Features of VX8350

1. Wave Type

- CELLULAR : G7W
- PCS: G7W

2. Frequency Scope

Transmit Frequency (MHz)		Receive Frequency (MHz)		
CELLULAR	**PCS**	**CELLULAR**	**PCS**	**GPS**
824.82 ~ 848.19	1850~1910	869.82~893.19	1930~1990	1575.42

3. Rated Output Power : CELLULAR = 0.25W

PCS = 0.25W

4. Output Conversion Method : This is possible by correcting the key board channel.

5. Voltage and Current Value of Termination Part Amplifier (Catalogue included)

MODE	Part Name	Voltage	Current	Power
CELLULAR	AWT6307R	4.2V	400mA	0.25W
PCS	AWT6308R	4.2V	400mA	0.25W

6. Functions of Major Semi-Conductors

Classification	Function
MSM6500	Terminal operation control and digital signal processing
Memory MCP (HYG0SEG0AF1P-6S0E)	Flash Memory (512Mbit) + SDRAM (512Mbit) Storing of terminal operation program
RFR6500	Converts Rx RF signal to baseband signal
RFT6150	Converts baseband signal to Tx RF signal

7. Frequency Stability

- CELLULAR : ±0.5PPM
- PCS : ±0.1PPM

Internal Use Only

CDMA Mobile Subscriber Unit
VX8350

SERVICE MANUAL

DUAL BAND CDMA
[PCS/Cellular/w/GPS]
CDMA MOBILE PHONE

Table of Contents

General Introduction

The VX8350 phone has been designed to operate on the latest digital mobile communication technology, Code Division Multiple Access (CDMA). This CDMA digital technology has greatly enhanced voice clarity and can provide a variety of advanced features. Currently, CDMA mobile communication technology has been commercially used in Cellular and Personal Communication Service (PCS). The difference between them is the operating frequency spectrum. Cellular uses 800MHz and PCS uses 1.9GHz. The VX8350 support GPS Mode, we usually call it tri-band phone. Also, VX8350 works on Advanced Mobile Phone Service (S-GPS). We call it dual-mode phone. If one of the Cellular, PCS base stations is located nearby, Call fail rate of triple-mode phone is less than dual-mode phone or single-mode phone.

The CDMA technology adopts DSSS (Direct Sequence Spread Spectrum). This feature of DSSS enables the phone to keep communication from being crossed and to use one frequency channel by multiple users in the same specific area, resulting that it increases the capacity 10 times more compared with that in the analog mode currently used. Soft/Softer Handoff, Hard Handoff, and Dynamic RF power Control technologies are combined into this phone to reduce the call being interrupted in a middle of talking over the phone.

Cellular and PCS CDMA network consists of MSO (Mobile Switching Office), BSC (Base Station Controller), BTS (Base station Transmission System), and MS (Mobile Station). The following table lists some major CDMA Standards.

CDMA Standard	Designator	Description
Basic air interface	TIA/EIA/IS-95-A/B/C ANSI J-STD-008	Protocol between MS and BTS for Cellular & AMPS Protocol between MS and BTS for PCS
Network	TIA/EIA/IS-634 TIA/EIA/IS/651 TIA/EIA/IS-41-C TIA/EIA/IS-124	MAS-BS PCSC-RS Intersystem operations Nom-signaling data comm.
Service	TIA/EIA/IS-96-B TIA/EIA/IS-99 TIA/EIA/IS-637 TIA/EIA/IS-657	Speech CODEC Assign data and fax Short message service Packet data
Performance	TIA/EIA/IS-97 TIA/EIA/IS-98 ANSI J-STD-018 ANSI J-STD-019 TIA/EIA/IS-125	Cellular base station Cellular mobile station PCS personal station PCS base station Speech CODEC

* TSB –74: Protocol between an IS-95A system and ANSI J-STD-008

Chapter1. System Introduction

1.1 CDMA Abstract

The CDMA mobile communication system has a channel hand-off function that is used for collecting the information on the locations and movements of mobile telephones from the cell site by automatically controlling several cell site through the setup of data transmission routes, and then enabling one switching system to carry out the automatic remote adjustment. This is to maintain continuously the call state through the automatic location confirmation and automatic radio channel conversion when the busy subscriber moves from the service area of one cell site to that of another by using automatic location confirmation and automatic radio channel conversion functions. The call state can be maintained continuously by the information exchange between switching systems when the busy subscriber moves from one Cellular system area to the other Cellular system area.

In the Cellular system, the cell site is a small-sized low output type and utilizes a frequency allocation system that considers mutual interference, in an effort to enable the re-use of corresponding frequency from a cell site separated more than a certain distance.

Unlike the time division multiple access (TDMA) or frequency division multiple access (FDMA) used in the band limited environment, the Code Division Multiple Access (CDMA) system which is one of digital Cellular systems is a multi-access technology under the interference limited environment. It can process more number of subscribers compared to other systems (TDMA system has the processing capacity three times greater than the existing FDMA system whereas CDMA system, about 12~15 times of that of the existing system).

CDMA system can be explained as follows; TDMA or CDMA can be used to enable each person to talk alternately or provide a separate room for each person when two persons desire to talk with each other at the same time, whereas FDMA can be used to enable one person to talk in soprano, whereas the other in bass (one of the two talkers can carry out synchronization for hearing in case there is a bandpass filter function in the area of the hearer). Another available method is to make two persons to sing in different languages at the same time, space, and frequency when wishing to let the audience hear the singing without being confused. This is the characteristic of CDMA.

On the other hand, when employing the CDMA technology, each signal has a different pseudo-random binary sequence used to spread the spectrum of carrier. A great number of CDMA signals share the same frequency spectrum. In the perspective of frequency area or time area, several CDMA signals are overlapped. Among these types of signals, only desired signal energy is selected and received through the use of pre-determined binary sequence; desired signals can be separated, and then received with the correlators used for recovering the spectrum into its original state. At this time, the spectrums of other signals that have different codes are not recovered into its original state, and appears as the self-interference of the system.

1.2 Features and Advantages of CDMA Mobile Phone

1.2.1 Various Types of Diversities

When employing the narrow band modulation (30kHz band) that is the same as the analog FM modulation system used in the existing Cellular system, the multi-paths of radio waves create a serious fading. However, in the CDMA broadband modulation (1.25MHz band), three types of diversities (time, frequency, and space) are used to reduce serious fading problems generated from radio channels in order to obtain high-quality calls.
Time diversity can be obtained through the use of code interleaving and error correction code whereas frequency diversity can be obtained by spreading signal energy to wider frequency band. The fading related to normal frequency can affect the normal 200~300KHz among signal bands and accordingly, serious effect can be avoided.
Moreover, space diversity (also called path diversity) can be realized with the following three types of methods. First, it can be obtained by the duplication of cell site receive antenna. Second, it can be obtained through the use of multi-signal processing device that receives a transmit signal having each different transmission delay time and then, combines them. Third, it can be obtained through the multiple cell site connection (Soft Handoff) that connects the mobile station with more than two cell sites at the same time.

1.2.2 Power Control

The CDMA system utilizes the forward (from a base station to mobile stations) and backward (from the mobile station to the base station) power control in order to increase the call processing capacity and obtain high-quality calls. In case the originating signals of mobile stations are received by the cell site in the minimum call quality level (signal to interference) through the use of transmit power control on all the mobile stations, the system capacity can be maximized. If the signal power of mobile station is received too strong, the performance of that mobile station is improved. However, because of this, the interference on other mobile stations using the same channel is increased and accordingly, the call quality of other subscribers is reduced unless the maximum accommodation capacity is reduced.
In the CDMA system, forward power control, backward open loop power control, and closed loop power control methods are used. The forward power control is carried out in the cell site to reduce the transmit power on mobile stations less affected by the multi-path fading and shadow phenomenon and the interference of other cell sites when the mobile station is not engaged in the call or is relatively nearer to the corresponding cell site. This is also used to provide additional power to mobile stations having high call error rates, located in bad reception areas or far away from the cell site.
The backward open loop power control is carried out in a corresponding mobile station; the mobile station measures power received from the cell site and then, reversely increases/decreases transmit power in order to compensate channel changes caused by the forward link path loss and terrain characteristics in relation to the mobile station in the cell site. By doing so, all the mobile transmit signals received by the base station have same strength.
Moreover, the backward closed loop power control used by the mobile station is performed to control power using the commands issued out by the cell site. The cell site receives the signal of each corresponding mobile station and compares this with the pre-set threshold value and then, issues out power increase/decrease commands to the corresponding mobile station every 1.25msec (800 times per second). By doing so, the gain tolerance and the different radio propagation loss on the forward/backward link are complemented.

