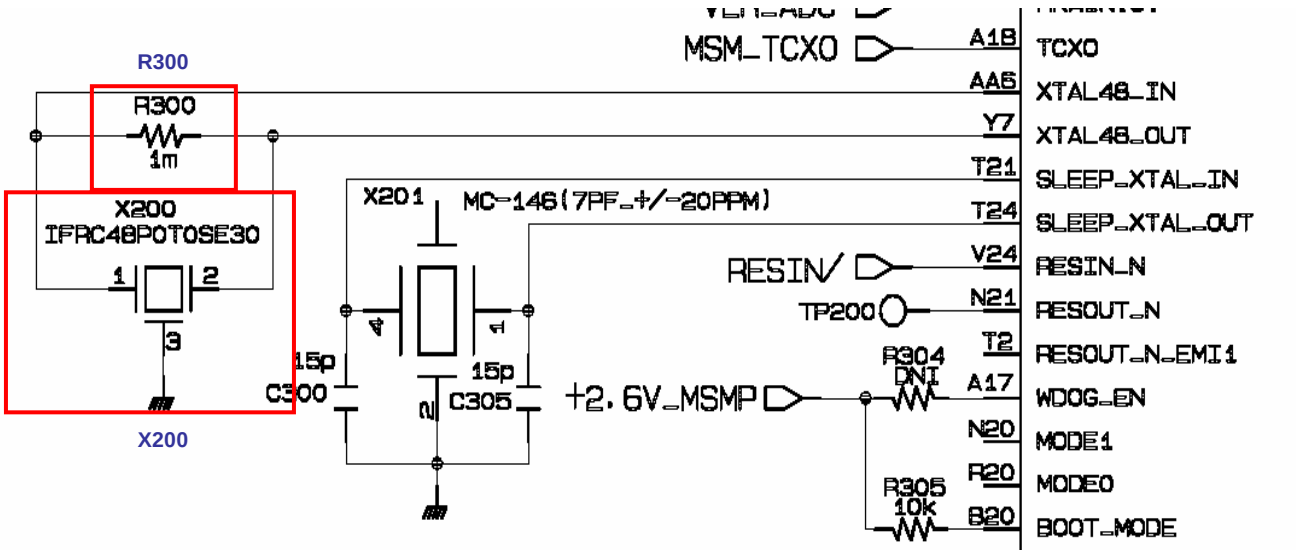
Checking Flow



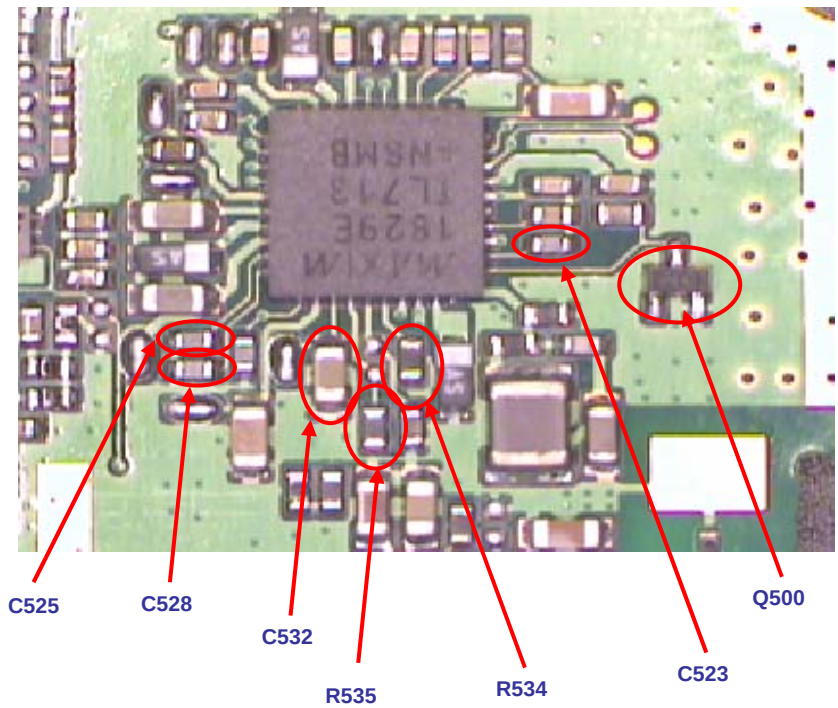
4.3.11 USB TROUBLE

Circuit Diagram

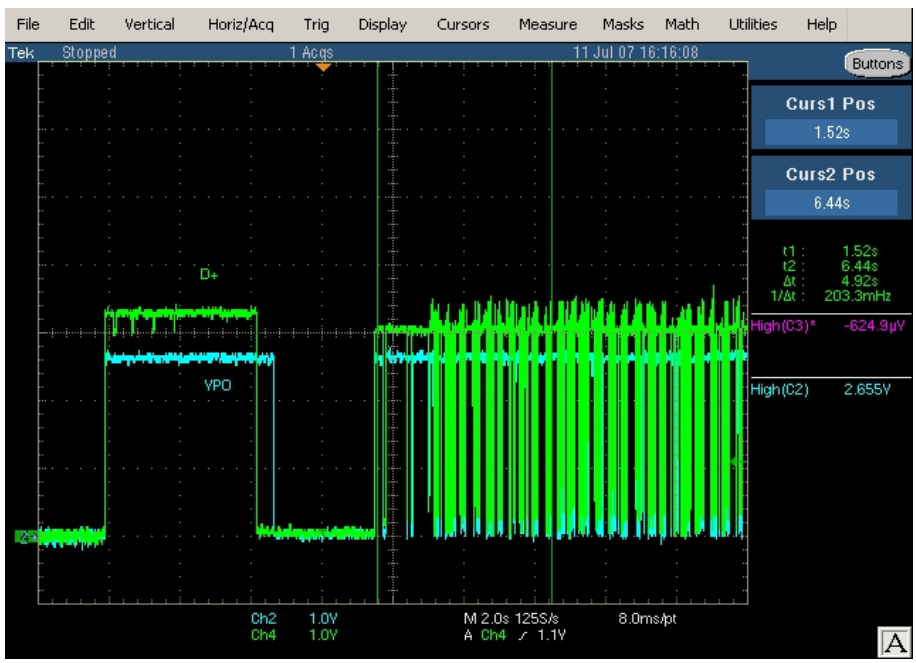




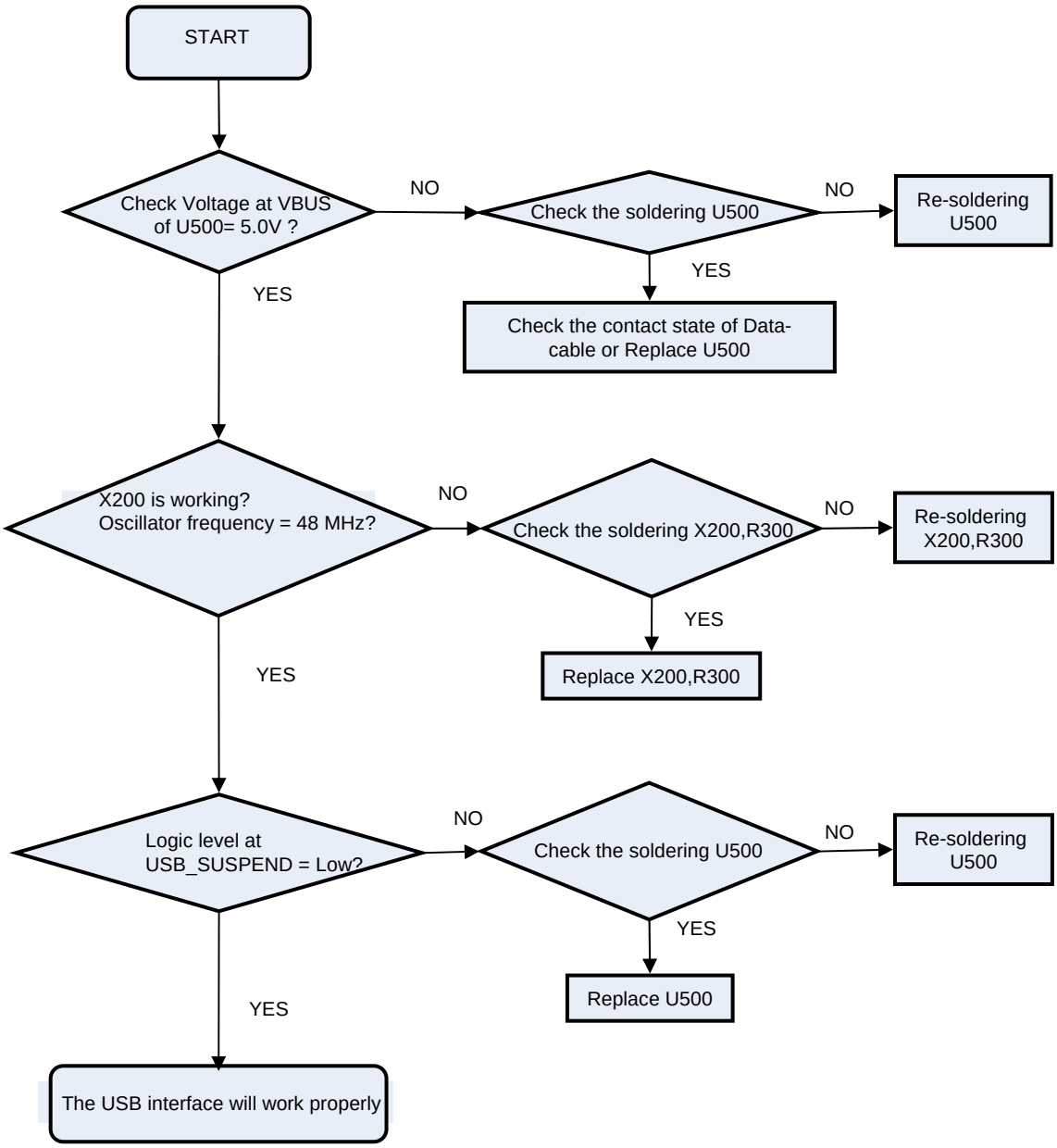
Test point



USB wave form



Checking Flow



CHAPTER 5. Safety

▣ IMPORTANT

Read This Information Before Using Your Hand-Held Portable Cellular Telephone

First introduction in 1984, the hand-held portable Cellular telephone is one of the most exciting and innovative electronic products ever developed.

With it you can stay in contact with your office, your home, emergency service, and others. For the safe and efficient operation of your phone, observe these guidelines.

Your Cellular phone is a radio transmitter and receiver. When it is ON, it receives and also sends out radio frequency (RF) energy. The phone operates in the frequency range of 824 MHz to 894 MHz and employs commonly used frequency modulation (FM) techniques. When you use your phone, the Cellular system handling your calls controls the power level at which your phone transmits. The power level can range from 0.006 of a watt to .6 of a watt.

▣ Exposure to Radio Frequency Energy

In 1991 the Institute of Electrical and Electronics Engineers (IEEE), and in 1992 the American National Standards Institute (ANSI) updates the 1982 ANSI Standard for safety levels with respect to human exposure to RF energy. Over 120 scientists, engineers, and physicians from universities, government health agencies, and industry, after reviewing the available boy of research, developed this updated Standard. In March, 1993, the US Federal Communications Commission (FCC) proposed the adoption of this updated Standard.

The design of your phone complies with this updated Standard. Of course, if you want to limit RF exposure even further than the updated ANSI Standard, you may choose to control the duration of your calls and operation your phone in the most power efficient manner.

▣ Efficient Phone Operation

For your phone to operate at the lowest power level, consistent with satisfactory call quality, please observe the following guidelines:

If your phone has an extendable antenna, extend it fully. Some models allow you to place a call with the antenna retracted. However, your phone operates more efficiently with the antenna fully extended.

Hold the phone as you would any other telephone. While speaking directly into the mouthpiece, position the antenna up and over your shoulder.

Do not hold the antenna when the phone is “IN USE”. Holding the antenna affects call quality and may cause the phone to operated at a higher power level than needed.

▣ Antenna Care and Replacement

Do not use the phone with a damaged antenna. If a damaged antenna comes into contact with skin, a minor bum may result. Replace a damaged antenna immediately. Consult your manual to see if you may change your antenna yourself. If so, use only a manufacture approves antenna. Otherwise, take your phone to a qualifies service center for repair.

Use only the supplied or approved antenna. Non-approved antennas, modifications, or attachments, could impair call quality, damage the phone, and violate FCC regulations.

▣ Driving

Check the laws and regulations on the use of Cellular telephones in the areas where you drive. Always obey them.
Also, when using your phone while driving, please:
Give full attention to the driving. Use hands-free operation, if available, and pull off the road and park before making or answering a call if driving conditions require.

▣ Electronic Devices

Most modem electronic equipment is shielded from RF energy. However, RF energy from Cellular telephones may affect inadequately shielded electronic equipment.
RF energy may effect improperly installed or inadequately shielded electronic operating and entertainment system in motor vehicles. Check with the manufacturer or its representative to determine if these systems are adequately shielded from external RF energy. You should check with the manufacturer of any equipment that has been added to your vehicle.
Consult the manufacturer of any personal medical devices (such as pacemakers, hearing aids, etc.) to determine if they are adequately shielded from external RF energy.
Turn your phone OFF in health care facilities. When any regulations posted in the areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

▣ Aircraft

Turn your phone OFF before boarding any aircraft.
Use it on the ground only with crew permission. Do not use it in the air.
To prevent possible interference with aircraft systems, US Federal Aviation Administration (FAA) regulations require you to have permission from a crew member to use your phone while the plane is on the ground. Using your phone while the plane is in the air.

▣ Children

Do not allow children to play with your phone. It is not a toy. Children could hurt themselves or others (by poking themselves or others in the eye with the antenna, for example). Children also could damage the phone, or make calls that increase your telephone bills.

▣ Blasting Areas

To avoid interfering with blasting operations, turn you unit OFF when in a “blasting area” or in areas posted “Turn off two-way radio”. Construction crews often use remote control RF devices to set off explosives.

▣ Potentially Explosive Atmospheres

Turn your phone OFF when in any area with a potentially explosive atmosphere. It is rare, but your phone or accessories could generate sparks. Sparks in such area could cause an explosion or fire resulting in bodily injury or even death.
Areas with a potentially explosive atmosphere are often, but not always, clearly marked. They include fueling areas such as gas station; below deck on boats; fuel or chemical transfer or storage facilities; areas where the air contains chemical or particles, such as grain, dust, or metal powders; and any other area where you would normally be advised to turn off your vehicle engine.

Do not transport or store flammable gas, liquid, or explosives in the compartment of your vehicle which contains your phone or accessories.

Vehicles using liquefied petroleum gas (such as propane or butane) must compl7y with the National Fire Protection Standard (NFPA-58). For a copy of this standard, contact the National Fire Protection Association, One Battery march Park, Quincy, MA 02269, Attn: Publication Sales Division.

Rule of Thumb: Using common sense at all times when handling, installing or using the phone. Any questions should be directed to you nearest Service Center or authorized service technician or electrician.

CHAPTER 6. Glossary

General Terms

Abbreviated Alert. An abbreviated alert is used to remind the mobile station user that previously selected alternative routing features are still active.

AC. See Authentication Center.

Access Attempt. A sequence of one or more access probe sequences on the Access Channel containing the same message. See also Access Probe and Access Probe Sequence.

Access Channel. A Reserve CDMA Channel used by mobile stations for communicating to the base station. The Access Channel is used for short signaling message exchanges such as call origination's, responses to pages, and registrations. The Access Channel is a slotted random access channel.

Access Channel Message. The information part of an access probe consisting of the message body, length field, and CRC.

Access Channel Message Capsule. An Access Channel message plus the padding.

Access Channel Preamble. The preamble of an access probe consisting of a sequence of all-zero frames that is sent at the 4800bps rate.

Access Channel Request Message. An Access Channel message that is autonomously generated by the mobile station. See also Access Channel Response Message.

Access Channel Response Message. A message on the Access Channel generated to reply to a message received from the base station.

Access Channel Slot. The assigned time interval for an access probe. An Access Channel slot consists of an integer number of frames. The transmission of an access probe is performed within the boundaries of an Access Channel slot.

Access Probe. One Access Channel transmission consisting of a preamble and a message. The transmission is an integer number of frames in length and transmits one Access Channel message. See also Access Probe Sequence and Access Attempt.

Access Probe Sequence. A sequence of one or more access probes on the Access Channel. The same Access Channel message is transmitted in every access probe of an access attempt. See also Access Probe and Access Attempt.

Acknowledgement. A Layer 2 response by the mobile station or the base station confirming that a signaling message was received correctly.

Action Time. The time at which the action implied by a message should take effect.

Active Set. The set of pilots associated with the CDMA Channels containing Forward Traffic Channels assigned to a particular mobile station.

Aging. A mechanism through which the mobile station maintains in its Neighbor Set the pilots that have been recently sent to it from the base station and the pilots whose handoff drop timers have recently expired.

A-key. A secret, 64-bit pattern stored in the mobile station. It is used to generate update the mobile station's Shared Secret Data. The A-key is used in the mobile station authentication process.

Analog Access Channel. An analog control channel used by a mobile station to access a system to obtain service.

Analog Color-Code. An analog signal (see Supervisory Audio Tone) transmitted by a base station on an analog voice channel and used to detect capture of a mobile station by an interfering base station or the capture of a base station by an interfering mobile station.

Analog Control Channel. An analog channel used for the transmission of digital control information from a base station to a mobile station or from a mobile station to a base station.

Analog Paging Channel. A forward analog control channel that is used to page mobile stations and send orders.

Analog Voice Channel. An analog channel on which a voice conversation occurs and on which brief digital messages may be sent from a base station to a mobile station or from a mobile station to a base station.

Authentication. A procedure used by a base station to validate a mobile station's identity.

Authentication Center (AC). An entity that manages the authentication information related to the mobile station.

Authentication Response (AUTHR). An 18-bit output of the authentication algorithm. It is used, for example, to validate mobile station registrations, origination and terminations. A method of registration in which the mobile station registers without an explicit command from the base station.

AWGN. Additive White Gaussian Noise.

Bad Frames. Frames classified as erasures (frame category 10) or9600bps frames, primary traffic only with bit errors (frame category 9). See also Good Frames.

Base Station. A station in the Domestic Public Cellular Radio Telecommunications Service, other than a mobile station, used for communicating with mobile stations. Depending upon the context, the term base station may refer to a cell, a sector within a cell, an MSC, or other part of the Cellular system. See also MSC.

Base Station Authentication Response (AUTHBS). An 18-bit pattern generated by the authentication algorithm. AUTHBS is used to confirm the validity of base station orders to update the Shared Secret Data.

Base Station Random Variable (RANDBS). A 32-bit random number generated by the mobile station for authenticating base station orders to update the Shared Secret Data.

BCH Code. See Bose-Chaudhuri-Hocquenghem Code.

Busy-Idle Bits. The portion of the data stream transmitted by a base station on a forward analog control channel that is used to indicate the current busy-idle status of the corresponding reverse analog control channel.

Call Disconnect. The process that releases the resources handling a particular call. The disconnect process beings either when the mobile station user indicates the end of the call by generating an on-hook condition or other call release mechanism, or when the base station initiates a release.

Call History Parameter (COUNT). A modulo-64 event counter maintained by the mobile station and Authentication Center that us used for clone detection.

Candidate Set. The set of pilots that have been received with sufficient strength by the mobile station to be successfully demodulated, but have not been placed in the Active Set by the base station. See also Active Set. Neighbor Set, and Remaining Set.

. See Code Division Multiple Access

CDMA Channel. The set of channels transmitted between the base station within a given CDMA frequency assignment. See also Forward CDMA Channel and Reverse CDMA Channel.

CDMA Channel Number. An 11-bit number corresponding to the center of the CDMA frequency assignment.

CDMA Frequency Assignment. A 1.23MHz segment of spectrum centered on one of the 30KHz channels of the existing analog system.