1.2.3 Voice Encoder and Variable Data Speed

The bi-directional voice service having variable data speed provides voice communication which employs voice encoder algorithm having power variable data rate between the base station and the mobile station. On the other hand, the transmit voice encoder performs voice sampling and then, creates encoded voice packets to be sent out to the receive voice encoder, whereas the receive voice encoder demodulates the received voice packets into voice samples.
One of the two voice encoders described in the above is selected for use depending on inputted automatic conditions and message/data; both of them utilize four-stage frames of 9600, 4800, 2400, and 1200 bits per second for Cellular and 14400,7200,3600,1800 bits per second for PCS, so PCS provide relatively better voice quality (almost twice better than the existing cellular system). In addition, this type of variable voice encoder utilizes adaptive threshold values on selecting required data rate. It is adjusted in accordance with the size of background noise and the data rate is increased to high rate only when the voice of caller is inputted.
Therefore, background noise is suppressed and high-quality voice transmission is possible under the environment experiencing serious noise. In addition, in case the caller does not talk, data transmission rate is reduced so that the transmission is carried out in low energy. This will reduce the interference on other CDMA signals and as a result, improve system performance (capacity increased by about two times).

1.2.4 Protecting Call Confidentiality

Voice privacy is provided in the CDMA system by means of the private long code mask used for PN spreading. Voice privacy can be applied on the traffic channels only. All calls are initiated using the public long code mask for PN spreading. The mobile station user may request voice privacy during call setup using the origination message or page response message, and during traffic channel operation using the long code transition request order.
The Transition to private long code mask will not be performed if authentication is not performed. To initiate a transition to the private or public long code mask, either the base station or the mobile station sends a long code transition request order on the traffic channel.

1.2.5 Soft Handoff

A handoff in which the mobile station commences communications with a new base station without interrupting communications with the old base station. Soft handoff can only be used between CDMA channels having identical frequency assignments.

1.2.6 Frequency Re-Use and Sector Segmentation

Unlike the existing analog Cellular system, the CDMA system can reuse the same frequency at the adjacent cell. there is no need to prepare a separate frequency plan. Total interference generated on mobile station signals received from the cell site is the sum of interference generated from other mobile stations in the same cell site and interference generated from the mobile station of adjacent cell site. That is, each mobile station signal generates interference in relation to the signals of all the other mobile stations.

Total interference from all the adjacent cell sites is the ratio of interference from all the cell sites versus total interference from other mobile stations in the same cell site (about 65%). In the case of directional cell site, one cell normally uses a 120˚sector antenna in order to divide the sector into three. In this case, each antenna is used only for 1/3 of mobile stations in the cell site and accordingly, interference is reduced by 1/3 on the average and the capacity that can be supported by the entire system is increased by three times.

1.2.7 Soft Capacity

The subscriber capacity of the CDMA system is flexible depending on the relation between the number of users and service classes. For example, the system operator can increase the number of channels available for use during the busy hour despite the drop in call quality. This type of function requires 40% of normal call channels in the standby mode during the handoff, in an effort to avoid call disconnection resulting from the lack of channels.
In addition, in the CDMA system, services and service charges are classified further into different classes so that more transmit power can be allocated to high class service users for easier call set-up; they can also be given higher priority of using hand-off function than the general users.

1.3. Structure and Functions of tri-band CDMA Mobile Phone

The hardware structure of CDMA mobile phone is made up of radio frequency (RF) part and logic part. The RF part is composed of Receiver part (Rx), Transmitter part (Tx) and Local part (LO). For the purpose of operating on tri-band, It is necessary dual Tx path, tri Rx path, dual PLL and switching system for band selection. The mobile phone antenna is connected with the frequency separator which divide antenna input/output signals between Cellular frequency band (824~894 MHz) and PCS frequency band (1850~1990MHz). Each separated path is linked with the Cellular duplexer and PCS duplexer. Duplexer carries out separating Rx band and Tx band. The Rx signals from the antenna are converted into intermediate frequency(IF) band by the frequency synthesizer and frequency down converter. And then, pass SAW filter which is a band pass filter for removing out image frequency. The IF output signals that have been filtered is converted into digital signals via Analog-to-Digital Converter (ADC). In front of the ADC, switching system is required to choose which band path should be open. The digital signals send to 5 correlators in each CDMA de-modulator. Of these, one is called a searcher whereas the remaining 4 are called data receivers (fingers). Digitalized IF signals include a great number of call signals that have been sent out by the adjacent cells. These signals are detected with pseudo-noise sequence (PN Sequence). Signal to interference ratio (C/I) on signals that match the desired PN sequence are increased through this type of correlation detection process, but other signals obtain processing gain by not increasing the ratio. The carrier wave of pilot channel from the cell site most adjacently located is demodulated in order to obtain the sequence of encoded data symbols. During the operation with one cell site, the searcher searches out multi-paths in accordance with terrain and building reflections. On three data receivers, the most powerful 3 paths are allocated for the parallel tracing and receiving. Fading resistance can be improved a great deal by obtaining the diversity combined output for de-modulation. Moreover, the searcher can be used to determine the most powerful path from the cell sites even during the soft handoff between the two cell sites. Moreover, 3 data receivers are allocated in order to carry out the de-modulation of these paths. Output data that has been demodulated changes the data string in the combined data row as in the case of original signals(deinterleaving), and then, are demodulated by the forward error correction decoder which uses the Viterbi algorithm.

Mobile station user information send out from the mobile station to the cell site pass through the digital voice encoder via a mike. Then, they are encoded and forward errors are corrected through the use of convolution encoder. Then, the order of code rows is changed in accordance with a certain regulation in order to remove any errors in the interleaver. Symbols made through the above process are spread after being loaded onto PN carrier waves. At this time, PN sequence is selected by each address designated in each call.

Signals that have been code spread as above are digital modulated (QPSK) and then, power controlled at the automatic gain control amplifier (AGC Amp). Then, they are converted into RF band by the frequency synthesizer synchronizing these signals to proper output frequencies.

Transmit signals obtained pass through the duplexer filter and then, are sent out to the cell site via the antenna.

1.4. Specification

1.4.1 General Specification

1.4.1.1 Transmit/Receive Frequency Interval :

1)CELLULAR : 45 MHz
2)PCS : 80 MHz

1.4.1.2 Number of Channels (Channel Bandwidth)

1)CELLULAR : 20 Channels
2) PCS : 48 Channels

1.4.1.3 Operating Voltage : DC 3.3~4.2V

1.4.1.4 Battery Power Consumption : DC 3.7V

	SLEEP	IDLE	MAX POWER
CELLULAR	0.8 mA	110~170mA	600 mA (24 dBm)
PCS	0.8 mA	110~170 mA	600 mA (24 dBm)

1.4.1.5 Operating Temperature : -0°C ~ +60°C

1.4.1.6 Frequency Stability

1)CDMA : ±0.5PPM
2)PCS : ±0.1PPM

1.4.1.7 Antenna : Internal Type, 50ohm

1.4.1.8 Size and Weight

1)Size : 94.7(H) * 50(W) * 22.1(D) mm
2)Weight : 93.5 g (Approximately with standard battery)

1.4.1.9 Channel Spacing

1)CELLULAR : 1.25MHz
2)PCS: 1.25 MHz

1.4.1.10 Battery Type, Capacity and Operating Time. Unit = Hours : Minutes

	Standard (800mAh)	
Standby Time	CELLULAR	About 450 Hours (SCI=2)
	PCS	About 450 Hours (SCI=2)
Talk time	CELLULAR	310 Minutes (-92dBm input)
	PCS	310 Minutes (-92dBm input)

1.4.2 Receive Specification

1.4.2.1 Frequency Range

CELLULAR : 869.820 MHz ~ 893.190 MHz

PCS : 1930 MHz ~ 1990 MHz

GPS : 1575.42 MHz

1.4.2.2 Local Oscillating Frequency Range :

CELLULAR : 1738.08MHz ~ 1787.94MHz

PCS : 1715.56MHz ~ 1768.89MHz

GPS : 3150.84MHz

1.4.2.3 Sensitivity

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

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

GPS : -148.5dBm (without SA mode)

1.4.2.4 Selectivity

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

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

1.4.2.5 Spurious Wave Suppression : Maximum of -80dB

1.4.2.6 CDMA Input Signal Range

Dynamic area of more than -104~ -25 dB: 79dB at the 1.23MHz band.

1.4.3 Transmit Specification

1.4.3.1 Frequency Range

CELLULAR : 824.820MHz ~ 848.190MHz

PCS : 1850 MHz ~ 1910 MHz

1.4.3.2 Output Power

CELLULAR : 0.25W

PCS: 0.25W

1.4.3.3 Interference Rejection

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

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

1.4.3.4 CDMA TX Frequency Deviation :

1) CELLULAR: ±300Hz or less

2) PCS: ± 150Hz

1.4.3.5 CDMA TX Conducted Spurious Emissions

1)CELLULAR: 900kHz : - 42 dBc/30kHz below

1.98MHz : - 54 dBc/30kHz below

2) PCS: 1.25MHz: - 42 dBc/30kHz below

1.98MHz : - 50 dBc/30kHz below

1.4.3.6 CDMA Minimum TX Power Control

1) CELLULAR: - 50dBm below

2) PCS: -50dBm below

1.4.4 MS (Mobile Station) Transmitter Frequency

1.4.4.1 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

1.4.4.2 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

1.4.5 MS (Mobile Station) Receiver Frequency

1.4.5.1 CELLULAR 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

1.4.5.2 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

1.4.5.3 GPS mode : 1575.42 MHz

1.4.5.4 Bluetooth mode : 2400 MHz ~ 2483.5 MHz

1.4.6 AC Adaptor : See Appendix

1.4.7 Cigar Lighter Charger : See Appendix

1.5. Installation

1.5.1 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.

1.5.2 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 IO plug into the phone with the installed battery pack.
Red light indicates battery is being charged.. Green light indicates battery is fully charged.

1.5.3 For Mobile Mount

1.5.3.1 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.

1.5.3.2 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 bracket 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.

1.5.3.3 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.

1.5.3.4. 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 velcro adhesive tape (not included).

1.5.3.5 Cable Connections

1.5.3.5.1 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.

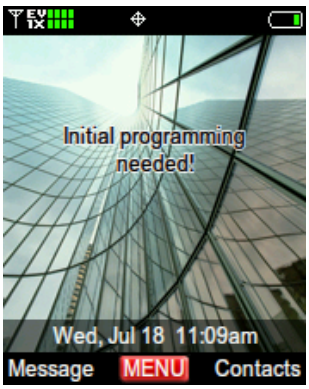
1.5.3.5.2 Antenna Cable Connection

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

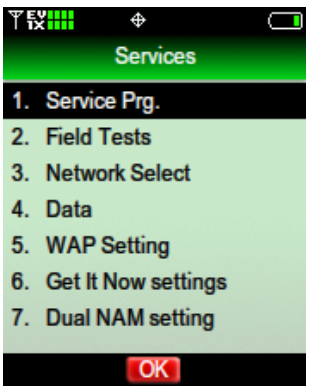
CHAPTER 2. NAM Input Method (Inputting of telephone numbers included)

2.1 NAM Programming Method

1) Press “##77647268550” + “SEND” and then, press “000000”



2) Press “1” key for entering “Service Prg.”.



● Usually pressing soft key will save the change.

● To exit service program, press “END” key.

3) MEID/ESN

You can see the MEID/ESN number.

Press softkey “OK” (Message key) to edit more NAM1 items.

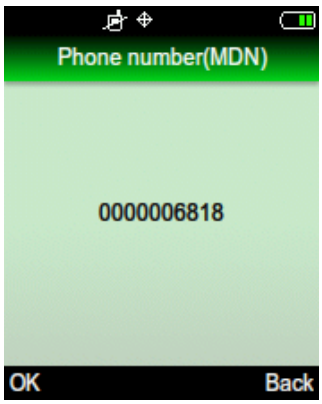
Press softkey “Exit” (Contacts) to exit Service Programming.

4) NAM1 Phone Number (MDN)

You can edit the NAM1 Phone Number (MDN).

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Exit” (Contacts) to edit previous NAM1 items.

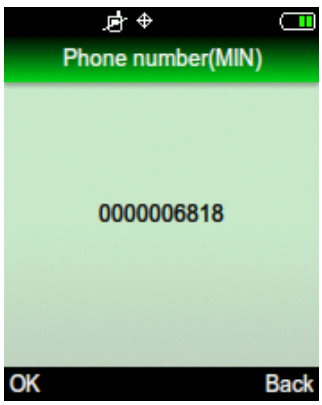


5) NAM1 Phone Number (MIN)

You can edit the NAM1 Phone Number (MIN).

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

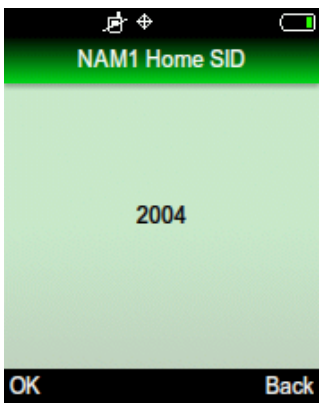


6) NAM1 Home SID

You can edit the NAM1 Home SID.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

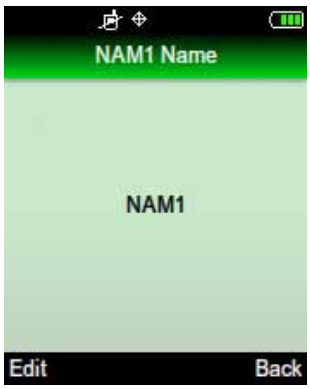


7) NAM1 Name

You can edit the NAM1 Name.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

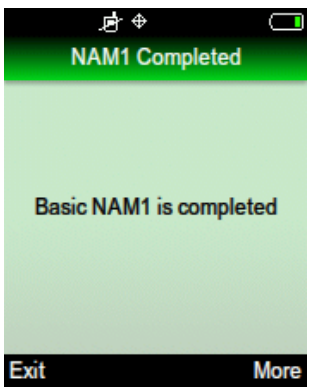


8) More NAM1 Programming

You can decide to edit more NAM1 Name.

Press softkey “OK” (Message key) to exit Service Programming.

Press softkey “More” (Contacts) to edit more advanced NAM1 items.