Code Channel. A subchannel of a Forward CDMA Channels. A Forward CDMA Channel contains 64 code channels. Code channel zero is assigned to the Pilot Channel. Code channels 1 through 7 may be assigned to the either Paging Channels or the Traffic Channels. Code Channel 32 may be assigned to either a Sync Channel or a Traffic Channel. The remaining code channels may be assigned to Traffic Channels.

Code Division Multiple Access (CDMA). A technique for spread-spectrum multiple-access digital communications that creates channels through the use of unique code sequences.

Code Symbol. The output of an error-correcting encoder. Information bits are input to the encoder and code symbols are output from the encoder. See Convolutional Code.

Continuous Transmission. A mode of operation in which Discontinuous Transmission is not permitted.

Control Mobile Attenuation Code (CMAC). A 3-bit field in the Control-Filler Message that specifies the maximum authorized power level for a mobile transmitting on an analog reverse control channels.

Convolution Code. A type of error-correcting code. A code symbol can be considered as the convolution of the input data sequence with the impulse response of a generator function.

CRC. See Cyclic Redundancy Code.

Cyclic Redundancy Code (CRC). A class of linear error detecting codes which generate parity check bits by finding the remainder of a polynomial division.

Data Burst Randomizer. The function that determines which power control groups within a frame are transmitted on the Reverse Traffic Channel when the data rate is lower than 9600 bps. The data burst randomizer determines, for each mobile station, the pseudo random position of the transmitted power control groups in the frame while guaranteeing that every modulation symbol is transmitted exactly once.

DBc. The ratio (in dB) of the sideband power of a signal, measured in a given bandwidth at a given frequency offset from the center frequency of the same signal, to the total inband power of the signal. For CDMA, the total inband power of the signal is measured in a 1.23MHz bandwidth around the center frequency of the CDMA signal.

DBm. A measure of power expressed in terms of its ration (in dB) to one milliwatt.

DBm/Hz. A measure of power spectral density. DBm/Hz is the power in one Hertz of bandwidth. Where power is expressed in units of dBm.

DBW. A measure of power expressed in terns of its ration (in dB) to one Watt.

Dedicated Control Channel. An analog control channel used for the transmission of digital control information from either a base station or a mobile station.

Deinterleaving. The process of unpermuting the symbols that were permuted by the interleaver..
Deinterleaving is performed on received symbols prior to decoding.

Digital Color Code (DCC). A digital signal transmitted by a base station on a forward analog control channel that is used to detect capture of a base station by an interfering mobile station.

Dim-and-Burst. A frame in which primary traffic is multiplexed with either secondary traffic or signaling traffic.

Discontinuous Transmission (DTX). A mode of operation in which a mobile station transmitter autonomously switches between two transmitter power levels while the mobile station is in the conversation state on an analog voice channel.

Distance-Based Registration. An autonomous registration method in which the mobile station registers whenever it enters a cell whose distance from the cell in which the mobile station last registered exceeds a given threshold.

DTMF. See Dual Tone Multifrequency.

Dual-Tone Multifrequency (DTMF). Signaling by the simultaneous transmission of two tones, one from a group of low frequencies and another from a group of high frequencies. Each group of frequencies consists of four frequencies.

Eb. The energy of an information bit.

Ec/I0. The ratio in (dB) between the pilot energy accumulated over one PN chip period (Ec) to the power spectral density in the received bandwidth (Io).

Effective Radiated Power (ERP). The transmitted power multiplied by the antenna gain referenced to a half wave dipole.

Electronic Serial Number (ESN). A 32-bit number assigned by the mobile station manufacturer, uniquely identifying the mobile station equipment.

Encoder Tail Bits. A fixed sequence of bits added to the end of a block of data to reset the convolutional encoder to a known state.

ERP. See Effective Radiated Power.

ESN. See Electronic Serial Number.

Extended Protocol. An optional expansion of the signaling message between the base station and mobile station to allow for the addition of new system features and operational capabilities.

Fade Timer. A timer kept by the mobile station as a measure of Forward Traffic Channel continuity. If the Fade timer expires, the mobile station drops the call.

Flash. An indication sent on an analog voice channel or CDMA Traffic Channel indicating that the user Directed the mobile station to invoke special processing.

Foreign NID Roamer. A mobile station operating in the same system (SID) but a different network (NID)Form the one in which service was subscribed. See also Foreign SID Roamer and Roamer.

Foreign SID Roamer. A mobile station operating in a system (SID) other than the one from which service was subscribed. See also Foreign NID Roamer and Roamer.

Forward Analog Control Channel (FOCC). An analog voice channel used from a base station to a mobile station.

Forward Analog Voice Channel (FVC). An analog voice channel used from a base station to a mobile station.

Forward CDMA Channel. A CDMA Channel form a base station to mobile stations. The Forward CDMA Channel contains one or more code channels that are transmitted on a CDMA frequency assignment using a Particular pilot PN offset. The code channels are associated with the Pilot Channel, Sync Channel, Paging Channels, and Traffic Channels. The Forward CDMA Channel always carries a Pilot Channel and may carry up to one Sync Channel, up to seven Paging Channels, and up to 63 Traffic Channels, as long as the total number of channels, including the Pilot Channel, is no greater than 64.

Forward Traffic Channel. A code channel used to transport user and signaling traffic from the base station to the mobile station.

A basic timing interval in the system. For the Access Channel, Paging Channel, and Traffic Channel, a frame is 20 ms long. For the Sync Channel, a frame is 26.666…ms long.

Frame Category. A classification of a received Traffic Channel frame based upon transmission data rate, the Frame contents (primary traffic, secondary traffic, or signaling traffic), and whether there are detected error in the frame.

Frame Offset. A time skewing of Traffic Channel frames from System Time in integer multiples of 1.25 ms. The maximum frame offset is 18..75 ms..

Frame Quality Indicator. The CRC check applied to 9600 bps and 4800 bps Traffic Channel frames.

Global Positioning System (GPS). A US government satellite system that provides location and time Information to users. See Navstar GPS Space segment / Navigation User interfaces ICD-GPS-200 for Specifications.

Half Frame. A 10 ms interval on the paging Channel. Two half frames comprise a frame, the first half frame begins at the same time as the frame.

Handoff. The of transferring communication with a station mobile station from one base station to another.

Hard Handoff. A handoff characterized by a temporary disconnection of the Traffic Channel. Hard handoffs Occur when the mobile station is transferred between disjoint Active Sets, the CDMA frequency assignment changes, the frame offset changes, or the mobile station is directed from a CDMA Traffic Channel to an analog voice channel, See also Soft Handoff.

Hash Function. A function used by the mobile station to select one out of N available resource. The hash function distributes the available resources uniformly among a random sample of mobile stations.

HLR. See Home Location Register.

Home Location Register (HLR). The location register to which a MIN is assigned for record purposes such as subscriber information.

Home System. The Cellular system in which the mobile station subscribes for service.

Idle Handoff. The act of transferring reception of the Paging Channel from one bass station to another, when the mobile station is in the ***Mobile Station Idle State.***

Implicit Registration. A registration achieved by a successful transmission of an origination or page response on the Access Channel.

Interleaving. The process of permuting a sequence of symbols.

kHz. Kilohertz (103 Hertz).

ksps. Kilo-symbols per second (103 symbols per second).

Layer 1. See Physical Layer.

Layer 2. Layer 2 provides for the correct transmission and reception of signaling messages, including partial duplicate detection. See also Layering and Layer 3.

Layer 3. Layer 3 provides the control of the Cellular telephone systems. Signaling messages originate and terminate at layer 3. See also Layering and Layer 2.

Local Control. An optional mobile station feature used to perform manufacturer-specific functions.

A PN sequence with period 242-1 that is used for scrambling on the Forward CDMA Channel and spreading on the Reverse CDMA Channel. The long code uniquely identifies a mobile station on both the Reverse Traffic Channel and the Forward Traffic Channel. The long code provides limited privacy. The long code also separates multiple Access Channels on the same CDMA channel. See also Public Long Code and Private Long Code.

Long Code Mask. A 42-bit binary number that creates the unique identity of the long code. See also Public Long Code, Private Long Code, Public Long Code Mask, and Private Long Code Mask.

LSB. Least significant bit.

Maximal Length Sequence (m-Sequence). A binary sequence of period 2n-1, n a positive integer, with no internal periodicities. A maximal length sequence can be generated by a tapped n-bit shift register with linear feedback.

Mcps. Megachips per second (106 chips per second).

Mean Input Power. The total received calorimetric power measured in a specified bandwidth at the antenna connector, including all internal and external signal and noise sources.

Mean Output Power. The total transmitted calorimetric power measured in a specified bandwidth at the antenna connector when the transmitter is active.

Message. A data structure that conveys control information or application information. A message consists of a length field (MSG_LENGTH), a message body (the part conveying the information), and a CRC.

Message Body. The part of the message contained between the length field (MSG_LENGTH) and the CRC field.

Message Capsule. A sequence of bits comprising a single message and padding. The padding always follows the message and may be of zero length.

Message CRC. The CRC associated with a message. See also Cyclic Redundancy Check.

Message Field. A basic named element in a message. A message field may consist of zero or more bits.

Message Record. An entry in a message consisting of one or more field that repeats in the message.

MHz. Megahertz.(106 Hertz)

MIN. See Mobile Station Identification Number.

Mobile Protocol Capability Indicator (MPCI). A 2-bit field used to indicate 속 mobile station's capabilities.

Mobile Station. A station in the Domestic Public Cellular Radio Telecommunications Service intended to be used while in motion or during halts at unspecified points. Mobile station include portable units (e.g., handheld personal units) and units installed in vehicles.

Mobile Station Class. Mobile station classes define mobile station characteristics such as slotted operation and transmission power.

Mobile Station Identification Number (MIN). The 34-bit number that is a digital representation of the 10-digit directory telephone number assigned to a mobile station.

Mobile Station Originated Call. A call originating from a mobile station.

Mobile Station Terminated Call. A call received by a mobile station (not to be confused with a disconnect or call release).

Mobile Switching Center (MSC). A configuration of equipment that provides Cellular radiotelephone service. Also called the Mobile Telephone Switching Office (MTSO)

Modulation Symbol. The output of the data modulator before spreading. On the Reverse Traffic Channel, 64-ary orthogonal modulation is used and six code symbol (when the data rate is 9600bps) or each repeated code symbol (when the data rate is less than 9600bps) is one modulation symbol.

Ms. Millisecond.

MSB. Most significant bit.

MSC. See Mobile Switching Center.

Multiplex Option. The ability of the multiplex sublayer and lower layer to be tailored to provide special capabilities. A multiplex option defines such characteristics as the frame format and the rate decision rules. See also Multiplex Sublayer.

Multiplex Sublayer. One of the conceptual layers of the system that multiplexes and demultiplexes primary traffic, secondary traffic, and signaling traffic.

NAM. See Number Assignment Module.

Narrow Analog. A type of voice channel that uses 10kHz channel spacing and subaudible signaling.

Neighbor Set. The set of pilots associated with the CDMA Channel that are probable candidates for handoff. Normally, the Neighbor Set consists of the pilots associated with CDMA Channel that cover geographical areas near the mobile station. See also Active Set, Candidate Set, and Remaining Set.

A network is a subset of a Cellular system, such as an area-wide Cellular network, a private group of base stations, or a group of base stations set up to handle a special requirement. A network can be as small or as large as needed, as long as it is fully contained within a system. See also System.

Network Identification (NID). A number that uniquely identifies a network within a Cellular system. See also System Identification.

NID. See Network Identification.

Non-Autonomous Registration. A registration method in which the base station initiates registration. See also Autonomous Registration.

Non-Slotted Mode. An operation mode of the mobile station in which the mobile station continuously monitors the Paging Channel when in the Mobile Station Idle State.

Ns. Nanosecond.

NULL. Not having any value.

Null Traffic Channel Data. One or more frames of 16 ‘1’s followed by eight ‘0’s sent at the 1200bps rate. Null Traffic Channel data is sent when no service option is active and no signaling message is being sent. Null Traffic Channel data serves to maintain the connectivity between the mobile station and the base station.

Number Assignment Module (NAM). A set of MIN-related parameters stored in the mobile station.

Numeric Information. Numeric information consists of parameters that appear as numeric fields in message exchanged by the base station and the mobile station and information used to describe the operation of the mobile station.

OLC. See Overload Class (CDMA) or Overload Control (analog).

Optional Field. A field defined within a message structure that is optionally to the message recipient.

Order. A type of message that contains control codes for either the mobile station or the base station.

Ordered Registration. A registration method in which the base station orders the mobile station to send registration related parameters.

Overhead Message. A message sent by the base station on the Paging Channel to communicate base-station-specific and system-wide information to mobile station.

Overload Class. The means used to control system access by mobile stations, typically in emergency or other overload conditions. Mobile station are assigned one (or more) of sixteen overload classed, Access to the CDMA system can then be controlled on a per class basis by persistence values transmitted by the base station.

Overload Control (OLC). A means reverse analog control channel accesses by mobile stations. Mobile station are assigned one(or more) of sixteen control levels. Access is selectively restricted by a base station setting one or more OLC bits in the Overload Control Global Action Message.

Packet. The unit of information exchanged between the service option applications of the base station and the mobile station.

Padding. A sequence of bits used to fill from the end of a message to the end of a message capsule, typically to the end of the frame or half frame. All bits in the padding are '0'.

Paging. The act of seeking a mobile station when a call has been placed to that mobile station.

Paging Channel (Analog). See Analog Paging Channel.

Paging Channel (CDMA). A code channel in a Forward CDMA Channel used for transmission of control information and pages from a base station to a mobile station.

Paging Channel Slot. An 80ms interval on the Paging Channel. Mobile station operating in the slotted mode are assigned specific slots in which day monitor messages from the base station.

Parameter-Change Registration. A registration method in which the mobile station registers when certain of its stored parameters change.

Parity Check Bits. Bits added to a sequence of information bits to provide error detection, correction, or both.

Persistence. A probability measure used by the mobile station to determine if it should transmit in a given Access Channel Slot.

Physical Layer. The part of the communication protocol between the mobile station and the base station that is responsible for the transmission and reception of data. The physical layer in the transmitting station is presented a frame by the multiplex sublayer and transforms it into an over-the-air waveform. The physical layer in the receiving station transforms the waveform back into a frame and presents it to the multiplex sublayer above it.

Pilot Channel. An unmodulated, direct-sequence spread spectrum signal transmitted continuously by each CDMA base station. The Pilot Channel allows a mobile station to acquire the timing of the Forward CDMA Channel, provides a phase reference for coherent demodulation, and provides a means for signal strength comparisons between base station for determining when to handoff.

Pilot PN Sequence. A pair of modified maximal length PN sequences with period 215 used to spread the Forward CDMA Channel and the Reserve CDMA Channel. Different base station are identified by different pilot PN sequence offsets.

Pilot PN Sequence Offset Index. The PN offset in units of 64 PN chips of a pilot, relative to the zero offset pilot PN sequence.

PN Chip. One bit in the PN sequence.

PN Sequence. Pseudonoise sequence. A periodic binary sequence.

Power Control Bit. A bit sent in every 1.25ms interval on the Forward Traffic Channel to signal the mobile station to increase or decrease its transmit power.

Power Control Group. A 1.25ms interval on the Forward Traffic Channel and the Reverse Traffic Channel.
See also Power Control Bit.

Power-Down Registration. Au autonomous registration method in which the mobile station registers on power up.

PPM. Parts per million.

Preamble. See Access Channel Preamble and Traffic Channel Preamble.

Primary CDMA Channel. A CDMA Channel at a pre-assigned frequency assignment used by the mobile station for initial acquisition. See also Secondary CDMA Channel.

Primary Paging Channel (CDMA). The default code channel (code channel 1) assigned for paging on a CDMA Channel.

Primary Traffic. The main traffic stream carried between the mobile station and the base station, supporting the active primary service option, on the Traffic Channel. See also Secondary Traffic, Signaling Traffic, and Servic3e Option.

Private Long Code. The long code characterized by the private long code mask. See also Long Code.

Private Long Code Mask. The long code mask used to form the private long code. See also Public Long Code Mask and Long Code.

Public Long Code. The long code characterized by the public long code mask.

Public Long Code Mask. The long code mask used to form the private long code. The mask contains the ESN of the mobile station. See also Private Long Code Mask and Long Code.

Punctured Code. An error-correcting code generated from another error-correcting code by deleting (i.e., puncturing) code symbols from the code output.

Quick Repeats. Additional transmissions of identical copies of a message within a short interval to increase the probability that the message is received correctly.

Receive Objective Loudness Rating (ROLR). A perceptually weighted transducer gain of telephone receivers relating electrical excitation from a reference generator to sound pressure at the earphone. The receive objective loudness tating is normally specified in dB relative to one Pascal per millivolt. See IEEE Standard 269-1992, IEEE Standard 661-1979, CCITT Recommendation P.76, and CCITT Recommendation P.79.

Registration. The process by which a mobile station identifies its location and parameters to a base station.

Registration Zone. A collection of one or more base stations treated as a unit when determining whether a mobile station should perform zone-based registration.

Release. A process that the mobile station and base station use to inform each other of call disconnect.

The set of all allowable pilot offsets as determined by PILOT_INC, excluding the pilot offsets of the pilots in the Active Set, Candidate Set, and Neighbor Set. See also Active Set, Candidate Set, and Neighbor Set.

Request. A layer 3 message generated by either the mobile station or the base station to retrieve information, ask for service, or command an action.

Response. A layer 3 message generated as a result of another message, typically a request.

Reverse Analog Control (RECC). The analog control channel used from a mobile station to a base station.

Reverse Analog Voice Channel (RVC). The analog voice channel used from a mobile station to a base station.

Reverse CDMA Channel. The CDMA Channel from the mobile station to the base station. From the base station's perspective, the Reverse CDMA Channel is the sum of all mobile station transmissions on a CDMA frequency assignment.

Reverse Traffic Channel. A Reverse CDMA Channel used to transport user and signaling traffic from a single mobile station to one or more base stations.

Roamer. A mobile station operating in a Cellular system (or network) other than the one from which service was subscribed. See also Foreign NID Roamer and Foreign SID Roamer.

ROLR. See Receive Objective Loudness Rating.

SAT. See Supervisory Audio Tone.

Scan of Channels. The procedure by which a mobile station examines the signal strength of each forward analog control channel.

SCI. Synchronized Capsule Indicator bit.

Search Window. The range of PN sequence offsets that a mobile station searches for a pilot.

Secondary CDMA Channel. A CDMA Channel at a preassigned frequency assignment used by the mobile station for initial acquisition. See also Primary CDMA Channel.

Secondary Traffic. An additional traffic stream that can be carried between the mobile station and the base station on the Traffic Channel. See also Primary Traffic and Signaling Traffic.

Seizure Precursor. The initial digital sequence transmitted by a mobile station to a base station on a reverse analog control channel.

Seizure Option. A service capability of the system. Service options may be applications such as voice, data, or facsimile.

Shard Secret Data (SSD). A 128-bit pattern stored in the mobile station (in semi-permanent memory) and known by the base station. SSD is a concatenation of two 64-bit subsets: SSD_A, which is used to support the authentication procedures and SSD_B, which serves as one of the inputs to the process generating the encryption mask and private long code.

Short Message Services (SMS). A suite of services which include SMS Text Delivery, Digital Paging (i.e., Call Back Number – CBN), and Voice Mail Notification (VMN).

SID. See System Identification.

Signaling Tone. A 10kHz tone transmitted by a mobile station on an analog voice channel to: 1) confirm orders, 2)signal flash requests, and 3) signal release requests.

Signal Traffic. Control message that are carried between the mobile station and base station on the Traffic Channel. See also Primary Traffic and Secondary Traffic.

Slot Cycle. A periodic interval at which a mobile station operating in the slotted monitors the Paging Channel.

Slotted Mode. An operation mode of the mobile station in which the mobile station monitors only selected slots on the Paging Channel when in the Mobile Station Idle State.

Soft Handoff. A handoff occurring while the mobile station is in the Mobile Station Control on the Traffic Channel State. This handoff is characterized by commencing communications with a new base station on the same CDMA frequency assignment before terminating communications with the old base station. See also Hard Handoff.