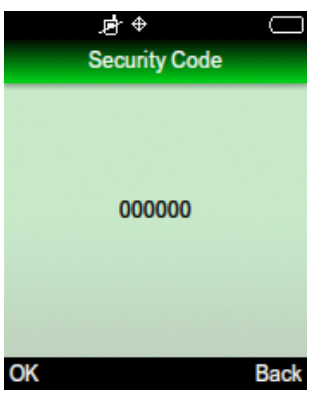


9) Service Code

You can edit Service Code.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

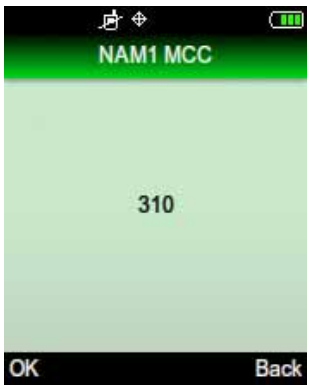


10) NAM1 MCC

You can edit NAM1 Mobile Country Code.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

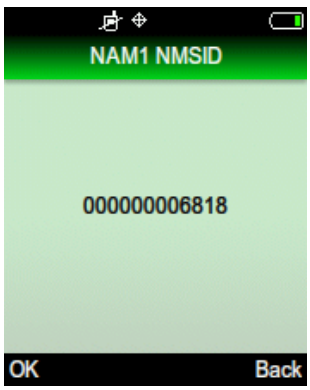


11) NAM1 NMSID

You can edit NAM1 NMSID.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

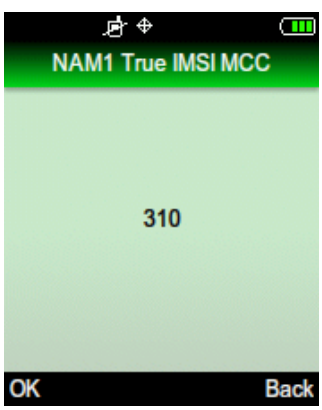


12) NAM1 True IMSI MCC

You can edit NAM1 True IMSI MCC.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

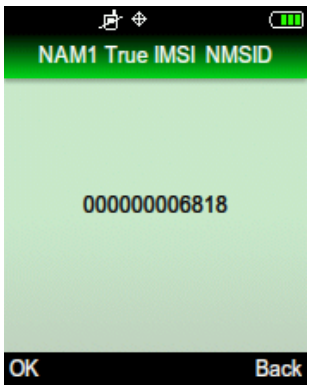


13) NAM1 True IMSI NMSID

You can edit NAM1 True IMSI NMSID.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

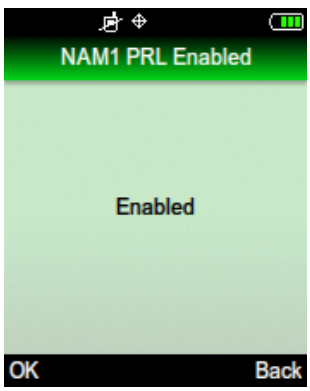


14) NAM1 PRL Enabled

You can see NAM1 PRL Enabled.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

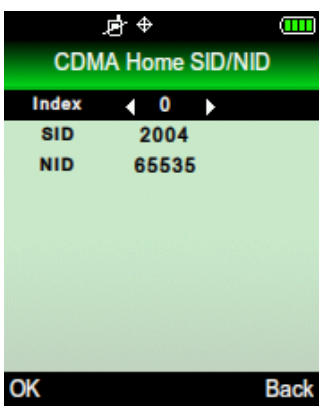


15) CDMA Home SID/NID

You can edit NAM1 Home SID/NID pair.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

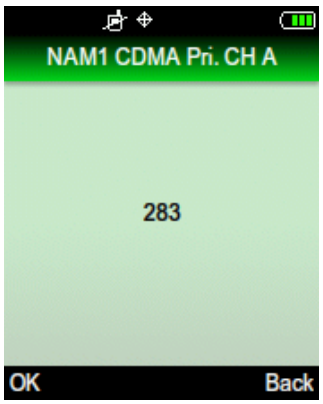


16) NAM1 CDMA Pri. CH A

You can edit NAM1 CDMA Pri. Channel A.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

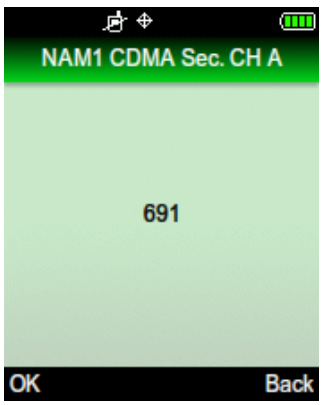


17) NAM1 CDMA Sec. CH A

You can edit NAM1 CDMA Secondary Channel A.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

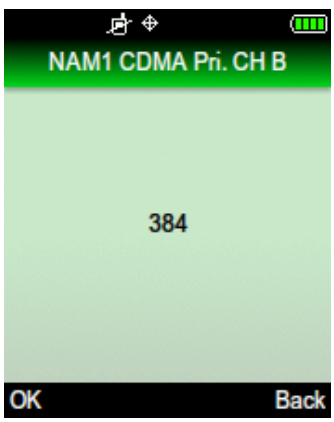


18) NAM1 CDMA Pri. CH B

You can edit NAM1 CDMA Primary Channel B.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

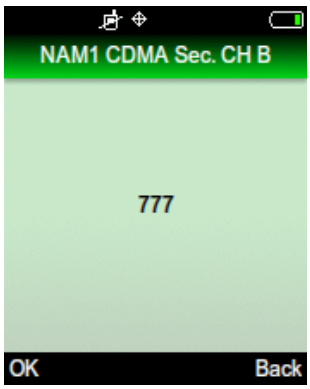


19) NAM1 CDMA Sec. CH B

You can edit NAM1 CDMA Secondary Channel B.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

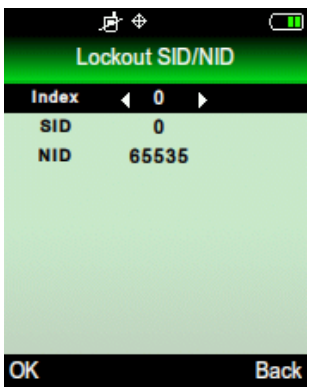


20) Lockout SID/NID

You can edit Lockout SID/NID pair.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.



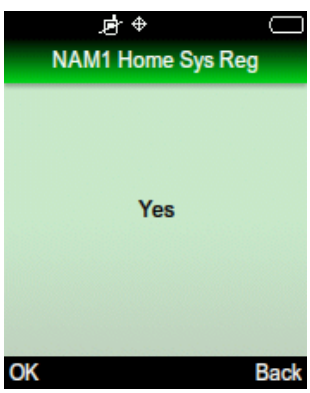
21) NAM1 Home Sys. Reg.

You can edit NAM1 Home System Registration.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

Press Left, Right, Up, Down key to toggle Yes/No.



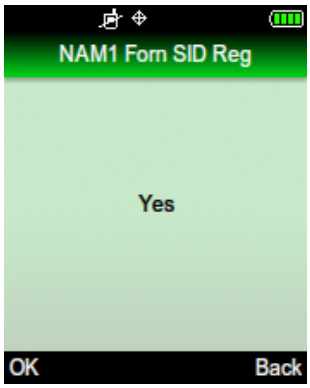
22) NAM1 Forn SID Reg

You can edit NAM1 Foreign SID Registration.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

Press Left, Right, Up, Down key to toggle Yes/No.



23) NAM1 Forn NID Reg

You can edit NAM1 Foreign NID Registration.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

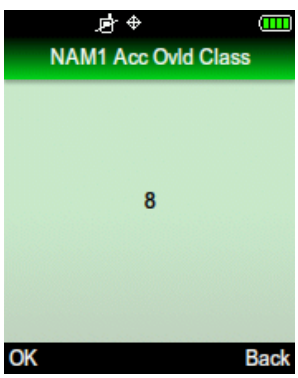
Press Left, Right, Up, Down key to toggle Yes/No.

24) NAM1 ACC Ovld Class

You can edit NAM1 Access Overload Class.

Press softkey “OK” (Message key) to edit more NAM1 items.

Press softkey “Back” (Contacts) to edit previous NAM1 items.

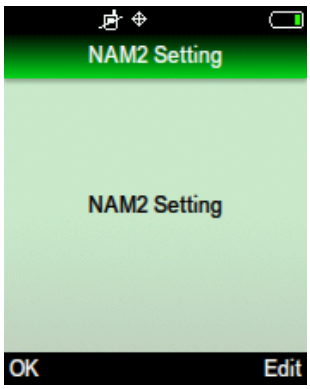


25) NAM2 Setting

You can decide to edit NAM2 items.

Press softkey “OK” (Message key) to skip NAM2 items setting.

Press softkey “Edit” (Contacts) to edit NAM2 related items.

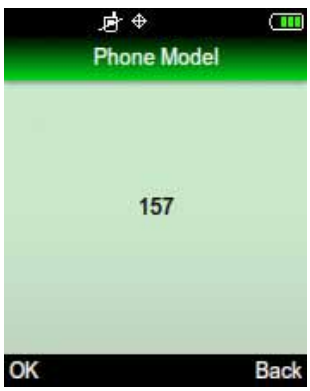


26) Phone Model

You can see the Phone Model Number.

Press softkey “OK” (Message key) to edit more items.

Press softkey “Back” (Contacts) to edit previous items.

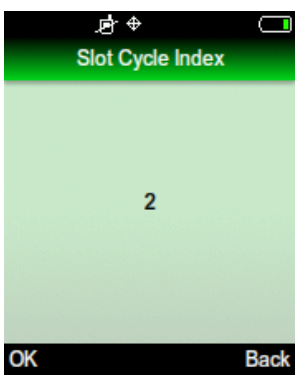


27) Slot Cycle Index

You can edit Slot Cycle Index.

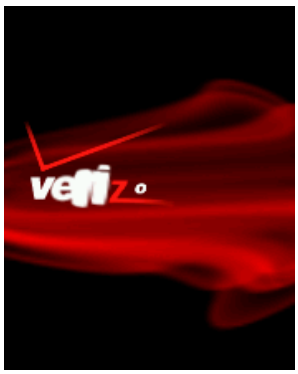
Press softkey “OK” (Message key) to save Slot Cycle Index.

Press softkey “Back” (Contacts) to edit previous items.



28) Powering Down

Restart.



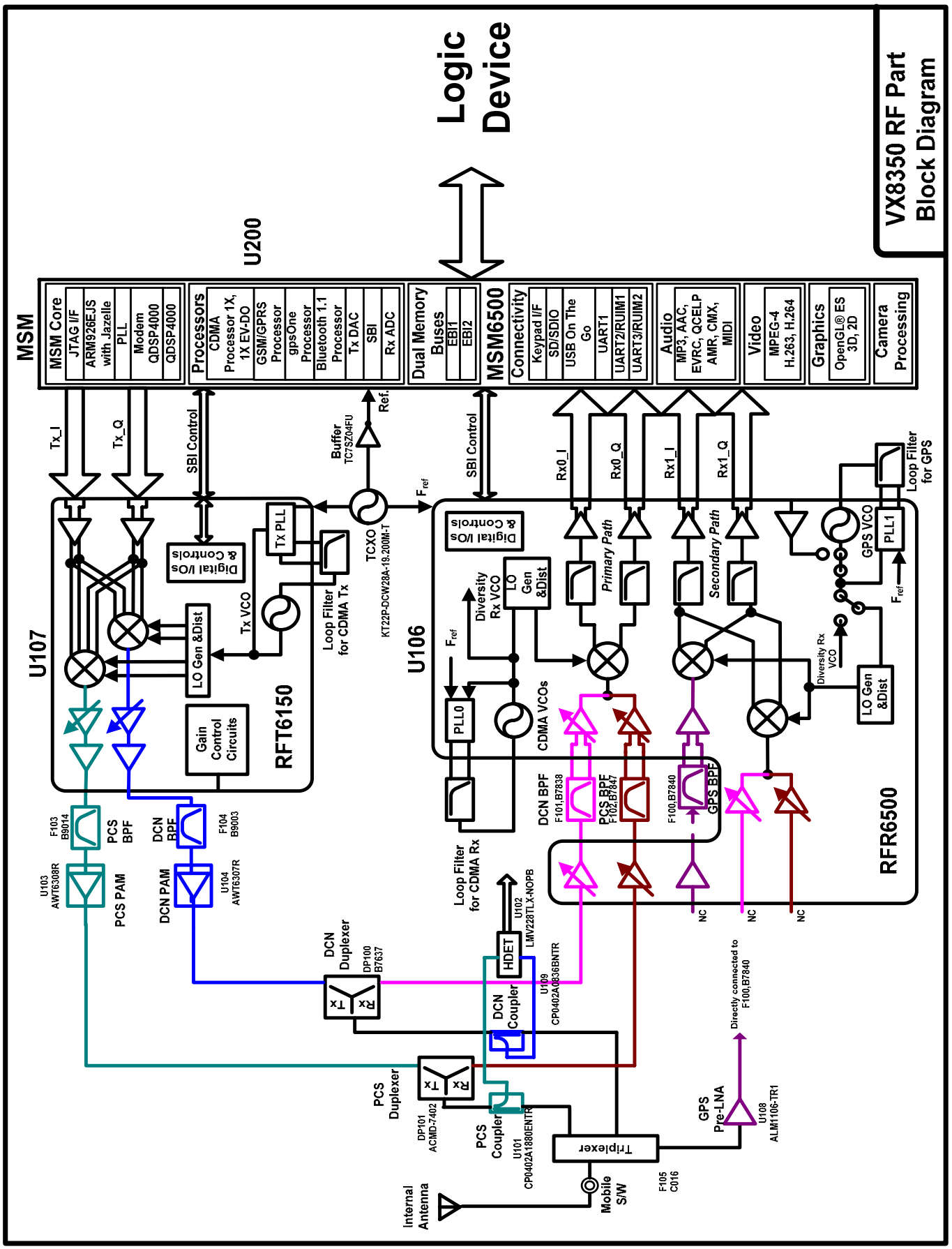
CHAPTER 3. Circuit Description

3.1. RF Transmit/Receive Part

3.1.1 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]. CDMA RF signals received through the antenna are separated by the Diplexer.
RF Signal fed into the low noise amplifier in RFR6500(LNA) through the duplexer. Then, they are fed into Mixer in RFR6500. In RFR6500, 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) 6500 processes the data from ADC. The digital processing part is a demodulator.
In the case of transmission, RFT6150 receives OQPSK-modulated analog signal from the MSM6500.
The RFT6150 connects directly with MSM6500 using an analog baseband interface. In RFT6150, 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 duplexer.

[Figure 1-1] RF Block Diagram of VX8350



3.1.2 Description of RX Part Circuit

3.1.2.1 Triplexer (F105)

The main function of Triplexer is to prohibit the other band signals from flowing into the one band circuit and vice versa. RF designer can use common tri-band antenna regardless of frequency band (800, 1575 and 1900 MHz). The specification of VX8350 Triplexer is described below:

	Cellular	GPS	PCS
Frequency Range	824 – 894 MHz	1575.42 MHz	1850 – 1990 MHz
Insertion Loss to Common	0.8 dB Max (at +25 deg)	1.8 dB Max. (at +25 deg)	0.85 dB Max (at +25 deg)
Isolation	42dB(GPS),20dB(PCS)	42dB(DCN),42dB(PCS)	42dB(GPS),15dB(DCN)
Temperature Range	-30 to +85 deg		

3.1.2.2 Duplexer (DP100, DP101)

The duplexer consists of the RX bandpass filter (BPF) and the TX BPF which has the function of separating TX and RX signals in the full duplex 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 VX8350 duplexer described below ;

● PCS duplexer

	TX	RX	TX to RX (min)
Pass Band	1850~1910 MHz	1930~1990 MHz	
Insertion Loss	3.5dB max	3.0dB max	
Return Loss	9.5dB min	9.5dB min	
Attenuation	43dB min (1930~1990MHz)	52dB min (1850~1910MHz)	54dB (1850~1910MHz) 45dB (1930~1990MHz)

● Cellular duplexer

	TX	RX	TX to RX (min)
Pass Band	824~849 MHz	869~894 MHz	
Insertion Loss	2.3B max	3.5dB max	
Return Loss	9dB min	8dB min	
Attenuation	45dB min (869~894MHz)	54dB min (824~849MHz)	55dB (824~849MHz) 47dB (869~894MHz)

3.1.2.3 RFR6500 – LNA part (U106)

The RFR6500 has cellular, and PCS LNA, 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 VX8350 LNA is described below:

Parameter	Low gain		Middle gain		High gain		Units
	Cellular	PCS	Cellular	PCS	Cellular	PCS	
Gain	-19	-20	3	-3	14	15	dB
Noise Figure	20	20	4.5	6	1.3	1.1	dB
Input IP3	10	10	5	10	7	3	dBm

3.1.2.4 GPS LNA(U108)

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 VX8350 GPS LNA is described below

Parameter	GPS Band	Units
Gain	14.3	dB
Noise Figure	0.8	dB
1dB compression point	1.8	dBm
IIP3	+4.7	dBm

3.1.2.5 RX RF SAW FILTER(F100, F101)

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.