SOM. Start-of-Message Bit.

SPS. Symbols per second.

- An identification of certain characteristics of a mobile station. Classes are defined in Table 2.3.3-1.

Status Information. The following status information is used to describe mobile station operation when using the analog system.

■Serving-System Status. Indicates whether a mobile station is turned to channels associated with System A or System B.

■ First Registration ID Status. A status variable used by the mobile station in association with its processing of received Registration ID messages.

■ First Location Area ID Status. A status variable used by the mobile station in association with its processing of received Location Area ID messages.

■ Location Registration ID Status. A status variable used by the mobile station in association with its processing of power-up registration and location-based registration.

■ First Idle ID Status. A status variable used by the mobile station in association with its processing of the Idle Task.

■ Local Control Status. Indicates whether a mobile station must respond to local control messages.

■ Roam Status. Indicates whether a mobile station is in its home system.

■ Termination Status. Indicates whether a mobile station must terminate the call when it is on an analog voice channel.

Supervisory Audio Tone (SAT). One of three tones in the 6 kHz region that is transmitted on the forward analog voice channel by a base station and transponder on the reverse analog voice channel by as mobile station.

Supplementary Digital Color Code (SDCC1, SDCC2). Additional bits assigned to increase the number of color codes from four to sixty four, transmitted on the forward analog control channel.

Symbol. See Code Symbol and Modulation Symbol.

Sync Channel. Code channel 32 in the Forward CDMA Channel which transports the synchronization message to the mobile station.

Sync Channel Superframe. An 80ms interval consisting of three Sync Channel frames (each 26.666…ms in length).

System. A system is a Cellular telephone service that covers a geographic area such as a city. Metropolitan region, country, or group of countries. See also Network.

System Time. The time reference used by the system. System Time is synchronous to UTC time (except for leap seconds) and used the same time origin as GPS time. Offset by the propagation delay from the base station to the mobile station. See also Universal coordinated Time.

Timer-Based Registration. A registration method in which the mobile station registers whenever a counter reaches a predetermined value. The counter is incremented an average of once per 80 ms period.

Time Reference. A reference established by the mobile station that is synchronous with the earliest arriving multipath component used for demodulation.

TOLR. See Transmit Objective Loudness Rating.

Traffic Channel. A communication path between a mobile station and base station used for user and signaling traffic. The term Traffic Channel implies a Forward Traffic Channel and Reverse Traffic Channel pair. See also Forward Traffic Channel and Reverse Traffic Channel.

Traffic Channel Preamble. A sequence of all-zero frames that is sent at the 9600 bps rate by the mobile station on the Reverse Traffic Channel. The Traffic Channel preamble is sent during initialization of the Traffic Channel.

Transmit Objective Loudness Rating (TOLR). A perceptually weighted transducer gain of telephone transmitters relation sound pressure at the microphone to voltage at a reference electrical termination. It is normally specified in dB relative to one millivolt per Pascal. See IEEE Standard 269-1992, IEEE Standard 661-1979, CCITT Recommendation P.76 , and CCITT Recommendation. P.79

Unique Challenge-Response Procedure. An exchange of information between a mobile station and a base station for the purpose of confirming the mobile station's identity. The procedure is initiated by the base station and is characterized by the use of a challenge-specific random number (i.e., RANDU) instead of the random variable broadcast globally (RAND).

Unique Random Variable (RANDU). A 24-bit random number generated by the base station in support of the Unique Challenge-Response procedure.

Universal Coordinated Time (UTC). An internationally agreed-upon time scale maintained by the Bureau International de l'Heure (BIH) used as the time reference by nearly all commonly available time and frequency distribution systems i.e., WWW, WWVH, LORAN-C, Transit, Omega, and GPS.

UTC. Universal Temps Coordine. See Universal Coordinated Time.

Voice Channel. See Analog Voice Channel.

Voice Mobile Attenuation Code (VMAC). A 3-bit field in the Extended Address Word commanding the initial mobile power level when assigning a mobile station to an analog voice channel.

Voice Privacy. The process by which user voice transmitted over a CDMA Traffic Channel is a afforded a modest degree of protection against eavesdropping over the air.

Walsh Chip. The shortest identifiable component of a Walsh function. There are 2N Walsh chips in one Walsh function where N is the order of the Walsh function. On the Forward CDMA channel one Walsh chip equals 1/1.2288MHz, or 813.802…ns. On the Reverse CDMA Channel, one Walsh chip equals 4/1.2288MHz, or 3.255…μs.

Walsh Function. One of 2N time orthogonal binary functions (note that the functions are orthogonal after mapping '0' to 1 and '1' to –1).

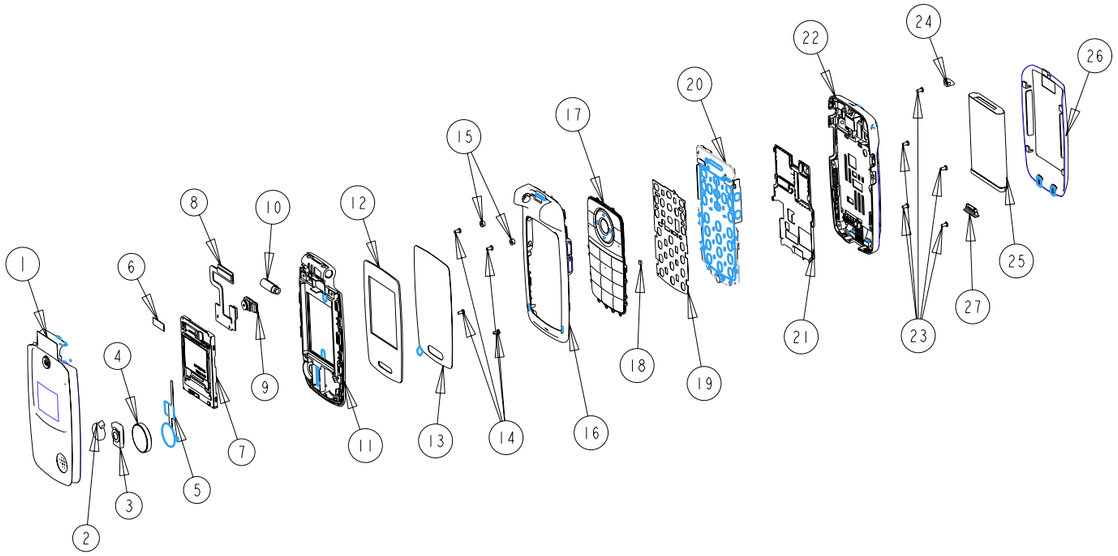
Zone-Based Registration. An autonomous registration method in which the mobile station registers whenever it enters a zone that is not in the mobile station's zone list.

μs. Microsecond

Appendix

1. **Assembly and Disassembly diagram**
2. **Block and Circuit diagram**
3. **Part List**
4. **Component Layout**
5. **BGA Pin Map**

1. Assembly and Disassembly Diagram



NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK
27	CAP,RECEPTACLE	1	MCCE0036201	
26	COVER,BATTERY	1	MCJA0041101	
25	BATTERY	1	SBPL0086903	
24	CAP,SCREW REAR	1	MCCH0103001	
23	SCREW MACHINE,BIND	5	GMEY0011201	
22	COVER ASSY,REAR	1	ACGM0088101	
21	CAN,SHIELD ASSY	1	ACKA0002501	
20	PCB,ASSY	1	SAFY0197801	
19	DOME ASSY,METAL	1	ADCA0064601	
18	SHIELD FORM KEYPAD	1	MGAD0144901	
17	KEYPAD, ASSY	1	AKAZ0020001	
16	COVER ASSY,FRONT	1	ACGK0086001	
15	CAP,SCREW FOLDER LOWER	2	MCCH0102601	
14	SCREW MACHINE,BIND	4	GMEY0011201	
13	TAPE PROTECTION (MAIN WINDOW)	1	MTAB0162001	
12	WINDOW LCD	1	MWAZ0006801	
11	COVER ASSY,LOWER	1	ACGH0047401	
10	HINGE,FOLDER	1	MHFD0008701	
9	CAMERA	1	SVCY0009501	
8	FPC ASSY	1	SACY0057901	
7	LCD,ASSY	1	SVLM0023201	
6	PAD,FLEXIBLE PCB	1	MPBF0020501	
5	GASKET LCD	1	MGAD0146601	
4	SPEAKER	1	SUSY0026502	
3	RECEIVER	1	SURY0010201	
2	MOTOR	1	SJMY0007105	
1	COVER ASSY, UPPER	1	ACGJ0061301	

허 용 공 차		UNIT	SCALE
치 수	공 차	mm	0.200
~10 미만	±0.05	TOLERANCE	
10~30 미만	±0.08		
30~50 미만	±0.15	FINISH	
50~150 미만	±0.2		
각 도	0	F/N	

	DATE	NAME
APP.		
CHEC.		
DESG.		

PARTS INDEX

재 질 MATERIAL	
관련도번 REL DWG	
도 명 DWG NAME	VX5400_FOLDER_ASSY
도 번 DWG NO.	

LGE LG Electronics, Inc.

SIZE A3

LG<45>-A-2606

REVISION				
ISSUE	CONTENTS	ENGINEER	APPROVER	DATE
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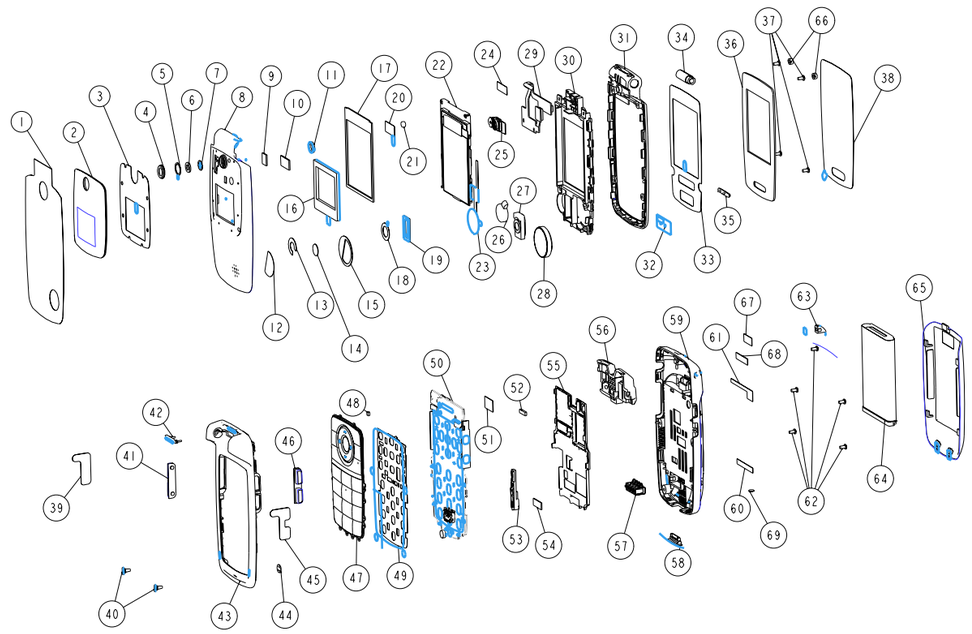


NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK
37	SCREW MACHINE,BIND	4	MTAB0161901	
36	WINDOW LCD	1	MWAZ0006801	
35	DECO,RECEIVER	1	MDAH0022201	
34	HINGE FOLDER	1	MHFD0008701	
33	TAPE,WINDOW (MAIN)	1	MTAD0066401	
32	FILTER,RECEIVER	1	MFBB0021601	
31	COVER FOLDER (LOWER)	1	MCJH0038101	
30	FRAME	1	MFEZ0012901	
29	FPCB ASSY	1	SACY0057901	
28	SPEAKER	1	SUSY0026502	
27	RECEIVER	1	SURY0010201	
26	MOTOR	1	SJMY0007105	
25	CAMERA	1	SVCY0009501	
24	PAD,FLEXIBLE PCB	1	MPBF0020501	
23	GASKET LCD	1	MGAD0146601	
22	LCD	1	SVLM0023201	
21	MAGNET,SWITCH	1	MMAA0000101	
20	TAPE,CAMERA	1	MTAZ0188401	
19	PAD,RECEIVER (LOWER)	1	MPBM0017101	
18	PAD,MOTOR (LOWER)	1	MPBJ0042901	
17	PAD,LCD	1	MPBG0058801	
16	PAD,LCD (SUB)	1	MPBQ0031301	
15	PAD,SPEAKER (UPPER)	1	MPBN0040301	
14	PAD,RECEIVER (UPPER)	1	MFBB0021701	
13	PAD,MOTOR (UPPER)	1	MPBJ0043001	
12	FILTER,SPEAKER (UPPER)	1	MFBC0032501	
11	PAD,CAMERA	1	MPBZ0178701	
10	PAD,LCD CONNECTOR	1	MPBG0058901	
9	PAD,CAMERA CONNECTOR	1	MPBT0039601	
8	COVER FOLDER (UPPER)	1	MCJJ0047401	
7	TAPE,WINDOW CAMERA	1	MTAD0066501	
6	WINDOW CAMERA	1	MWAE0024801	
5	TAPE,DECO CAMERA	1	MTAA0132801	
4	DECO,CAMERA	1	MDAD0029401	
3	TAPE, WINDOW (SUB)	1	MTAE0030501	
2	WINDOW LCD SUB	1	MWAF0036601	
1	TAPE,PROTECTION UPPER	1	MTAB0161901	

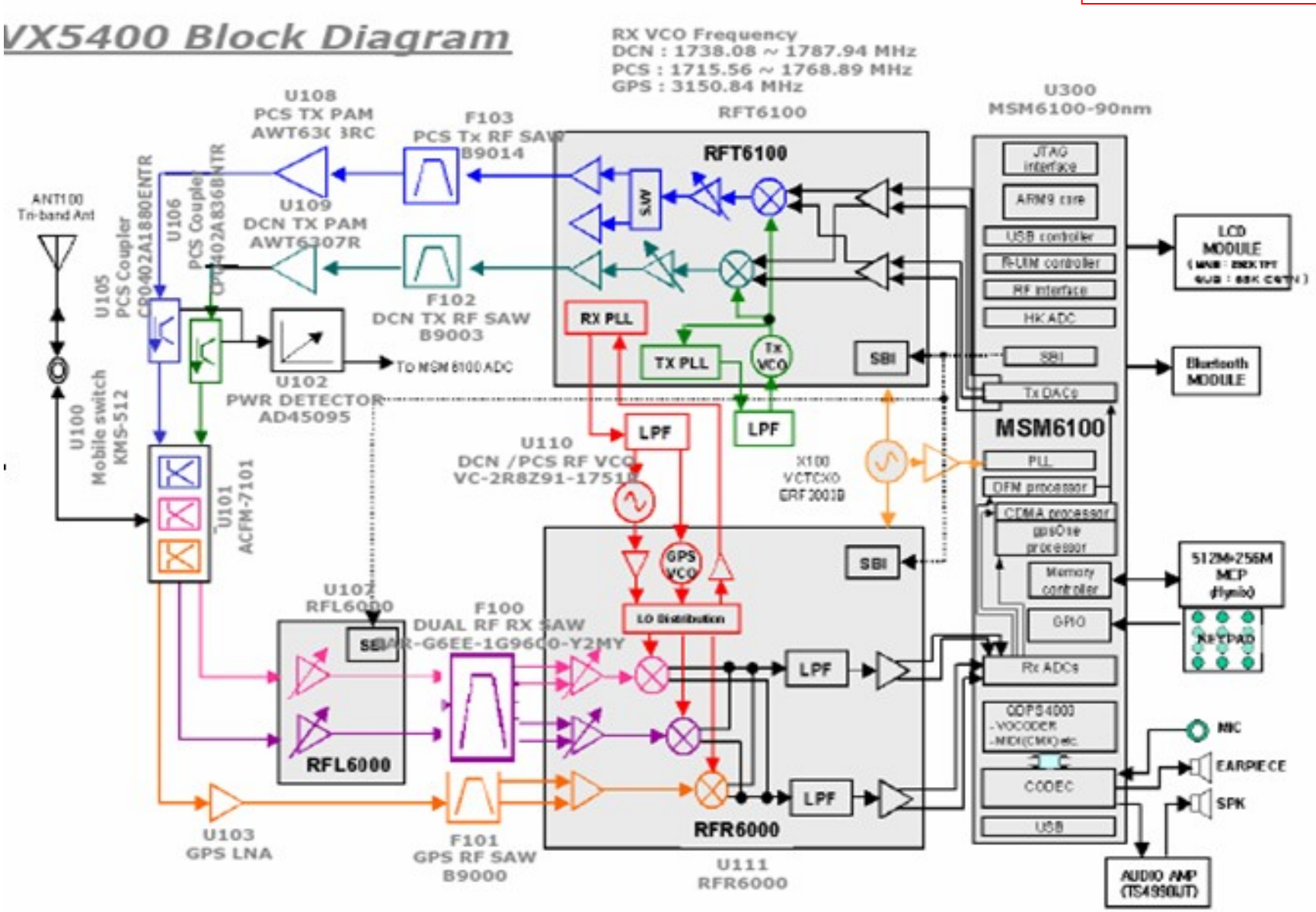
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK
69	LABEL A/S	1	MLAB0000601	
68	LABEL, OTA	1	MLAZ0034702	
67	LABEL,QUALCOMM	1	MLAN0000601	
66	CAP,SCREW FOLDRER L	2	MCCH0102601	
65	COVER, BATTERY	1	MCJA0041101	
64	BATTERY	1	MTAB0161901	
63	CAP,SCREW REAR	1	MCCH0103001	
62	SCREW MACHINE, BIND	5	GMEY0011201	
61	SHEET REAR 1	1	MSAZ0050201	
60	SHEET REAR 2	1	MSAZ0050301	
59	COVER,REAR	1	MCJN0066101	
58	CAP,RECEPTACLE	1	MCCE0036201	
57	CONTACT BATTERY	1	ENZY0019701	
56	INTENNA	1	SNMF0029201	
55	CAN,SHIELD	1	MCBA0017201	
54	SHIELD FORM CAN	1	MGAD0146701	
53	BLUETOOTH,ANT	1	SNMF0034801	
52	PAD, INTENNA PCB	1	MPBU0005601	
51	PAD INTENNA	1	MPBU0005401	
50	PCB ASSY	1	SAFY0197801	
49	DOME ASSY,METAL	1	ADCA0064601	
48	SHIELD FORM KEYPAD	1	MGAD0144901	
47	KEYPAD ASSY	1	AKAZ0020001	
46	BUTTON,SIDE CAMERA	1	MBJL0039501	
45	TAPE,PROTECTION CAMERA KEY	1	MTAB0161801	
44	FILTER,MIKE	1	MFBD0021801	
43	COVER FRONT	1	MCJK0069801	
42	STOPPER HINGE	1	MSGB0018701	
41	BUTTON, SIDE	1	MBJL0039401	
40	STOPPER	2	MDGY0021401	
39	TAPE,PROTECTION SIDE KEY	1	MTAB0161701	
38	TAPE,PROTECTION WINDOW MAIN	1	MTAB0162001	

1	COVER ASSY, UPPER	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16
2	COVER ASSY, LOWER	17,18,19,20,21,30,31,32,33,35
3	COVER ASSY, FRONT	39,40,41,42,43,44,45,46
4	COVER ASSY, REAR	51,53,56,57,59,60,61,67,68,69

허 용 공 차		UNIT	SCALE	PARTS INDEX			
치 수	공 차	mm	0.300				
~10 미만	±0.05	TOLERANCE			DATE	NAME	재 질 MATERIAL
10~30 미만	±0.08			APP.			관련도번 REL DWG
30~50 미만	±0.15	FINISH		CHEC.			도 명 DWG NAME: VX5400_TOTAL_ASSY
50~150 미만	±0.2			DESG.			
각 도	0	F/N		SIZE			도 번 DWG NO.