3.1.2.6 RFR6500 - Down-converter Mixers part (U106)

The RFR6500 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 Base-band signals. The three down-converting Mixers (Cellular, PCS and GPS), and a programmable PLL for generating RX LO frequency and an RX LO Buffer Amplifier and RX Voltage Controlled Oscillator. 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-98D and J-STD-018 specifications for Sensitivity, Two-Tone Inter-modulation, and Single-tone Desensitization.
Operation modes and band selection are specially controlled from the Mobile Station Modem MSM6500.
The specification of VX8350 Mixers is described below:

Parameter	Low gain		High gain		Units
	Cellular	PCS	Cellular	PCS	
Noise Figure	25	27	7.9	12	dB
Input IP3	-5	-11	4	4	dBm
Input IP2	30	30	56	56	dBm

3.1.3 Description of Transmit Part Circuit

3.1.3.1 RFT6150 (U107)

The RFT6150 Base-band to RF Transmit Processor performs all TX signal-processing functions required between digital Base-band and the Power Amplifier Modulator (PAM). The Base-band quadrate signals are up-converted to the Cellular or PCS frequency bands and amplified to provide signal drive capability to the PAM. The RFT6100 includes mixers for up-converting analog Base-band to RF, a programmable PLL for generating TX LO frequency a TX LO Buffer Amplifier and TX Voltage Controlled Oscillator, cellular and PCS driver amplifiers and TX power control through an 85 dB VGA. As added benefit, the single sideband up-conversion eliminates the need for a band pass filter normally required between the up-converter and driver amplifier.
I, I/, Q and Q/ signals proceed from the MSM6500 to RFT6150 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 RFT6150 converts baseband signals into RF signals. After passing through the upconverters, RF signal is inputted into the Power AMP.

●RFT6150 Cellular and PCS CDMA RF Specifications

Parameter	Condition	Min.	Type.	Max.	Units
Rated Output Power	Average CDMA Cellular Average CDMA PCS		7 9		dBm dBm
Min Output Power	Average CDMA Cellular Average CDMA PCS		-75 -75		dBm dBm
RX band noise power	CDMA Cellular CDMA PCS		-136 -133		dBm/Hz
ACPR	Cellular: Fc±885kHz PCS : Fc±1.25MHz		-56 -57		dBc/30kHz

3.1.3.2 Power Amplifier(U103,U104)

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 +10dBm and conversion gain is about 26.5dB. RF transmit signals that have been amplified through the power amplifier are sent to the duplexer.

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3.1.4 Description of Frequency Synthesizer Circuit

3.1.4.1 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.

3.2 Digital/Voice Processing Part

3.2.1 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 main keypad/touch keypad/LCD, receptacle part, voice processing part, mobile station modem part, memory part, and power supply part.

3.2.2 Configuration

3.2.2.1 Keypad/LCD and Receptacle Part

This is used to transmit keypad signals to MSM6500. 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.

3.2.2.2 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 MSM6500, and amplifying part that amplifies signals coming out from MIC and transferring them to the audio processor.

3.2.2.3 MSM (Mobile Station Modem) 6500 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.

3.2.2.4 Memory Part

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

3.2.2.5 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.

3.2.3 Circuit Description

3.2.3.1 Keypad/LCD and Receptacle Part

Once the main keypad is pressed, the key signals are sent out to MSM6500 for processing. In addition, when the key is pressed, the keypad/LCD lights up through the use of 16 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 data with external sources through the receptacle, and then receives power from the battery or external batteries.

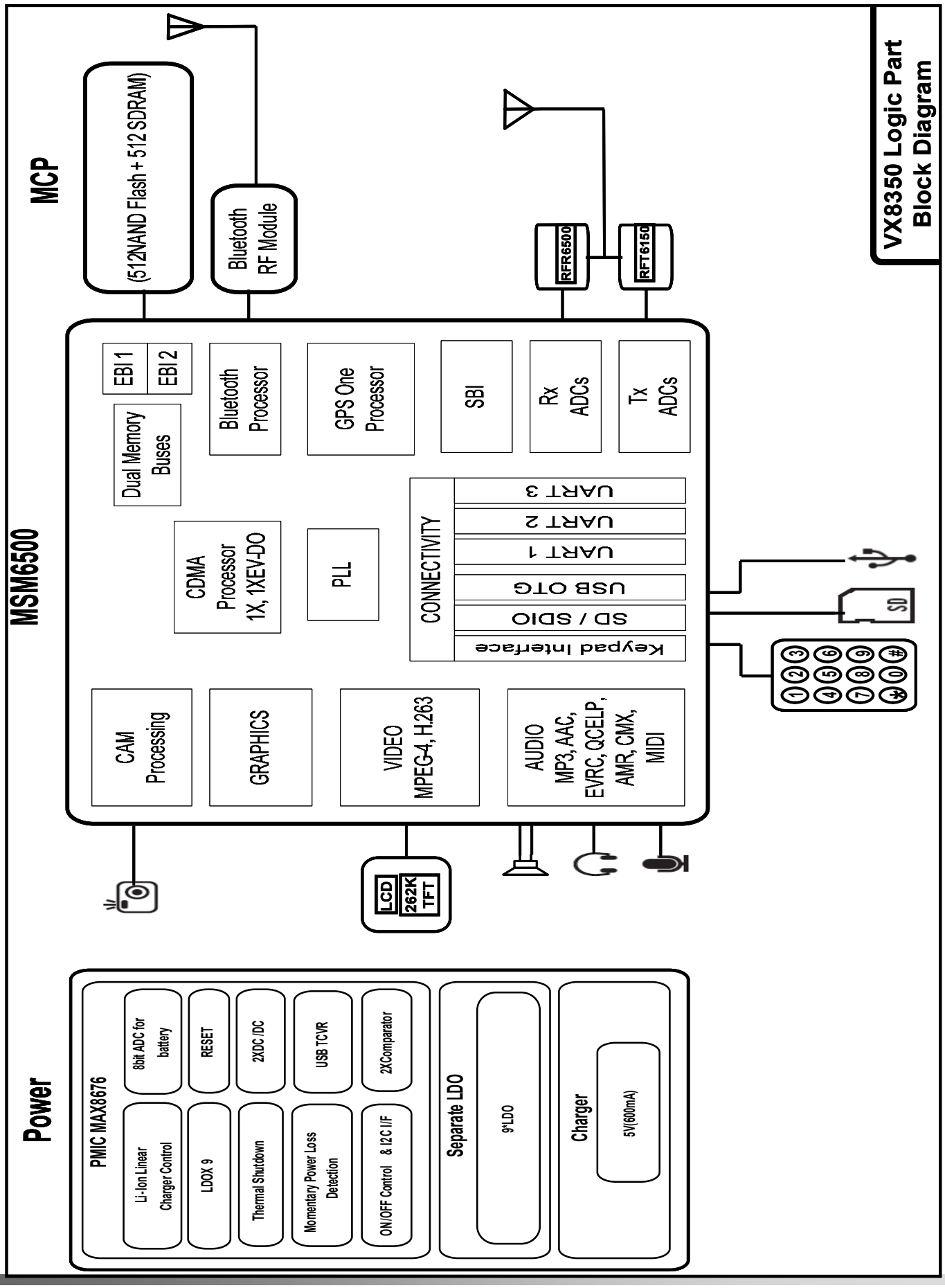
3.2.3.2 Audio Processing Part

MIC signals are amplified through OP AMP, inputted into the audio codec (included in MSM6500) 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 MSM6500 activate the ringer by using signals generated in the timer in MSM6500.