LGE LG Electronics, Inc. A3

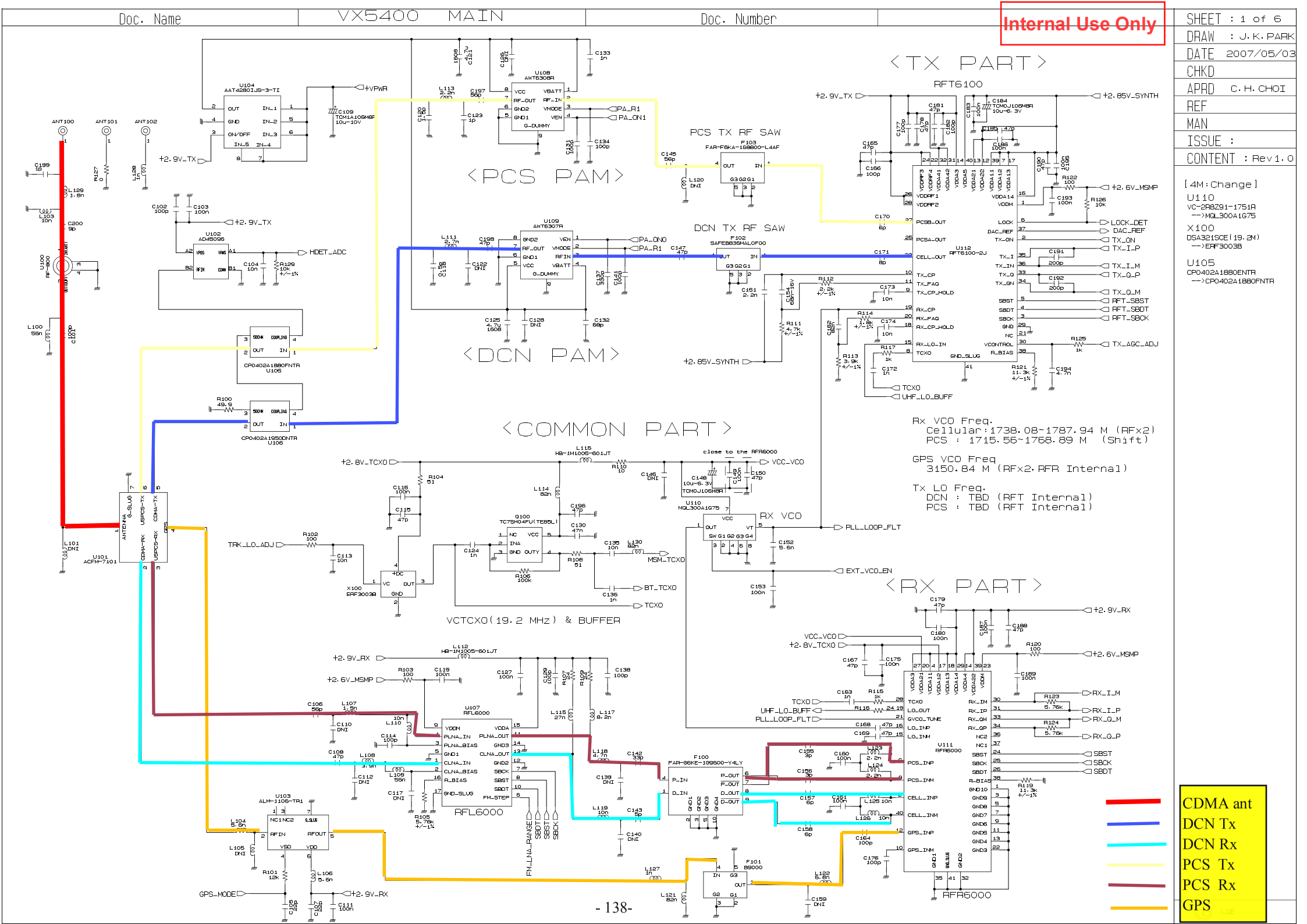
2. Block and Circuit Diagram

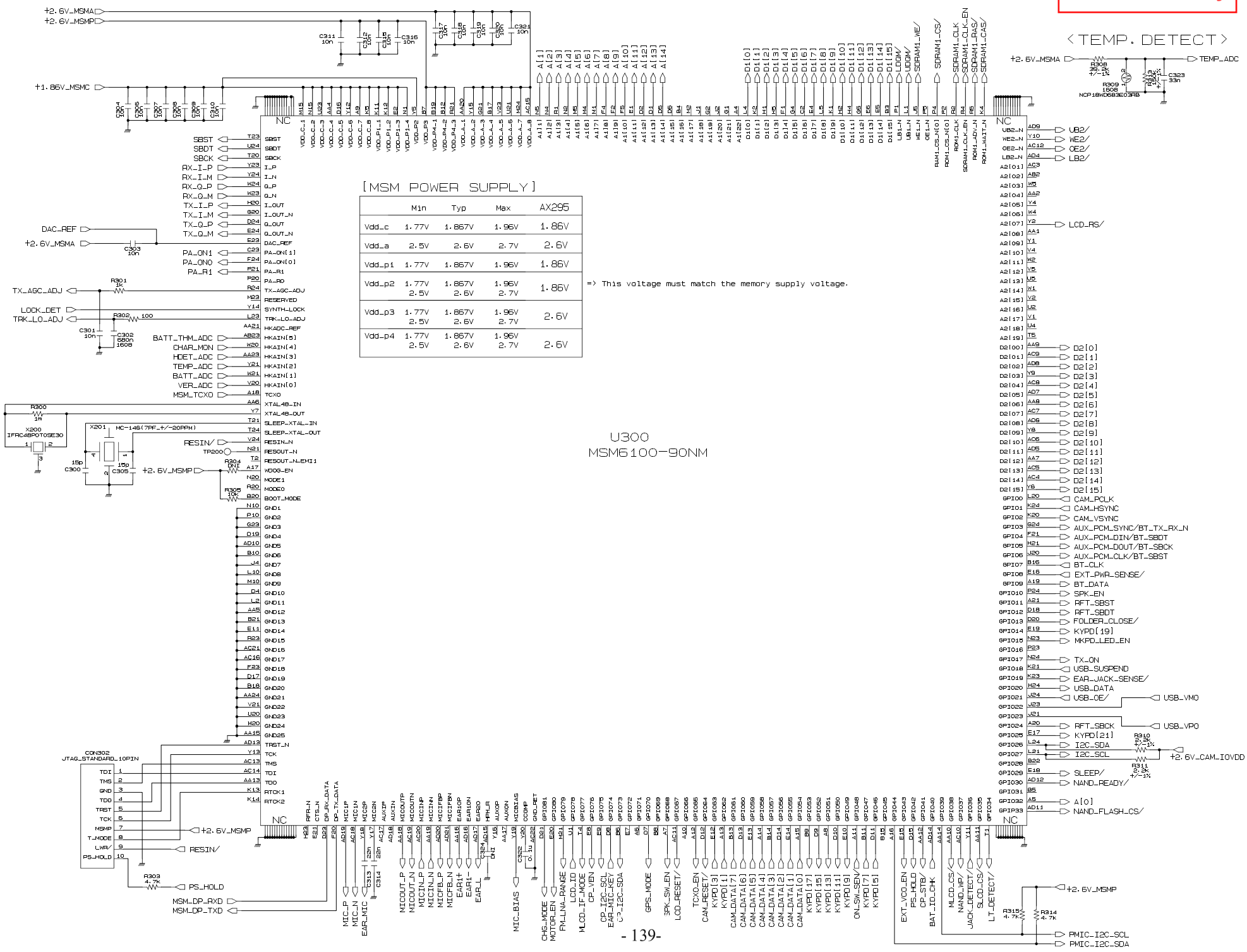


VX5400 Circuit Diagram

1. VX5400 Main PCB (Rev.1.0)
2. VX5400 sub_fpcb (Rev.1.0)
3. VX5400 mod_fpcb (Rev.1.0)
4. VX5400 cam_key (Rev.1.0)
5. VX5400 vol_key (Rev.1.0)

[4M:Change]
U110
VC-2R8Z91-1751R
-->MQL300A1G75
X100
DSA321SCE(19.2M)
-->ERF3003B
U105
CP0402A1880ENTR
-->CP0402A1880FNTR




[MSM POWER SUPPLY]
Min Typ Max AX295
Vdd_c 1.77V 1.867V 1.96V 1.86V
Vdd_a 2.5V 2.6V 2.7V 2.6V
Vdd_p1 1.77V 1.867V 1.96V 1.86V
Vdd_p2 1.77V 1.867V 1.96V 1.86V
2.5V 2.6V 2.7V
Vdd_p3 1.77V 1.867V 1.96V 2.6V
2.5V 2.6V 2.7V
Vdd_p4 1.77V 1.867V 1.96V 2.6V
2.5V 2.6V 2.7V
=> This voltage must match the memory supply voltage.
U300
MSM6100-90NM
<TEMP. DETECT>
+2.6V_MSMA
TEMP_ADC
+2.6V_MSMP
+1.86V_MSMC
NC
SBST
SBDT
SBCK
RX_I_P
RX_I_M
RX_Q_P
RX_Q_M
TX_I_P
TX_I_M
TX_Q_P
TX_Q_M
DAC_REF
PA_ON1
PA_ON0
PA_R1
TX_AGC_ADJ
LOCK_DET
TRK_LO_ADJ
BATT_THM_ADC
CHAR_MON
HDET_ADC
TEMP_ADC
BATT_ADC
VER_ADC
MSM_TCXO
RESIN/
LCD_RS/
D2[0]
D2[1]
D2[2]
D2[3]
D2[4]
D2[5]
D2[6]
D2[7]
D2[8]
D2[9]
D2[10]
D2[11]
D2[12]
D2[13]
D2[14]
D2[15]
CAM_PCLK
CAM_HSYNC
CAM_VSYNC
AUX_PCM_SYNC/BT_TX_RX_N
AUX_PCM_DIN/BT_SBDT
AUX_PCM_DOUT/BT_SBCK
AUX_PCM_CLK/BT_SBST
BT_CLK
EXT_PWR_SENSE/
BT_DATA
SPK_EN
RFT_SBST
RFT_SBDT
FOLDER_CLOSE/
KYPD[19]
MKPD_LED_EN
TX_ON
USB_SUSPEND
EAR_JACK_SENSE/
USB_DATA
USB_OE/
USB_VMO
USB_VPO
RFT_SBCK
KYPD[21]
I2C_SDA
I2C_SCL
+2.6V_CAM_IOVDD
SLEEP/
NAND_READY/
A[0]
NAND_FLASH_CS/
CON302
JTAG_STANDARD_10PIN
PS_HOLD
MSM_DP_RXD
MSM_DP_TXD
MIC_P
MIC_N
EAR_MIC
MICOUT_P
MICOUT_N
MICIN_P
MICIN_N
MICFB_P
MICFB_N
EAR1+
EAR1-
EAR_L
MIC_BIAS
CHG_MODE
MOTOR_EN
FM_LNA_RANGE
LCD_ID
MLCD_IF_MODE
CP_VEN
CP_I2C_SCL
EAR_MIC_KEY
CP_I2C_SDA
GPS_MODE
3PK_SW_EN
LCD_RESET/
TCXO_EN
CAM_RESET/
KYPD[3]
KYPD[1]
CAM_DATA[7]
CAM_DATA[6]
CAM_DATA[5]
CAM_DATA[4]
CAM_DATA[3]
CAM_DATA[2]
CAM_DATA[1]
CAM_DATA[0]
KYPD[15]
KYPD[13]
KYPD[11]
KYPD[9]
ON_SW_SEN/
KYPD[7]
KYPD[5]
EXT_VCO_EN
PS_HOLD
CP_STB/
BAT_ID_CHK
MLCD_CS/
NAND_WP/
JACK_DETECT/
SLCD_CS/
LT_DETECT/
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PMIC_I2C_SDA

LGE

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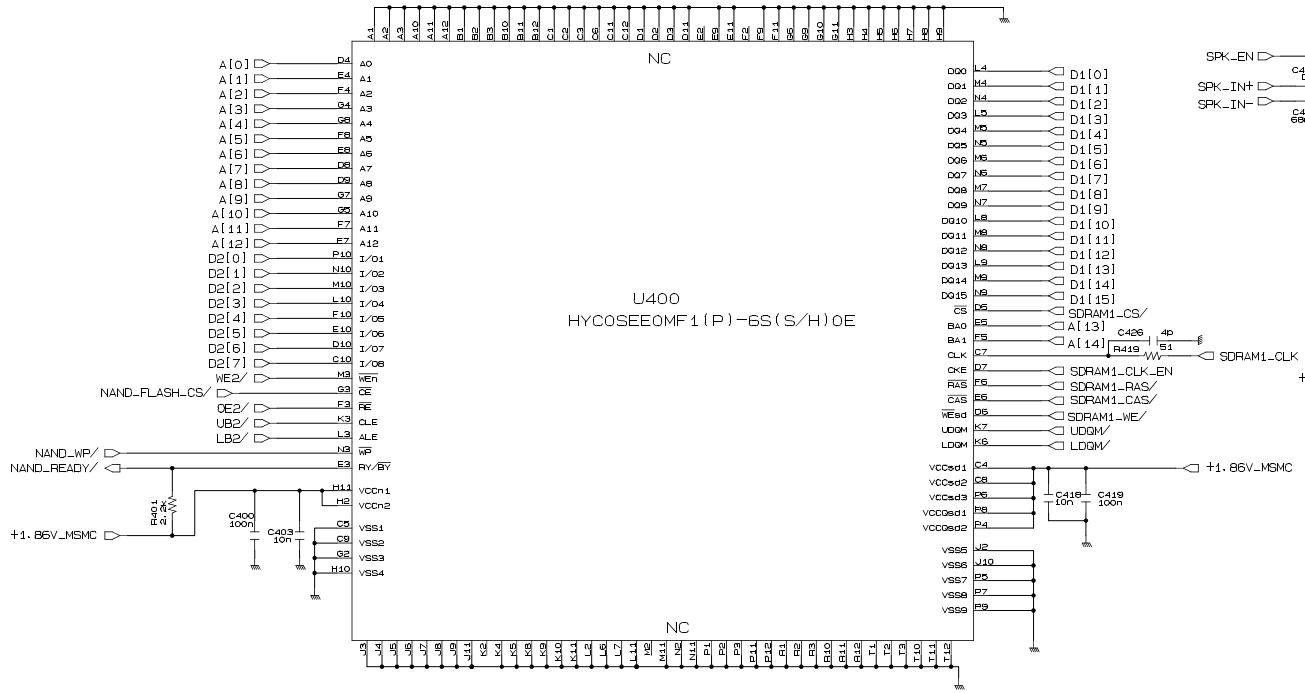

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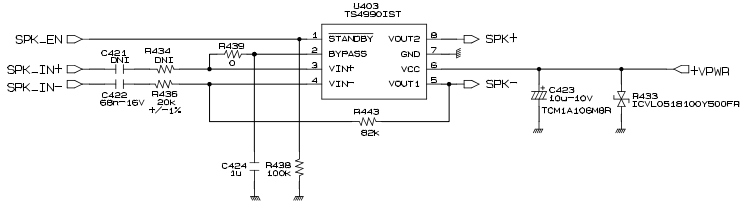

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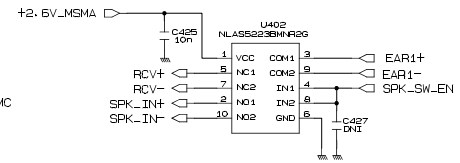
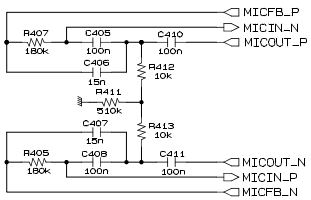


<Analog S/W logic table>

Control input (SW_EN)	
Low	RCV path ON
High	SPK path ON

<MIC FILTER>



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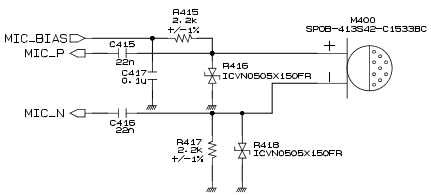
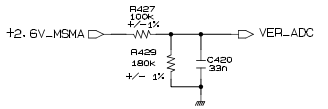


<PCB REVISION ADC>



Revison	R427	R429	ADC_Volt
A	100K	5.6K	0.14V
B	100K	12K	0.28V
C	100K	27K	0.55V
D	100K	47K	0.83V
E	100K	68K	1.05V
F	100K	100K	1.30V
1.0	100K	180K	1.67V
1.1	100K	270K	1.90V
1.2	100K	570K	2.17V

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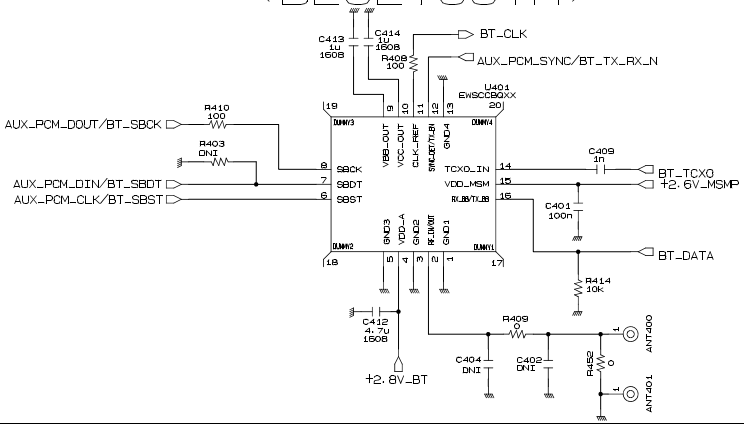

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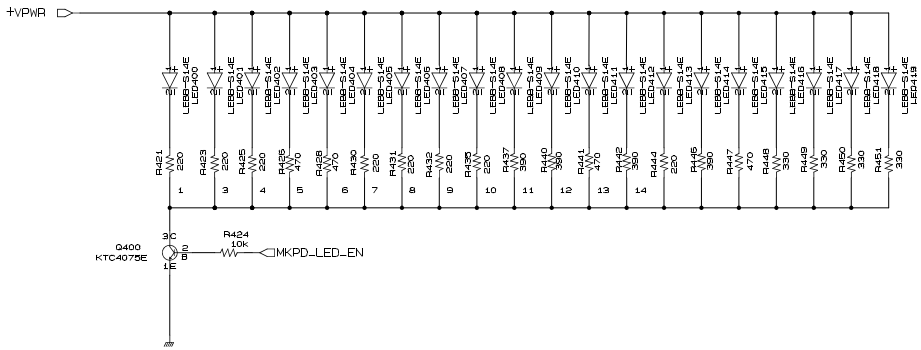
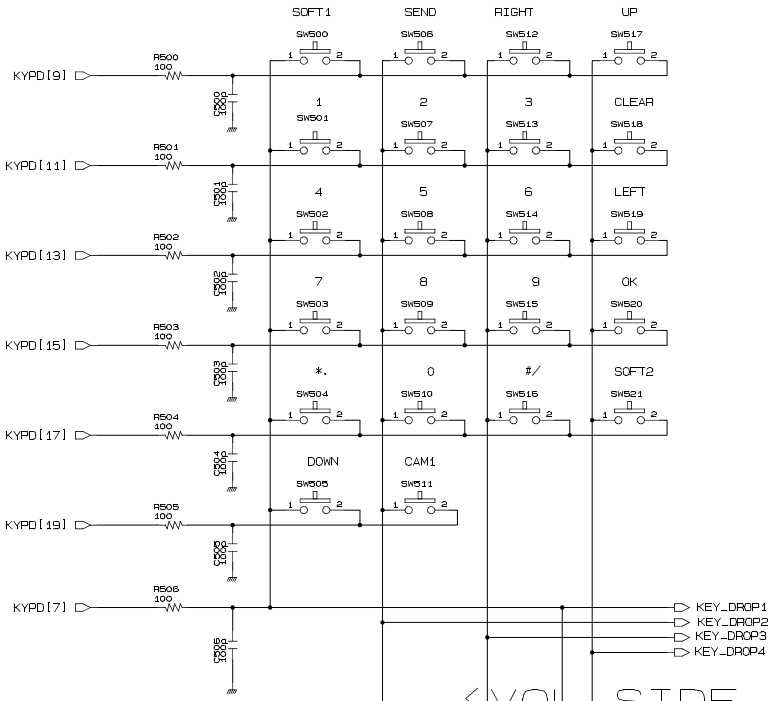


Internal Use Only

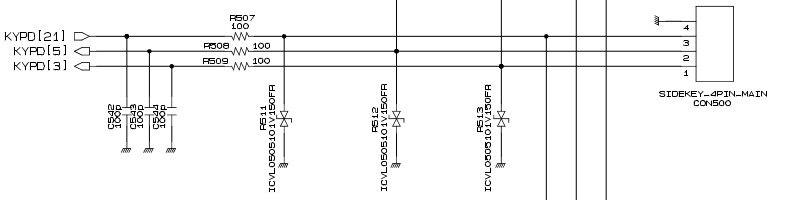
SHEET :4 of 6
DRAW :J. H. SHIM
DATE 2007/05/03
CHKD
APRD C. H. CHOI
REF
MAN
ISSUE :
CONTENT :Rev1.0

[4M:Change]
C531 GRM39X5R225K10
--> C1608X5R0J475KT

<MAIN KEY>

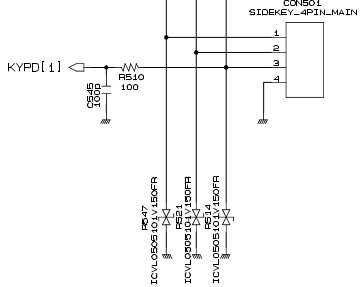


<VOL SIDE KEY>

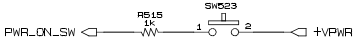


<SIDE CAM&AVR KEY>

	KYPD[7]	KYPD[5]	KYPD[3]	KYPD[1]
KYPD[9]	SOFT1	SEND	RIGHT	UP
KYPD[11]	1	2	3	CLEAR
KYPD[13]	4	5	6	LEFT
KYPD[15]	7	8	9	OK
KYPD[17]	*	0	#	SOFT2
KYPD[19]	DOWN	SPK		
KYPD[21]	SIDE_CAM	SIDE_UP	SIDE_DOWN	VOICE_MENU



<PWR/END>



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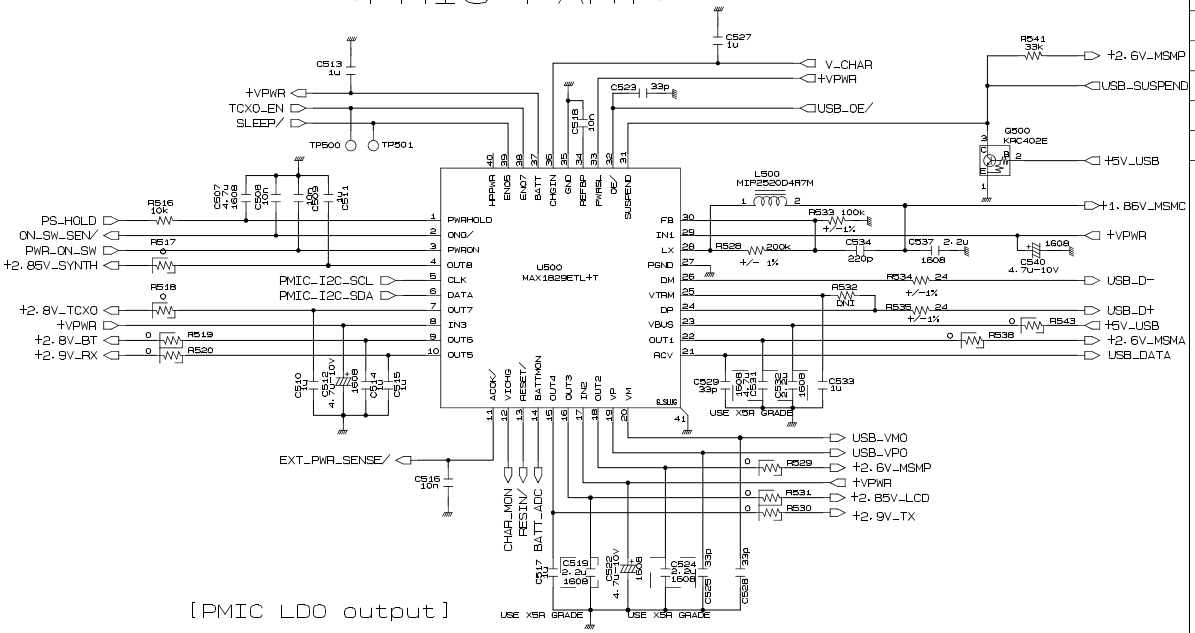
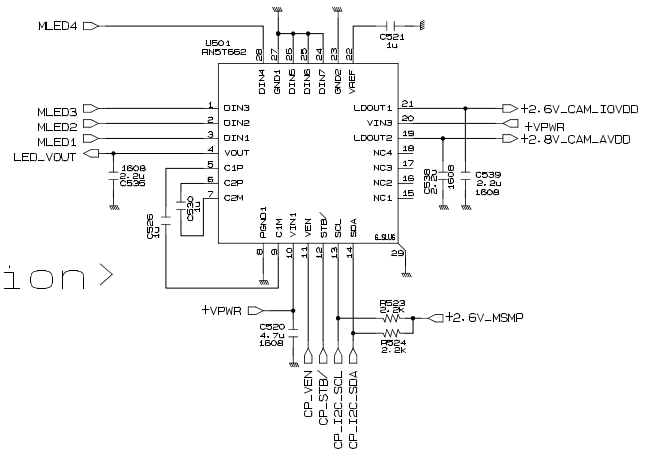


[PMIC LDO output]

	PWR S/L	BUCK	LDO1	LDO2	LDO3	LDO4	LDO5	LDO6	LDO7	LDO8
Default Voltage	GND/IN BUCK -> 1 -> 2 -> 3	+1.867	+2.6V	+2.6V	+2.85V	+2.85V	+2.85V	+2.85V	+2.85V	+2.85V
Programmable Voltage		0.6 ~ 2.5V			2.80 2.85 2.9 3.0	2.6 2.65 2.9 3.0	2.6 2.65 2.9 3.0	1.3 1.8 1.85 2.5 2.8 2.85 3.0 3.3	2.8 2.85 2.9 3.0	1.8 1.6 1.7 1.8 1.85 3.0 3.1 3.3
OutPut Current		500mA	300mA	300mA	300mA	150mA	150mA	150mA	80mA	150mA
Default ON		ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
ON/OFF after Pwr up		I2C	I2C	I2C	I2C	I2C	EN_5	I2C	EN_7	I2C
AX295		+1.86V_MSMC	+2.6V_MSMA	+2.6V_MSMP	+2.9V_TX	+2.85V_LCD	+2.90V_RX	+2.8V_BT	+2.8V_TCXO	+2.6V_CAMERA_IOVDD

<LCD B/L CHARGE PUMP>



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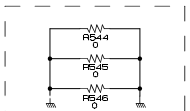

LGE

[4M:CHANGE]

L601 KNH21104
--> NTS104B

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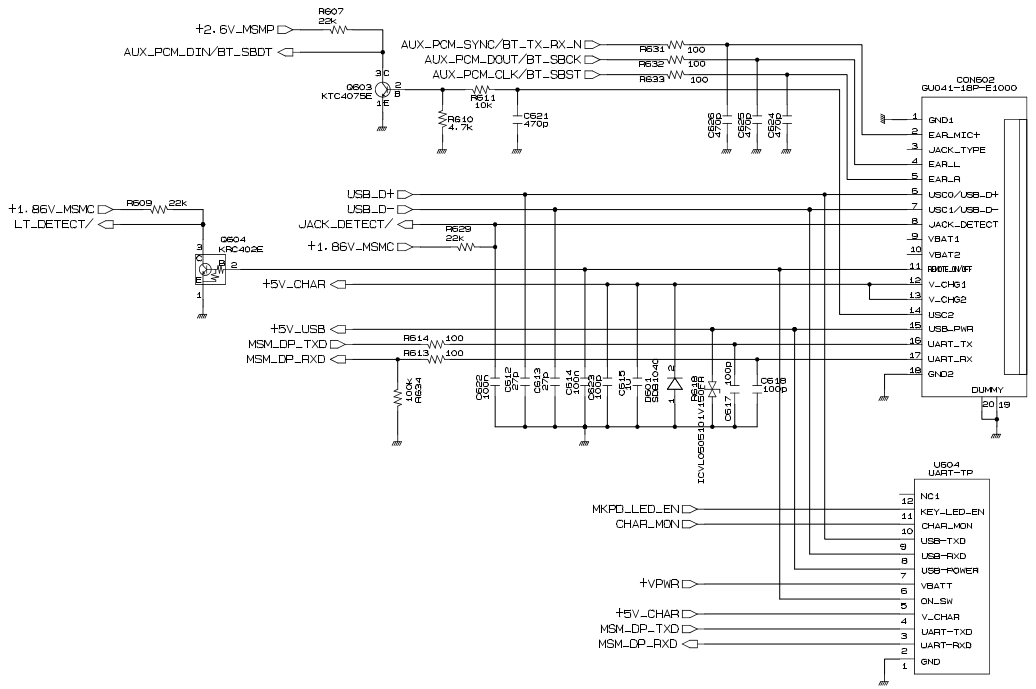

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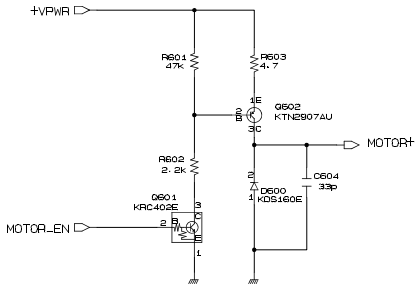

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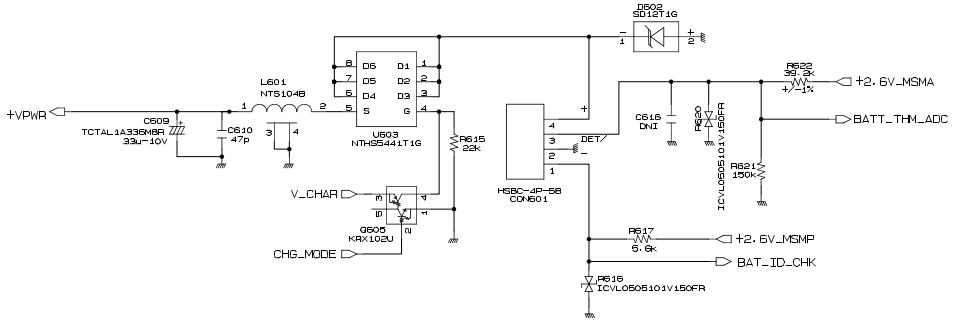

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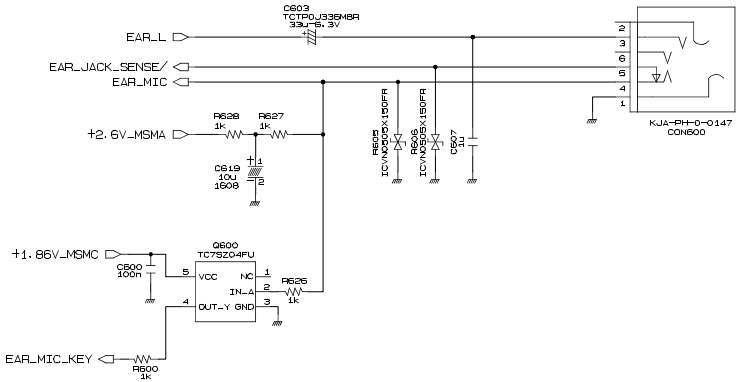

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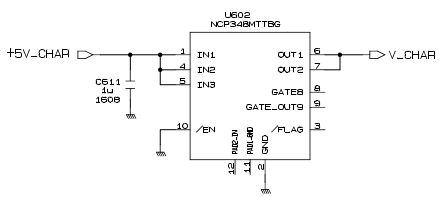

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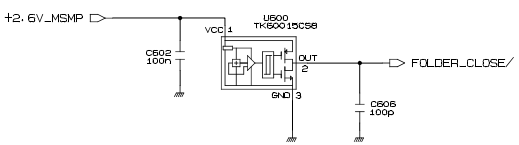
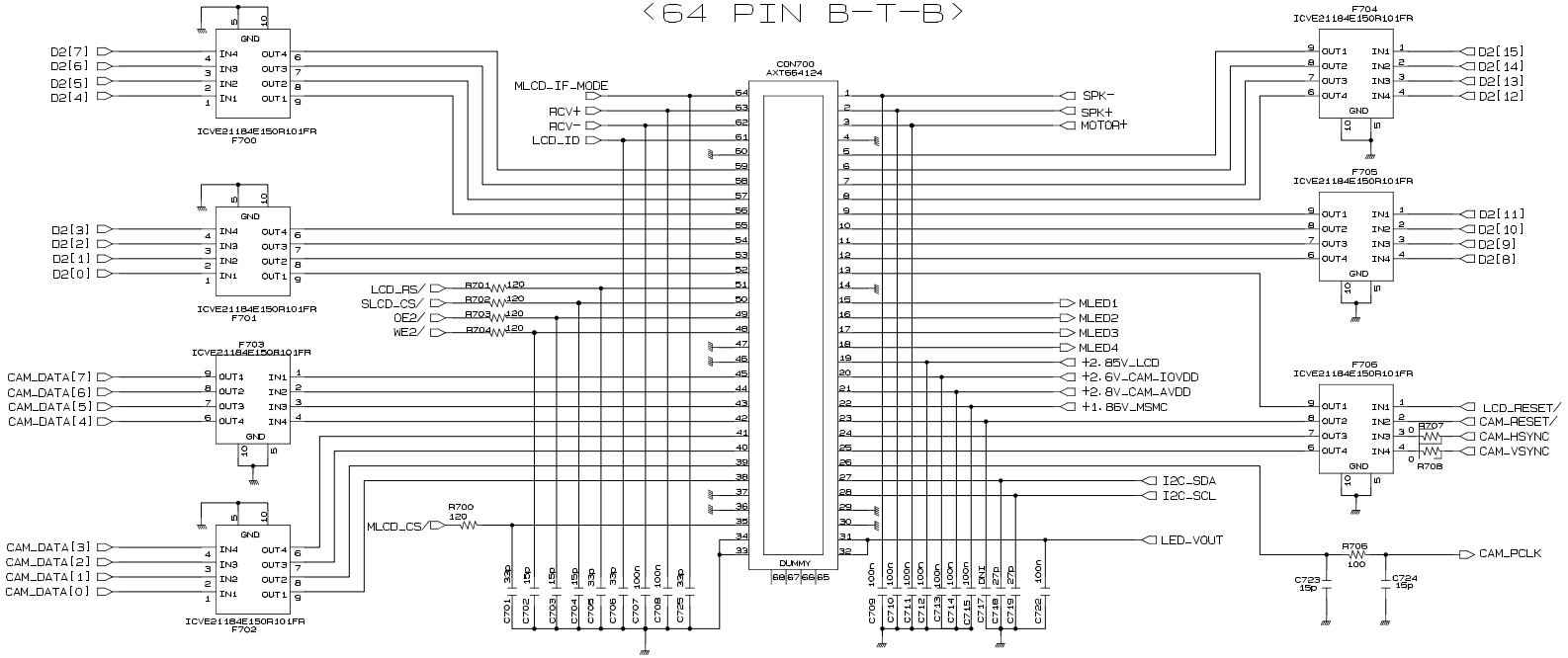


LGE

[4M:CHANGE]

C702 MCH155A100D
—>MCH155C150J

<64 PIN B-T-B>



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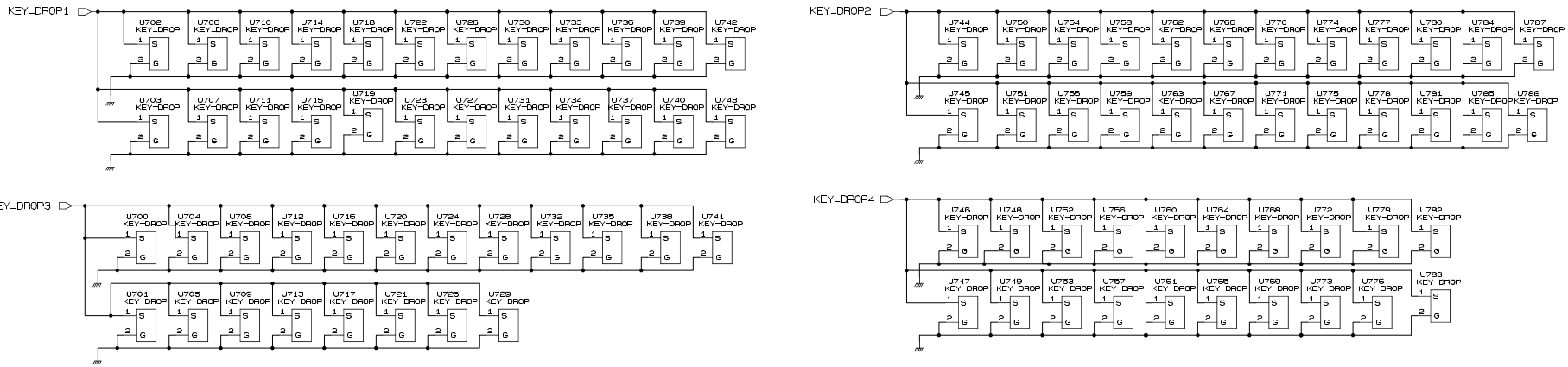
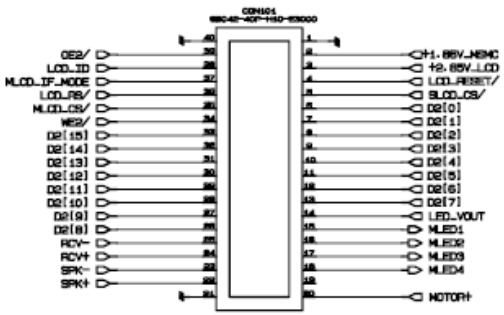
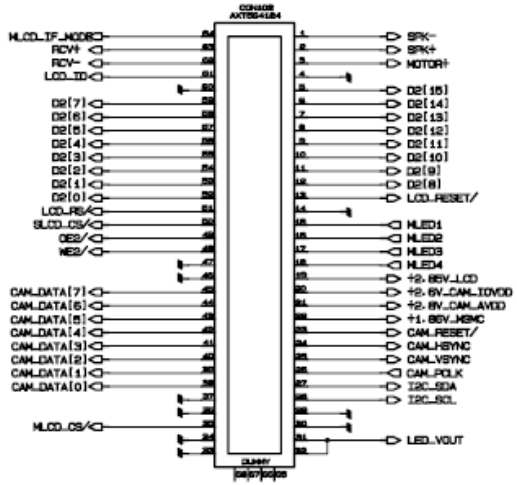