3.2.3.3 MSM Part

MSM6500 is the core element of CDMA system terminal that includes ARM926EJ-S microprocessor core. It supports both CDMA and Digital FM, operating in both the cellular and PCS spectrums. The subsystems within the MSM6500 include a CDMA processor, a DFM processor, a multi-standard Vocoder, an integrated CODEC with earpiece and microphone amplifiers, general-purpose ADC for subsystem monitoring, an ARM926EJ-S microprocessor, and an RS-232 serial interfaces supporting forward and reverse link MDR data communications of 230.4 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



3.2.3.4 Memory Part

MCP contents 512Mbits NAND FLASH memory and 512Mbits SDRAM. In the NAND Flash Memory part of MCP are programs used for terminal operation. The programs can be changed through downloading after the assembling of terminals. On the SDRAM data generated during the terminal operation are stored temporarily.

3.2.3.5 Power Supply Part

When the battery voltage (+4.0V) is fed and the PWR key of keypad is pressed, U401(PMIC) is activated by the PWR_ON_SW signal, and The PWRON signal is held high, Buck 1,2 and LDO1,2 are turned on; when LDO1 reaches 87% of its final value a 60ms reset timer is started at after which RESET\ is asserted high. Now the BB Processor is initialized and will assert PWRHOLD high. PWRHOLD maintains the power on.

The Buck1,2/LDO1,2 are generating the +1.4V_MSMC, +1.8V_MSMP1 and +2.6V_MSMP2, +2.6V_MSMA respectively.

The Rx part LDO(Out5) is operated by the control signal SLEEP/ from MSM6500

The Tx part LDO(Out3) is operated by the control signal IDLE/ from MSM6500.

The TCXO part LDO(Out7) is operated by the control signal TCXO_EN/ from MSM6500.

3.2.3.6 Logic Part

The logic part consists of internal CPU of MSM, RAM, MCP. The MSM6500 receives TCXO (=19.2MHz) from the X100 and controls the phone in CDMA modes. The major components are as follows:

CPU

The ARM926J-S 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

NAND Flash 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][21] signal from MSM6500. 16 LEDs and backlight circuitry are included in the keypad for easy operation in the dark.

LCD MODULE

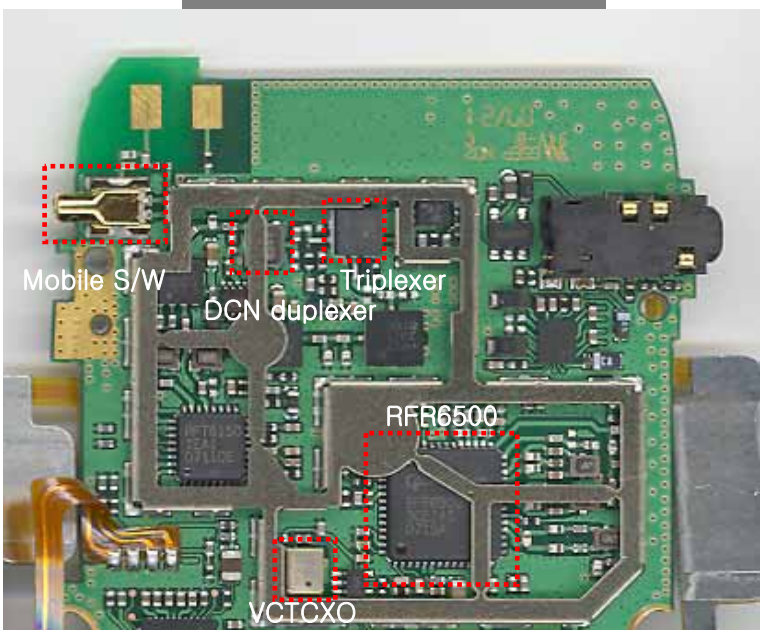
LCD module contains a controller which will display the information onto the LCD by 16-bit data from the MSM6500. It is also supplied stable +2.8V_LCD by Out6 in U401 for fine view angle and LCD reflects to improve the display efficiency. 3 LEDs is used to display LCD backlight.