<LCD CONNECTOR 40 PIN PLUG>

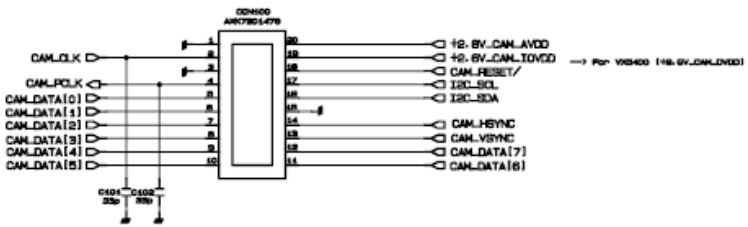


<MAIN CON. 64 PIN SOCKET>



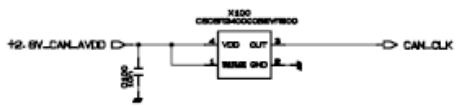
#	LCD MODULE	#	VX5400 MAIN CON.
1	GND	33	GND
2	VCC1_I/O	21	+1.85V_MSMC
3	VCC2_2.8V	18	+2.85V_LCD
4	RESET/	13	LCD_RESET/
5	S_CS/	50	SLCD_CS/
6	D0	52	D2[0]
7	D1	53	D2[1]
8	D2	54	D2[2]
9	D3	55	D2[3]
10	D4	56	D2[4]
11	D5	57	D2[5]
12	D6	58	D2[6]
13	D7	59	D2[7]
14	VMLED_Anode	31	LED_VOUT
15	MLED1_Cathode1	15	MLED1
16	MLED1_Cathode2	16	MLED2
17	MLED1_Cathode3	17	MLED3
18	MLED1_Cathode4	18	MLED4
19	Vsyncout		
20	MOTP	3	MOTOR+
21	GND	30	GND
22	SPKP	2	SPK+
23	SPKN	1	SPK-
24	RCVP	63	RCV+
25	RCVN	62	RCV-
26	D8	12	D2[8]
27	D9	11	D2[9]
28	D10	10	D2[10]
29	D11	9	D2[11]
30	D12	8	D2[12]
31	D13	7	D2[13]
32	D14	6	D2[14]
33	D15	5	D2[15]
34	WR/	48	WE2/
35	M_CS/	35	MLCD_CS/
36	RS	51	LCD_RS/
37	IFMODE_Main	64	MLCD_IF_MODE
38	ID_MAKER_Low	61	LCD_ID
39	RD/	49	OE2/
40	GND	60	GND
41			
42			
43			
44			

<CAM. CON. 20 PIN SOCKET >



#	CAMERA MODULE	#	VX5400 MAIN CON.
1	PWDN	36	GND
2	XCLK	30	CAM_CLK
3	GND_A	3	GND
4	DCLK	26	CAM_PCLK
5	D0	38	CAM_DATA[0]
6	D1	39	CAM_DATA[1]
7	D2	40	CAM_DATA[2]
8	D3	41	CAM_DATA[3]
9	D4	42	CAM_DATA[4]
10	D5	43	CAM_DATA[5]
11	D6	44	CAM_DATA[6]
12	D7	45	CAM_DATA[7]
13	VSYNC	25	CAM_VSYNC
14	HSYNC	24	CAM_HSYNC
15	GND_D	14	GND
16	SDA	27	I2C_SDA
17	SCL	28	I2C_SCL
18	RESET(Active Low)	23	CAM_RESET/
19	DVDD(2.45~2.8V)	19	+2.8V_CAM_IOVDD
20	AVDD(2.45~2.8V)	20	+2.8V_CAM_AVDD

< CAMERA XTAL >



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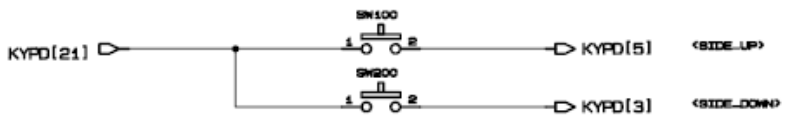

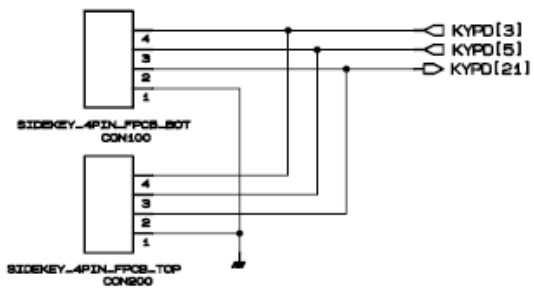

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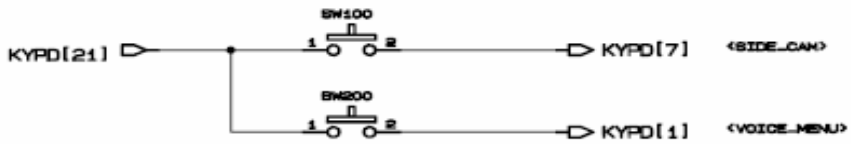
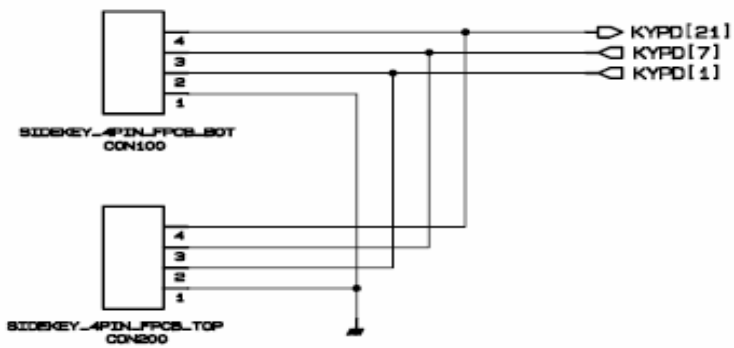




3. Part List

Main PCB Component List

Internal Use Only

Ref No	Part Name	Part Number	Spec	Maker P/N
MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	LG-VX6000
SAFC00	PCB ASSY,MAIN, SMT BOTTOM	SAFC0089001		
ANT100	CONTACT,ANTENNA	MCIA0018901	PRESS, BeCu, 0.15, , , ,	MCIA0018901
ANT102	CONTACT,ANTENNA	MCIA0018901	PRESS, BeCu, 0.15, , , ,	MCIA0018901
C101	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C102	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C103	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C104	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C105	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	MCH155A220JK
C106	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H560JT
C107	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	MCH155A220JK
C108	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C109	CAP,TANTAL,CHIP	ECTH0004807	10 uF,10V ,M ,STD ,1608 ,R/TP ,; , ,[empty] ,[empty] ,	TCM1A106M8R
C111	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C113	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C114	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C115	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C116	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C118	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP	C1005CH1H0R5BB
C119	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C120	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H1R5CT
C121	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP	C1608Y5V0J475ZT
C123	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H010CT
C124	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C125	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP	C1608Y5V0J475ZT
C127	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C129	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C130	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP	C1005JB1A473KT
C131	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C132	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H680JT
C133	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C134	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C135	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C136	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C137	CAP,CERAMIC,CHIP	ECCH0000137	330 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H331KT
C138	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C141	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C142	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C143	CAP,CHIP,MAKER	ECZH0000806	5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H050CT
C145	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H560JT
C147	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C148	CAP,TANTAL,CHIP	ECTH0004801	10 uF,6.3V ,M ,STD ,1608 ,R/TP	TCM0J106M8R
C149	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C150	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C151	CAP,CERAMIC,CHIP	ECCH0000147	2.2 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN222KK
C152	CAP,CHIP,MAKER	ECZH0001107	5600 pF,25V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1E562KT
C153	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT

Ref No	Part Name	Part Number	Spec	Maker P/N
C154	CAP,CHIP,MAKER	ECZH0003124	68 nF,16V ,K ,X7R ,HD ,1005 ,R/TP	GRM36X7R683K16PT
C155	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP	MCH155A030C
C156	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP	MCH155A030C
C157	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP	MCH155A060DK
C158	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP	MCH155A060DK
C160	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C161	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C162	CAP,CHIP,MAKER	ECZH0003004	82 nF,10V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R823K10
C163	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C164	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C165	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C166	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C167	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C168	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C169	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C170	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP	MCH155A060DK
C171	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP	MCH155A080DK
C172	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C173	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C174	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C175	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C176	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C177	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C178	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C179	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C180	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C181	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C182	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C183	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C184	CAP,TANTAL,CHIP	ECTH0004801	10 uF,6.3V ,M ,STD ,1608 ,R/TP	TCM0J106M8R
C185	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C186	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C187	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C188	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C189	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C190	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C191	CAP,CHIP,MAKER	ECZH0000849	200 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H201JT
C192	CAP,CHIP,MAKER	ECZH0000849	200 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H201JT
C193	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C194	CAP,CHIP,MAKER	ECZH0001106	4700 pF,25V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1E472KT
C195	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C196	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C197	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H560JT
C198	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C199	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H010CT
C200	CAP,CHIP,MAKER	ECZH0000810	9 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H090DT
C300	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J
C301	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C302	CAP,CERAMIC,CHIP	ECCH0000287	680 nF,10V ,M ,X5R ,TC ,1608 ,R/TP	C1608X5R1A684M
C303	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C304	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C305	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J
C306	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C307	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK

Ref No	Part Name	Part Number	Spec	Maker P/N
C308	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C309	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C310	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C311	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C312	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C313	CAP,CHIP,MAKER	ECZH0001202	0.022 uF,16V ,Z ,Y5V ,HD ,1005 ,R/TP	C1005Y5V1C223ZT
C314	CAP,CHIP,MAKER	ECZH0001202	0.022 uF,16V ,Z ,Y5V ,HD ,1005 ,R/TP	C1005Y5V1C223ZT
C315	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C316	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C317	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C318	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C319	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C320	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C321	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C322	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R104K10PT
C323	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN333KK
C400	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C401	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C403	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C405	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C406	CAP,CHIP,MAKER	ECZH0001208	15000 pF,16V ,Z ,Y5V ,HD ,1005 ,R/TP	C1005Y5V1H153ZT
C407	CAP,CHIP,MAKER	ECZH0001208	15000 pF,16V ,Z ,Y5V ,HD ,1005 ,R/TP	C1005Y5V1H153ZT
C408	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C409	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C410	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C411	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C412	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP	CV105X5R475M10AT
C413	CAP,CHIP,MAKER	ECZH0003501	1 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP	GRM39X5R105K6.3PT
C414	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP	GRM39X5R105K25PT
C415	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R223K16PT
C416	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R223K16PT
C417	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R104K10PT
C418	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C419	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C420	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN333KK
C422	CAP,CHIP,MAKER	ECZH0003124	68 nF,16V ,K ,X7R ,HD ,1005 ,R/TP	GRM36X7R683K16PT
C423	CAP,TANTAL,CHIP	ECTH0004807	10 uF,10V ,M ,STD ,1608 ,R/TP ,; , ,[empty] ,[empty] , -55TO+125C , ,[empty] ,[empty] ,[empty] ,[empty]	TCM1A106M8R
C424	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C425	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C426	CAP,CERAMIC,CHIP	ECCH0000105	4 pF,50V,C,NP0,TC,1005,R/TP	MCH155A040C
C507	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP	C1608X5R0J475KT
C508	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C509	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C510	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP	GRM155R60J105KE19D
C511	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP	GRM155R60J105KE19D
C512	CAP,TANTAL,CHIP	ECTH0002202	4.7 uF,10V ,M ,STD ,1608 ,R/TP	SYF-1A475M-RJ
C513	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP	GRM155R60J105KE19D
C514	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP	GRM155R60J105KE19D
C515	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP	GRM155R60J105KE19D
C516	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C517	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT

Ref No	Part Name	Part Number	Spec	Maker P/N
C518	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C519	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10
C520	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP	CV105X5R475M10AT
C521	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C522	CAP,TANTAL,CHIP	ECTH0002202	4.7 uF,10V ,M ,STD ,1608 ,R/TP	SYF-1A475M-RJ
C523	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C524	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10
C525	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C526	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP	GRM155R60J105KE19D
C527	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP	GRM155R60J105KE19D
C528	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C529	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C530	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP	GRM155R60J105KE19D
C531	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP	C1608X5R0J475KT
C532	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10
C533	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C534	CAP,CHIP,MAKER	ECZH0000801	220 pF,16V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1C221JT
C535	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10
C537	CAP,CHIP,MAKER	ECZH0001511	2.2 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP	C1608Y5V1A225ZT
C538	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10
C539	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10
C540	CAP,TANTAL,CHIP	ECTH0002202	4.7 uF,10V ,M ,STD ,1608 ,R/TP	SYF-1A475M-RJ
C600	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C603	CAP,TANTAL,CHIP	ECTH0005201	33 uF,6.3V ,M ,L_ESR ,2012 ,R/TP , , ,[empty] ,[empty] ,[empty] , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]	TCTP0J336M8R
C604	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C607	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C609	CAP,TANTAL,CHIP	ECTH0004804	33 uF,10V ,M ,L_ESR ,3216 ,R/TP	TCTAL1A336M8R
C610	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C611	CAP,CHIP,MAKER	ECZH0003501	1 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP	GRM39X5R105K6.3PT
C612	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C613	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C614	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C615	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C617	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C618	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C619	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP	F980J106MMA
C621	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H471KT
C622	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C623	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C624	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H471KT
C625	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H471KT
C626	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H471KT
CON600	CONN,JACK/PLUG, EARPHONE	ENJE0006401	, PIN, ,; ,4P ,[empty] ,STRAIGHT ,P/TR , ,[empty] ,	KJA-PH-0-0147
CON602	CONNECTOR,I/O	ENRY0006401	18 PIN,0.4 mm,ANGLE , ,H=2.5, Reverse Type	HSEJ-18S04-25R
D600	DIODE,SWITCHING	EDSY0009901	ESC ,80 V,300 A,R/TP ,1.6*0.8*0.6(t)	KDS160E
D601	DIODE,SWITCHING	EDSY0017701	SOD-123 ,40 V,1 A,R/TP , ,; , , , , , , ,[empty] ,[empty] ,2P ,1	SDB1040
D602	DIODE,TVS	EDTY0007401	SMD ,12 V,350 W,R/TP ,	SD12T1G

Ref No	Part Name	Part Number	Spec	Maker P/N
F100	FILTER,SAW,DUAL	SFSB0001201	881.5 MHz,25 MHz,2.5 dB,35 dB,1960 MHz,60 MHz,3.5 dB,13 dB,2.0*1.6*0.5 ,SMD 869M~894M,1930M~1990M,10p,B,100,100_12,DCN+USPCS Rx ,; ,881.5,1960 ,2.0*1.6*0.5 ,SMD ,R/TP	FAR-G6KE-1G9600-Y4LY
F101	FILTER,SAW	SFSY0016801	1575.42 MHz,2.0*1.4*0.78 ,SMD ,1574.42M~1576.42M, IL 0.9, 5pin, U-U, 50-50, GPS BPF , ,1575.42 ,2.0*1.4*0.78 ,SMD ,R/TP	B9000
F102	FILTER,SAW	SFSY0029901	836.5 MHz,1.4*1.1*0.6 ,SMD ,824M~849M, IL 2.5, 5pin, U-U, 50-50, GSM850 Tx , ,836.5 ,1.4*1.1*0.6 ,SMD ,R/TP	SAFEB836MAL0F00
F103	FILTER,SAW	SFSY0032501	1880 MHz,1.4*1.0*0.5 ,SMD ,1850.6M~1909.4M, IL 3.8, 5pin, U-U, 50-50, PCS Tx ,; ,1880 ,1.4*1.0*0.5 ,SMD ,R/TP	FAR-F6KA-1G8800-L4AF
L100	INDUCTOR,CHIP	ELCH0004729	56 nH,J ,1005 ,R/TP ,	1005GC2T56NJ00
L103	INDUCTOR,CHIP	ELCH0004706	10 nH,J ,1005 ,R/TP ,	1005GC2T10NJ00
L104	INDUCTOR,CHIP	ELCH0004718	5.6 nH,S ,1005 ,R/TP ,	1005GC2T5N6S00
L106	INDUCTOR,CHIP	ELCH0004718	5.6 nH,S ,1005 ,R/TP ,	1005GC2T5N6S00
L107	INDUCTOR,CHIP	ELCH0004726	1.5 nH,J ,1005 ,R/TP ,	1005GC2T1N5S00
L108	INDUCTOR,CHIP	ELCH0004712	3.9 nH,S ,1005 ,R/TP ,	1005GC2T3N9S00
L109	INDUCTOR,CHIP	ELCH0004729	56 nH,J ,1005 ,R/TP ,	1005GC2T56NJ00
L110	INDUCTOR,CHIP	ELCH0004706	10 nH,J ,1005 ,R/TP ,	1005GC2T10NJ00
L111	INDUCTOR,CHIP	ELCH0004708	2.7 nH,S ,1005 ,R/TP ,	1005GC2T2N7S00
L112	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,	HB-1M1005-601JT
L113	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,	1005GC2T2N2S00
L114	INDUCTOR,CHIP	ELCH0004717	82 nH,J ,1005 ,R/TP ,	1005GC2T82NJ00
L115	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,	1005GC2T27NJ00
L116	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,	HB-1M1005-601JT
L117	INDUCTOR,CHIP	ELCH0004705	8.2 nH,J ,1005 ,R/TP ,	1005GC2T8N2J00
L118	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,	1005GC2T4N7S00
L119	INDUCTOR,CHIP	ELCH0004706	10 nH,J ,1005 ,R/TP ,	1005GC2T10NJ00
L121	INDUCTOR,CHIP	ELCH0004717	82 nH,J ,1005 ,R/TP ,	1005GC2T82NJ00
L122	INDUCTOR,CHIP	ELCH0004713	6.8 nH,J ,1005 ,R/TP ,	1005GC2T6N8J00
L123	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,	1005GC2T2N2S00
L124	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,	1005GC2T2N2S00
L125	INDUCTOR,CHIP	ELCH0004706	10 nH,J ,1005 ,R/TP ,	1005GC2T10NJ00
L126	INDUCTOR,CHIP	ELCH0004706	10 nH,J ,1005 ,R/TP ,	1005GC2T10NJ00
L127	INDUCTOR,CHIP	ELCH0004703	1 nH,S ,1005 ,R/TP ,	1005GC2T1N0S00
L128	INDUCTOR,CHIP	ELCH0004703	1 nH,S ,1005 ,R/TP ,	1005GC2T1N0S00
L129	INDUCTOR,CHIP	ELCH0004723	1.8 nH,S ,1005 ,R/TP ,	1005GC2T1N8S00
L130	INDUCTOR,CHIP	ELCH0004717	82 nH,J ,1005 ,R/TP ,	1005GC2T82NJ00
L500	INDUCTOR,SMD, POWER	ELCP0008001	4.7 uH,M ,2.5*2.0*1.0 ,R/TP ,	MIP2520D4R7M
L601	FILTER,EMI/POWER	SFEY0006001	SMD ,	NTS104B
Q100	IC	EUSY0073401	SSOP5-P-0.65A ,5 PIN,R/TP ,INVERTER, Pb Free	TC7SH04FU
Q400	TR,BJT,NPN	EQBN0007601	SOT-23 ,0.15 W,R/TP ,EMT3	KTC4075E
Q500	TR,BJT,NPN	EQBN0012401	ESM ,100 mW,R/TP ,NPN TRANSISTOR	KRC402E
Q600	IC	EUSY0140902	SSOP ,5 PIN,R/TP ,Inverter(2x2.1)	TC7SZ04FU
Q601	TR,BJT,NPN	EQBN0012401	ESM ,100 mW,R/TP ,NPN TRANSISTOR	KRC402E

Ref No	Part Name	Part Number	Spec	Maker P/N
Q602	TR,BJT,PNP	EQBP0004102	USM ,100 mW,R/TP ,	KTN2907AU
Q603	TR,BJT,NPN	EQBN0007601	SOT-23 ,0.15 W,R/TP ,EMT3	KTC4075E
Q604	TR,BJT,NPN	EQBN0012401	ESM ,100 mW,R/TP ,NPN TRANSISTOR	KRC402E
Q605	TR,BJT,ARRAY	EQBA0000601	UMT5 ,.2 W,R/TP ,	KRX102U
R100	RES,CHIP,MAKER	ERHZ0000291	49.9 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF49R9
R101	RES,CHIP,MAKER	ERHZ0000212	12 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1202
R102	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R103	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R104	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ510
R105	RES,CHIP,MAKER	ERHZ0003202	5.76 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF5761
R106	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ104
R107	RES,CHIP,MAKER	ERHZ0000325	24 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF24R0
R108	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ510
R109	RES,CHIP,MAKER	ERHZ0000325	24 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF24R0
R110	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ100
R111	RES,CHIP,MAKER	ERHZ0000286	4700 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF4701
R112	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R113	RES,CHIP,MAKER	ERHZ0000278	3900 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF3901
R114	RES,CHIP,MAKER	ERHZ0000229	1800 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1801
R115	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R116	RES,CHIP,MAKER	ERHZ0000325	24 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF24R0
R117	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R119	RES,CHIP,MAKER	ERHZ0003203	11.3 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1132
R120	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R121	RES,CHIP,MAKER	ERHZ0003203	11.3 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1132
R122	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R123	RES,CHIP,MAKER	ERHZ0003202	5.76 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF5761
R124	RES,CHIP,MAKER	ERHZ0003202	5.76 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF5761
R125	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R126	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R127	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R129	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1002
R300	RES,CHIP,MAKER	ERHZ0000205	1 Mohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1004
R301	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R302	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R303	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ472
R305	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R308	RES,CHIP,MAKER	ERHZ0000281	39.2 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF3922
R309	THERMISTOR	SETY0001401	NTC ,68 Kohm,SMD ,	NCP18WD683E03RB
R310	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R311	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R313	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1503
R314	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ472
R315	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ472
R401	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ222
R405	RES,CHIP,MAKER	ERHZ0000433	180 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ184
R407	RES,CHIP,MAKER	ERHZ0000433	180 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ184
R408	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R409	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R410	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R411	RES,CHIP,MAKER	ERHZ0000494	510 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ514
R412	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1002
R413	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1002
R414	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103

Ref No	Part Name	Part Number	Spec	Maker P/N
R415	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R417	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R419	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ510
R424	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R427	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1003
R429	RES,CHIP,MAKER	ERHZ0000231	180 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1803
R433	VARISTOR	SEVY0004301	18 V, ,SMD ,10pF, 1005	ICVL0518100Y500FR
R436	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2002
R438	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ104
R439	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R443	RES,CHIP,MAKER	ERHZ0000320	82 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF8202
R452	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R516	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R523	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ222
R524	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ222
R528	RES,CHIP,MAKER	ERHZ0000238	200 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2003
R533	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1003
R534	RES,CHIP,MAKER	ERHZ0000325	24 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF24R0
R535	RES,CHIP,MAKER	ERHZ0000325	24 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF24R0
R541	RES,CHIP,MAKER	ERHZ0000466	33 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ333
R600	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R601	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ473
R602	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ222
R603	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ100
R605	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005	ICVN0505X150FR
R606	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005	ICVN0505X150FR
R607	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ223
R609	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ223
R610	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ472
R611	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R613	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R614	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R615	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ223
R616	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
R617	RES,CHIP,MAKER	ERHZ0000499	5600 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ562
R618	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
R620	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
R621	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1503
R622	RES,CHIP,MAKER	ERHZ0000281	39.2 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF3922
R626	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R627	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R628	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R629	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ223
R631	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R632	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R633	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R634	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ104
R700	RES,CHIP,MAKER	ERHZ0000411	120 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ121
U100	CONN,RF SWITCH	ENWY0004401	,SMD , dB,H=2.2	RF-800
U101	MODULE,ETC	SMZY0009901	QuintPlexer (CDMA+US-PCS+GPS), 8.0*5.0	ACFM-7101
U102	IC	EUSY0324101	HDET power detector ,4 PIN,R/TP , RMS Detecting 30dB Range	AD45096

Ref No	Part Name	Part Number	Spec	Maker P/N
U103	IC	EUSY0265501	2.0*2.0*1.1 ,6 PIN,R/TP , LNA with Shutdown function	ALM-1106-TR1
U104	TR,FET,P-CHANNEL	EQFP0003501	SC70JW-8 ,714 mW,6 V,2.3 A,R/TP , Slew Rate Controlled Load Switch	AAT4280IJS-3-TI
U105	COUPLER, RF DIRECTIONAL	SCDY0003701	-24.2 dB,-0.2 dB,-34.2 dB,1.0*0.58*0.35 ,SMD , Pb-free_Coupler_USPCS Tx ,; ,[empty] ,1880MHz ,60MHz ,SMD ,R/TP	CP0402A1880FNTR
U106	COUPLER, RF DIRECTIONAL	SCDY0003403	-18 dB,-.25 dB,-33 dB,1.0*0.58*0.35 ,SMD , 1920M ~ 1980M, 4pin, Pb Free , [empty] , , ,SMD ,R/TP	CP0402A1950DNTR
U107	IC	EUSY0133701	BCCP ,16 PIN,R/TP ,Dual LNA IC	RFL6000
U108	PAM	SMPY0013901	28 dBm,39 %,16 mA,-50 dBc,27 dB, 3x3x1 ,SMD ,	AWT6308R
U109	PAM	SMPY0014601	28 dBm,20 %, A,-47 dBc,17 dB,3x3x1 ,SMD , High Eff ,; ,8 , , , , , , ,SMT ,P/TP ,	AWT6307R
U110	VCO	EXSC0008101	MHz, PPM, pF,SMD ,5.0*4.0*1.7 , 1715M ~ 1788M, 8pin, SBSO	MQL300A1G75
U111	IC	EUSY0133801	BCCP ,40 PIN,R/TP , RF to Baseband Receiver IC	RFR6000
U112	IC	EUSY0133602	BCCP ,40 PIN,R/TP , Baseband to RF transmitter IC	RFT6100 2J
U300	IC	EUSY0152202	CSP ,341 PIN,R/TP , CDMA1X BB MSM6100 Lowcost(90nm)	MSM6100-90NM
U400	IC	EUSY0322101	FBGA ,149 PIN,ETC ,FULLY 1.8V 512M(64Mx8) NAND+256M(16Mx16) SDRAM , ,IC,MCP	HYC0SEE0MF1P-6SH0E
U401	MODULE,ETC	SMZY0011901	Bluetooth RF Module(3.8x3.85x1.15)	EWSCCBQXX
U402	IC	EUSY0300101	WQFN ,10 PIN,R/TP ,Small package Dual SPDT analog Switch, PB-Free	NLAS5223BMNR2G
U403	IC	EUSY0281501	Spk AMP- AB Class mono 1.2W ,9 PIN,R/TP ,	TS4990IST
U500	IC	EUSY0284701	Thin QFN ,40 PIN,R/TP ,PMIC	MAX1829ETL+T
U501	IC	EUSY0263603	QFN ,28 PIN,R/TP ,4x4,6port(150mA) ,Flash(300mA)	RN5T662
U602	IC	EUSY0319201	DFN ,10 PIN,R/TP ,OVP	NCP348MTTBG
U603	TR,FET,P-CHANNEL	EQFP0006301	chipFET ,1.3 W,-20 V,3.9 A,R/TP , 8 PIN (Pb-free)	NTHS5441T1G
X100	VCTCXO	EXSK0004801	19.2 MHz,2.0 PPM,10 pF,SMD ,3.2*2.5*1.2 ,	ERF3003B
X200	RESONATOR	EXRY0002601	48 MHz,.15 %,6 pF,SMD ,2.0*1.2*0.85 ,0.1% at -20'C ~ +80'C, Built-In Cap., Pb Free	IFRC48P0T0SE30
X201	X-TAL	EXXY0004601	.032768 MHz,20 PPM,7 pF,65000 ohm,SMD , 6.9*1.4*1.3 ,	MC-146(7PF,+/-20PPM)
SAFD00	PCB ASSY,MAIN, SMT TOP	SAFD0088301		
C500	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C501	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C502	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C503	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C504	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C505	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT

Internal Use Only

Ref No	Part Name	Part Number	Spec	Maker P/N
C506	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C542	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C543	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C544	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C545	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C602	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C606	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C701	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C702	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J
C703	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J
C704	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J
C705	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C706	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C707	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C708	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C709	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C710	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C711	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C712	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C713	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C714	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C715	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C718	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C719	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C722	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C723	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J
C724	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J
C725	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
CON700	CONNECTOR, BOARD TO BOARD	ENBY0042201	64 PIN, mm,STRAIGHT , , ,; , ,0.40MM ,STRAIGHT ,MALE , SMD ,P/TR , ,	AXT664124
F700	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array (100Ohm,15pF)	ICVE21184E150R101FR
F701	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array (100Ohm,15pF)	ICVE21184E150R101FR
F702	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array (100Ohm,15pF)	ICVE21184E150R101FR
F703	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array (100Ohm,15pF)	ICVE21184E150R101FR
F704	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array (100Ohm,15pF)	ICVE21184E150R101FR
F705	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array (100Ohm,15pF)	ICVE21184E150R101FR
F706	VARISTOR	SEVY0005501	18 V, ,SMD ,4ch. R-Varistor Array (100Ohm,15pF)	ICVE21184E150R101FR
LED400	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED401	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED402	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED403	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED404	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED405	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED406	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED407	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED408	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E

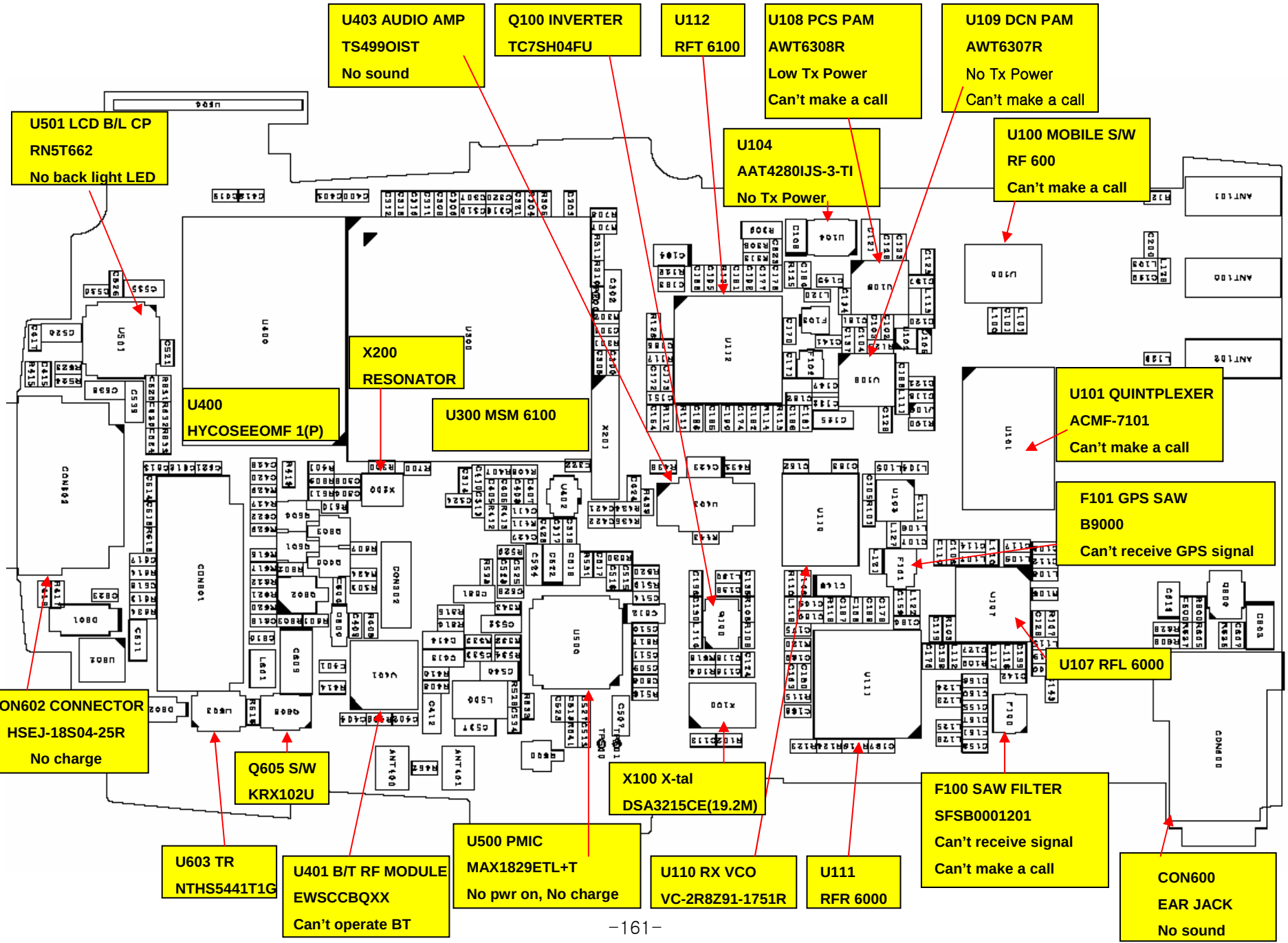
Ref No	Part Name	Part Number	Spec	Maker P/N
LED409	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED410	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED411	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED412	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED413	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED414	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED415	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED416	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED417	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED418	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
LED419	DIODE,LED,CHIP	EDLH0004501	BLUE ,1608 ,R/TP ,	LEBB-S14E
M400	MICROPHONE	SUMY0010510	PIN ,42 dB,4*1.35 ,JFET	SPOB-413S42-C1533BC
R416	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005	ICVN0505X150FR
R418	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005	ICVN0505X150FR
R421	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ221
R423	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ221
R425	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ221
R426	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ471
R428	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ471
R430	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ221
R431	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ221
R432	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ221
R435	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ221
R437	RES,CHIP,MAKER	ERHZ0000474	390 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ391
R440	RES,CHIP,MAKER	ERHZ0000474	390 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ391
R441	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ471
R442	RES,CHIP,MAKER	ERHZ0000474	390 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ391
R444	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ221
R446	RES,CHIP,MAKER	ERHZ0000474	390 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ391
R447	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ471
R448	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ331
R449	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ331
R450	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ331
R451	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ331
R500	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R501	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R502	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R503	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R504	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R505	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R506	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R507	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R508	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R509	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R510	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R511	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
R512	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
R513	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
R514	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
R515	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R521	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
R544	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R545	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R546	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000

Ref No	Part Name	Part Number	Spec	Maker P/N
R547	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
R701	RES,CHIP,MAKER	ERHZ0000411	120 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ121
R702	RES,CHIP,MAKER	ERHZ0000411	120 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ121
R703	RES,CHIP,MAKER	ERHZ0000411	120 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ121
R704	RES,CHIP,MAKER	ERHZ0000411	120 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ121
R706	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
SPFY00	PCB,MAIN	SPFY0148001	FR-4 ,0.8 mm,BUILD-UP 8 ,MAIN ,; ,	SPFY0148001
U600	IC	EUSY0268102	TSOT23-3 ,3 PIN,R/TP ,Low Profile(1.0T) CMOS Hall Switch, Pb Free	TK60015CS80L
WSYY00	SOFTWARE	WSYY0553401	VX540V01, 09, 2007/06/28-05:43:00:000	

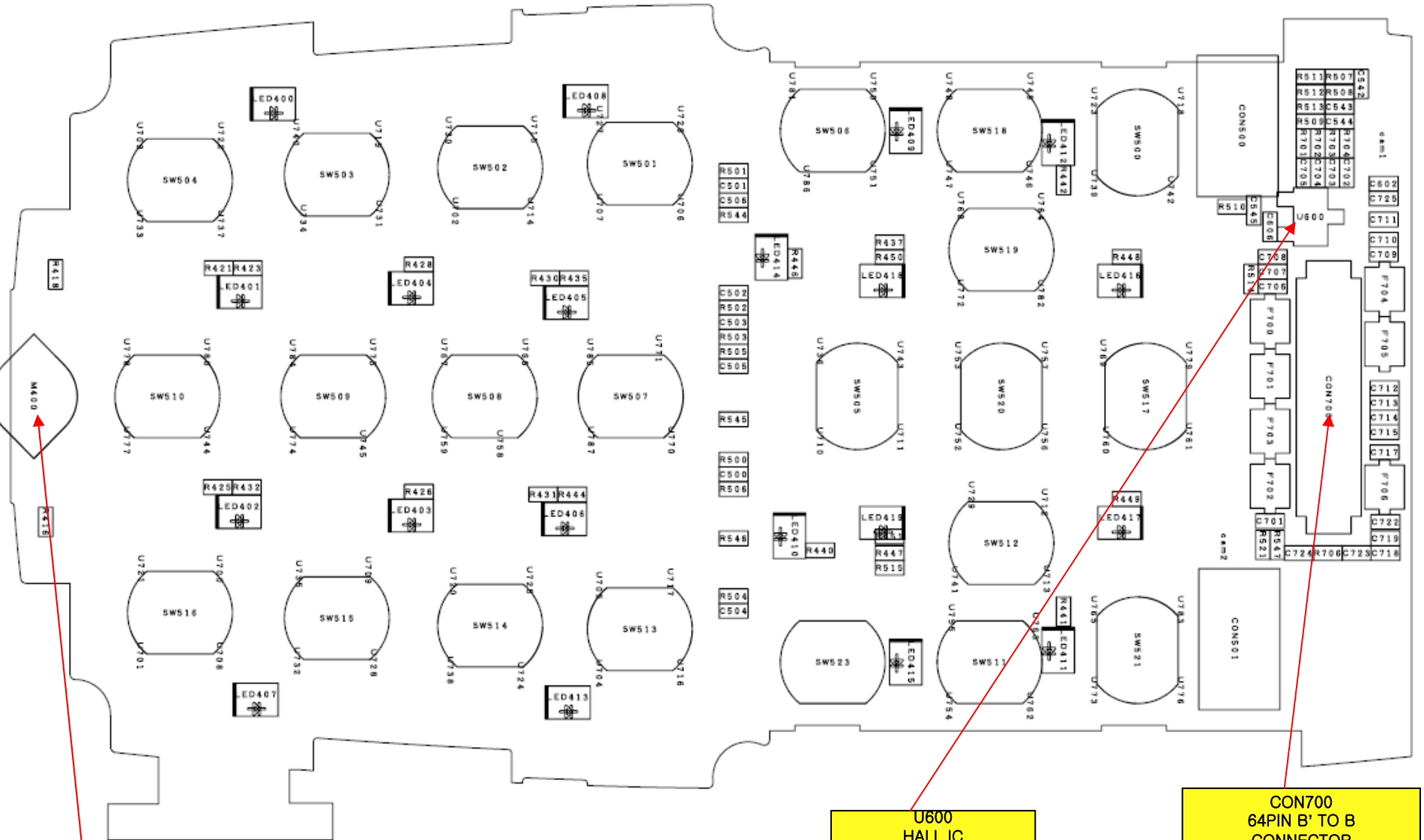
FPCB Component List

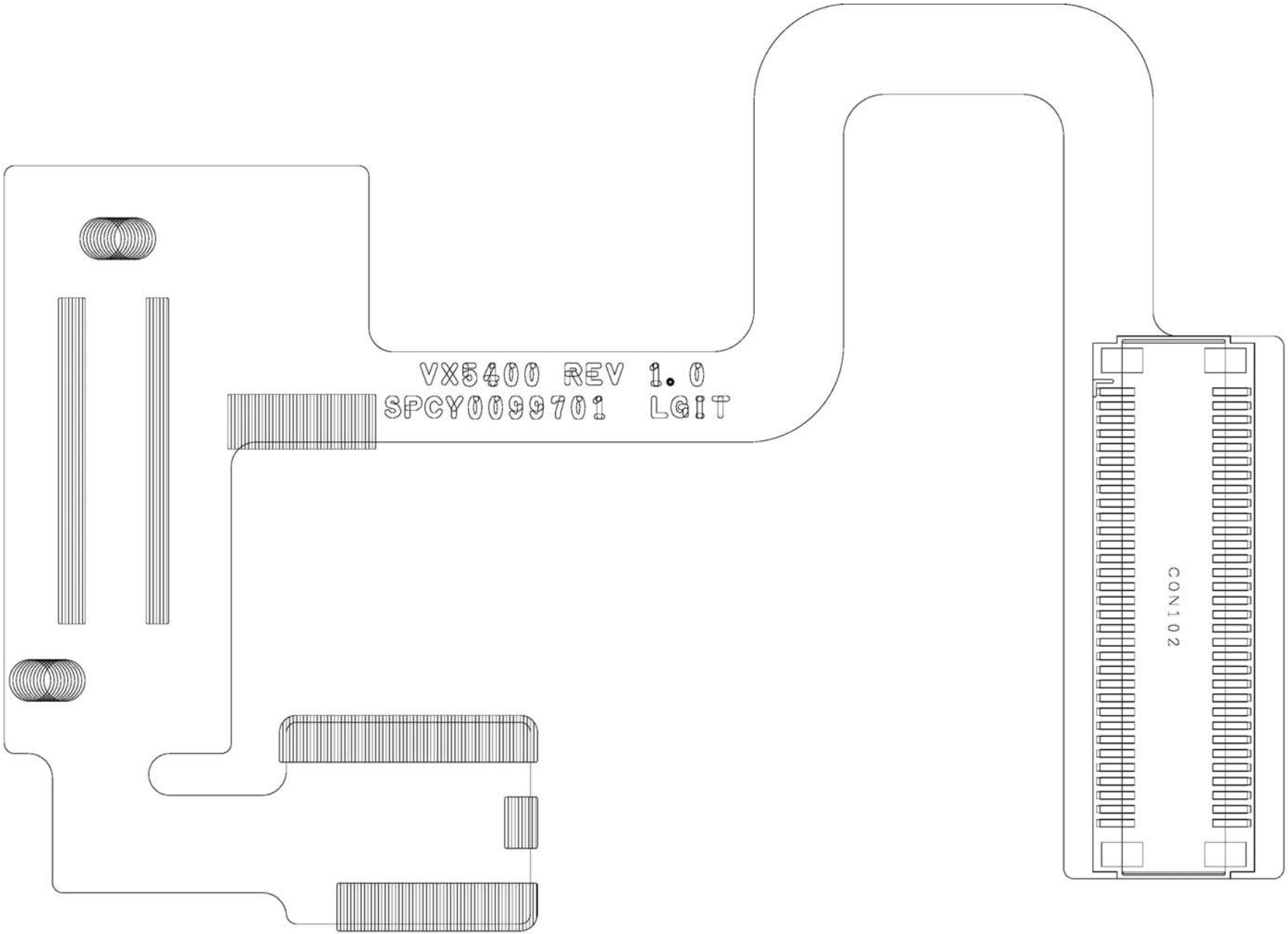
Ref No	Part Name	Part Number	Spec	Maker P/N
SACE00	PCB ASSY,FLEXIBLE, SMT	SACE0052501		
SACC00	PCB ASSY,FLEXIBLE, SMT BOTTOM	SACC0031901		
C100	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C101	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC , 1005 ,R/TP	C1005C0G1H330JT
C102	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC , 1005 ,R/TP	C1005C0G1H330JT
CON100	CONNECTOR, BOARD TO BOARD	ENBY0019501	20 PIN,.4 mm,ETC , , H=1.5, Socket	AXK720147G
CON101	CONNECTOR, BOARD TO BOARD	ENBY0035901	40 PIN,0.4 mm,ETC , , H=1.0, Plug	GB042-40P-H10-E3000
X100	OSCILLATOR	EXSY0021303	24 MHz,50 PPM,15 pF,SMD ,3.2*2.5*1.0 ,2.3V~3.2V,	CSC6R240000BEVRS00
SACD00	PCB ASSY,FLEXIBLE, SMT TOP	SACD0042801		
CON102	CONNECTOR, BOARD TO BOARD	ENBY0042101	64 PIN, mm,STRAIGHT , , ,; , ,0.40MM ,STRAIGHT , FEMALE ,SMD ,P/TR , ,	AXT564124
SPCY00	PCB,FLEXIBLE	SPCY0099701	POLYI ,0.7 mm,MULTI-7 , LCD FPCB ,; , , , , , , , , ,	

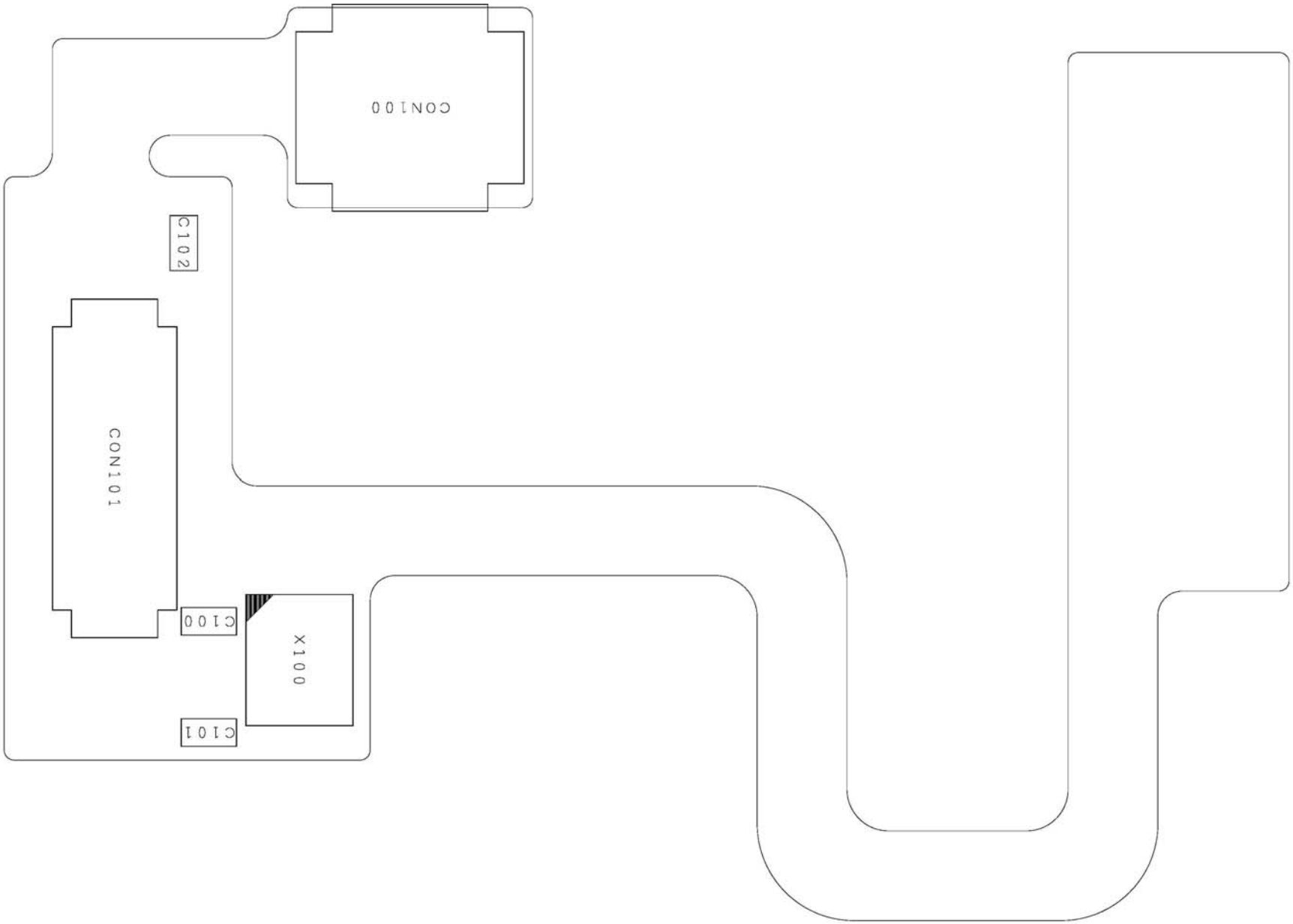
4. Components Layout

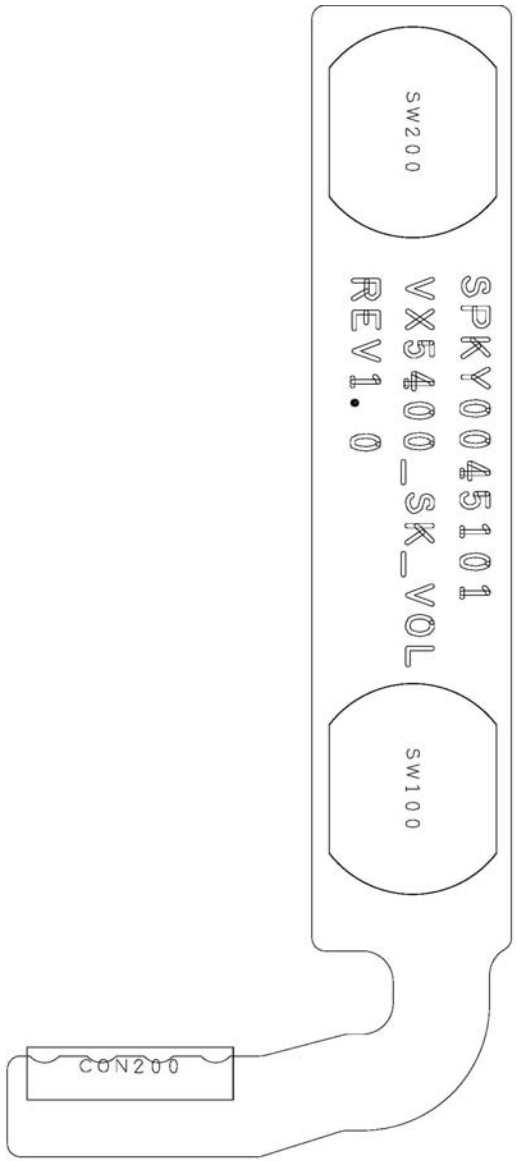

U403 AUDIO AMP
TS499OIST
No sound
Q100 INVERTER
TC7SH04FU
U112
RFT 6100
U108 PCS PAM
AWT6308R
Low Tx Power
Can't make a call
U109 DCN PAM
AWT6307R
No Tx Power
Can't make a call
U501 LCD B/L CP
RN5T662
No back light LED
U104
AAT4280IJS-3-TI
No Tx Power
U100 MOBILE S/W
RF 600
Can't make a call
X200
RESONATOR
U400
HYCOSEEOMF 1(P)
U300 MSM 6100
U101 QUINTPLEXER
ACMF-7101
Can't make a call
F101 GPS SAW
B9000
Can't receive GPS signal
U107 RFL 6000
CON602 CONNECTOR
HSEJ-18S04-25R
No charge
Q605 S/W
KRX102U
X100 X-tal
DSA3215CE(19.2M)
F100 SAW FILTER
SFSB0001201
Can't receive signal
Can't make a call
U603 TR
NTHS5441T1G
U401 B/T RF MODULE
EWSCCBQXX
Can't operate BT
U500 PMIC
MAX1829ETL+T
No pwr on, No charge
U110 RX VCO
VC-2R8Z91-1751R
U111
RFR 6000
CON600
EAR JACK
No sound

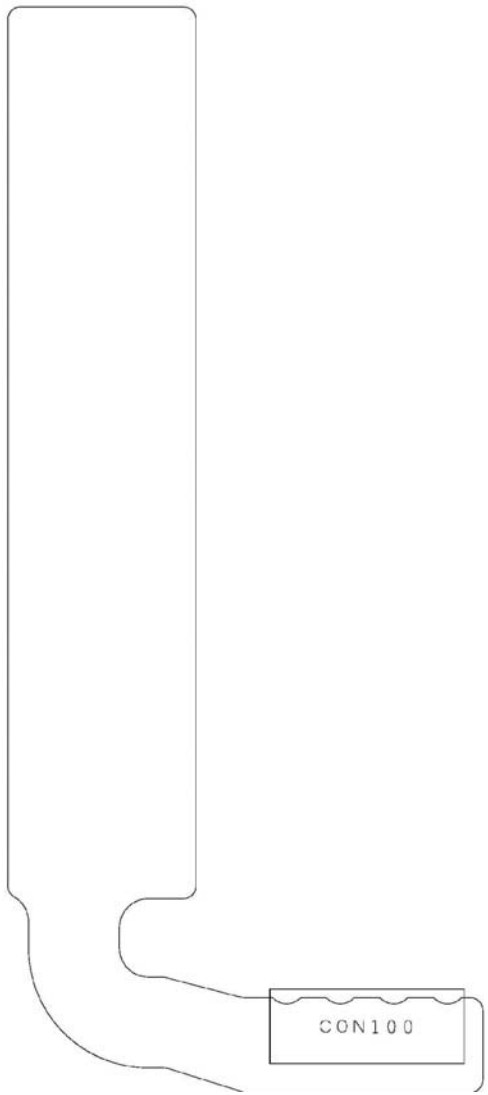
Internal Use Only

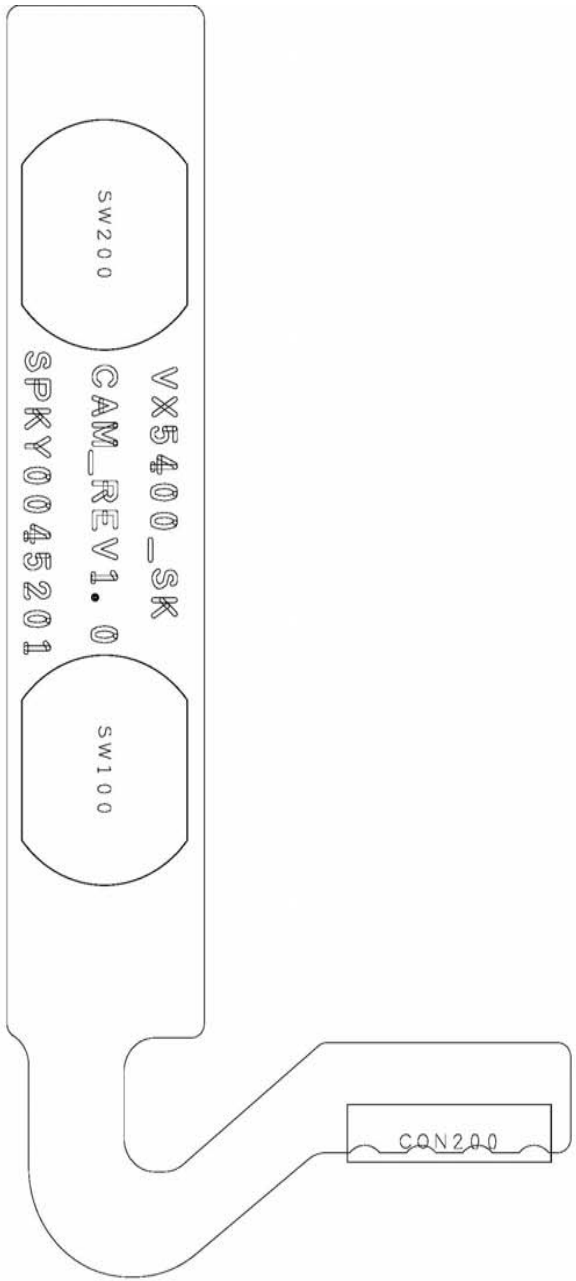


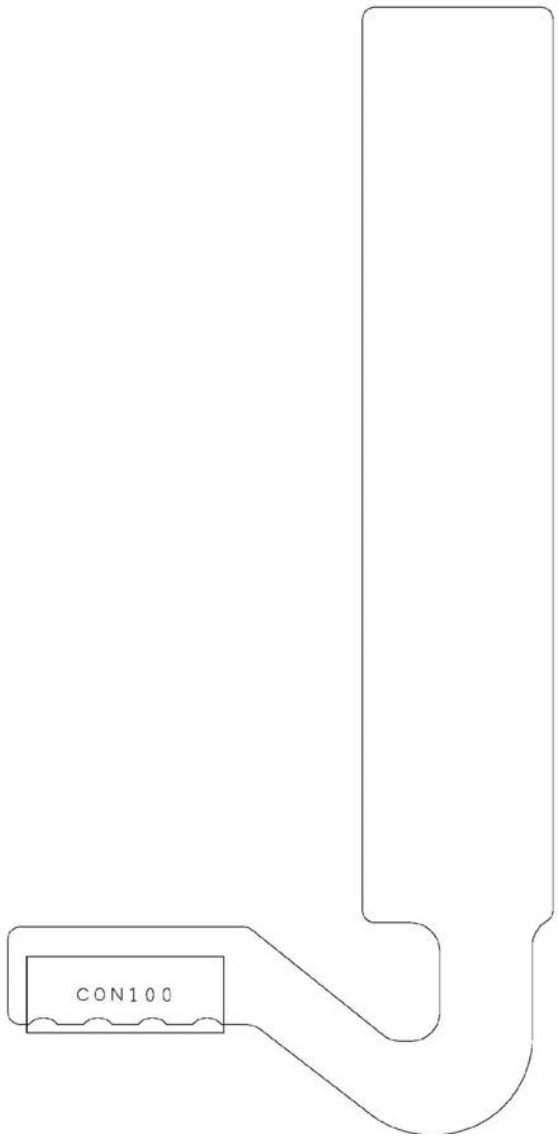






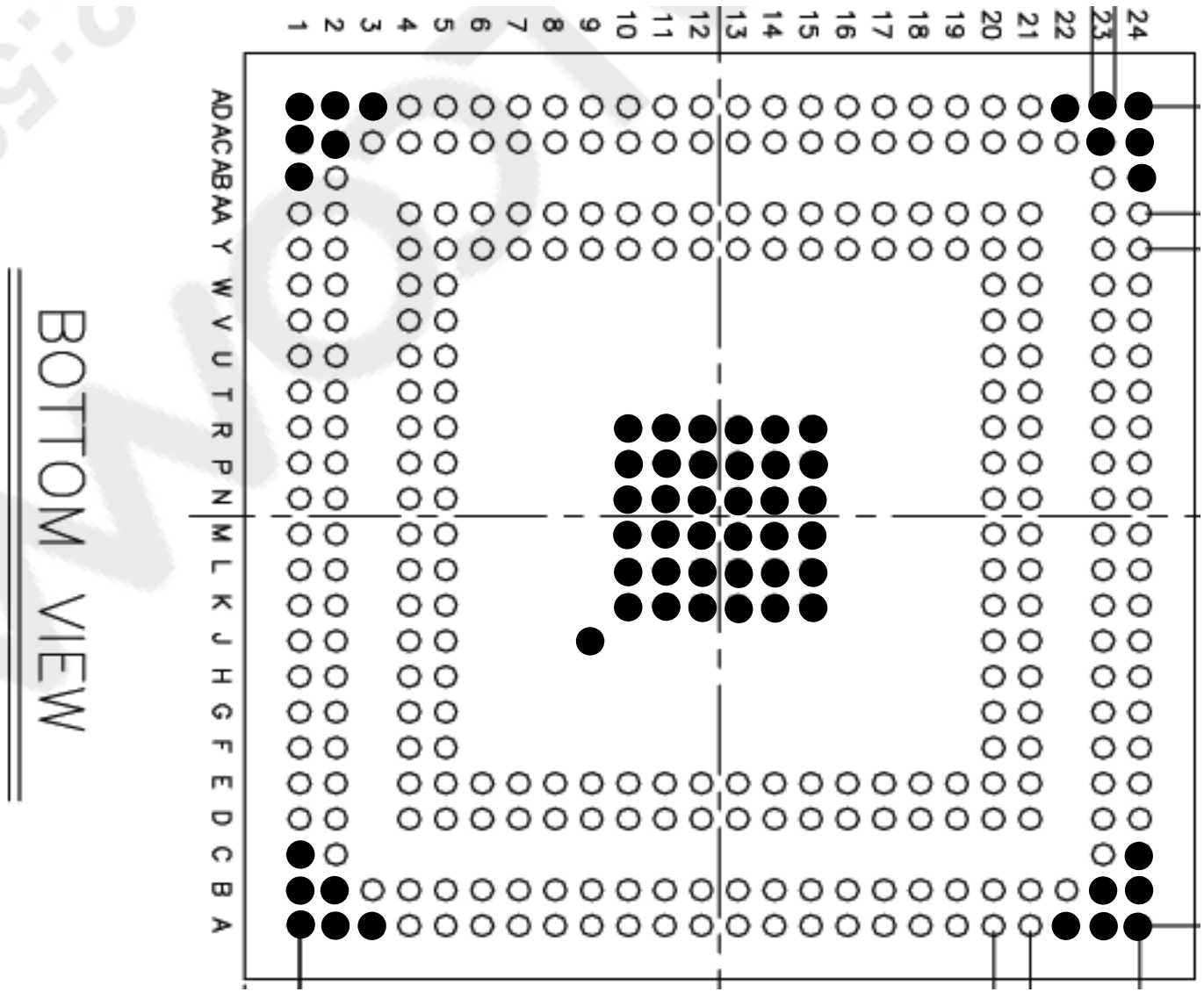






5. BGA Pin MAP

1. U300 MSM6100-90NM(EUSY0152202)



2. U300 HYC0SEE0MF1P-6SH0E (EUSY0322101)