CHAPTER 4. Trouble Shooting

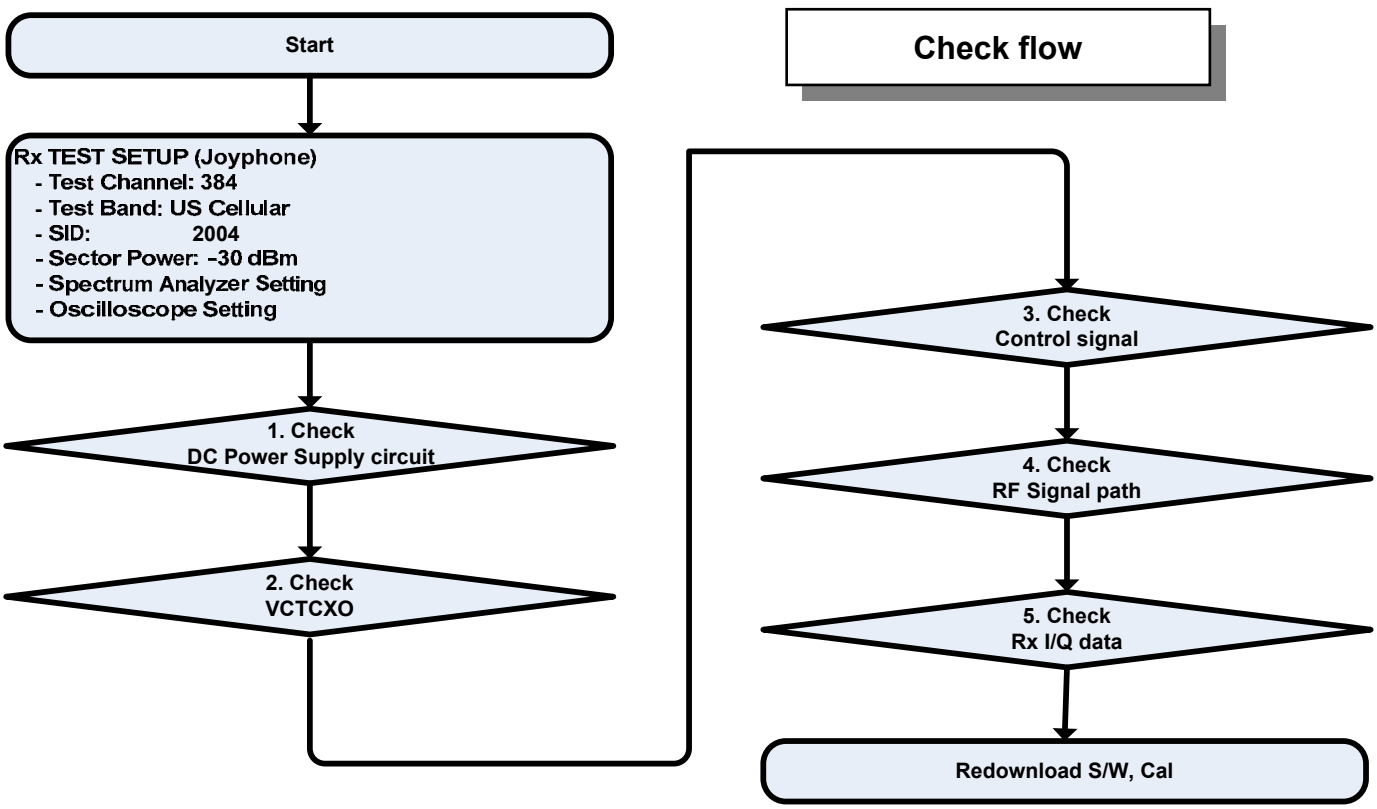
4.1 Rx Part Trouble

4.1.1 DCN Rx

Test Point

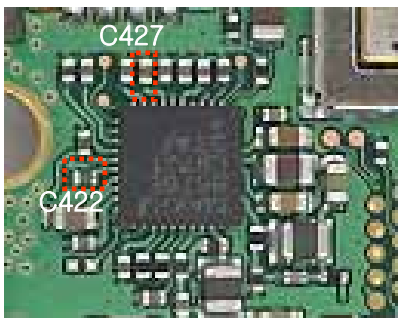


Check flow

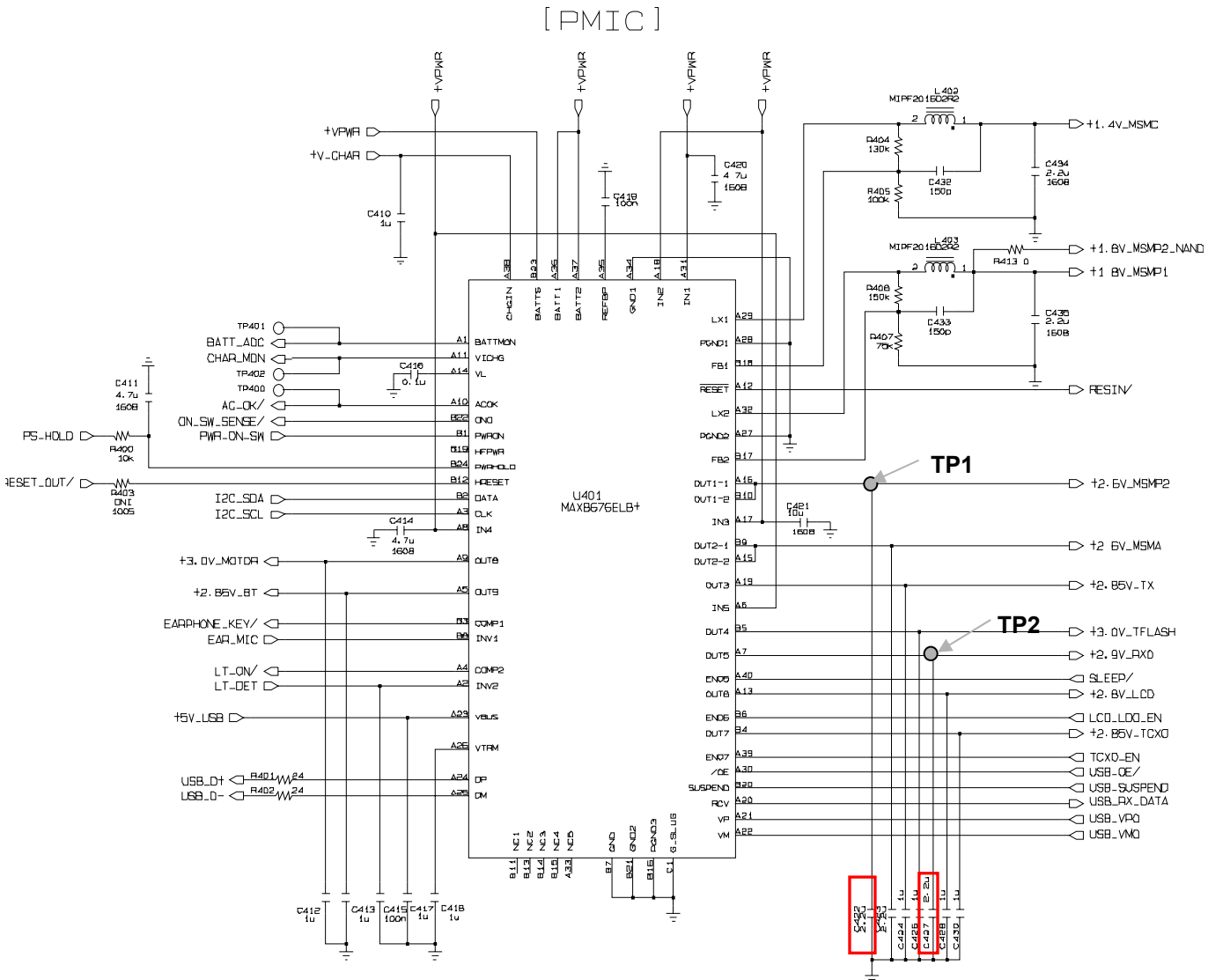


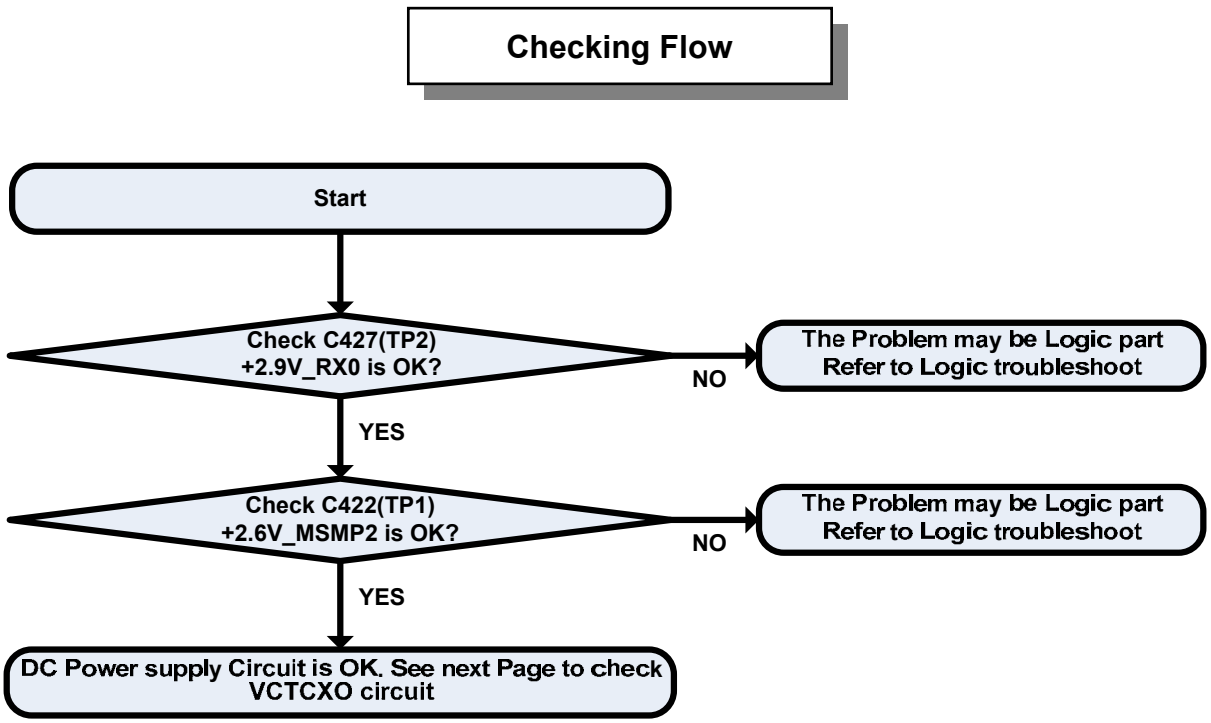
4.1.1.1 Checking DC Power supply circuit (PMIC)

Test Point



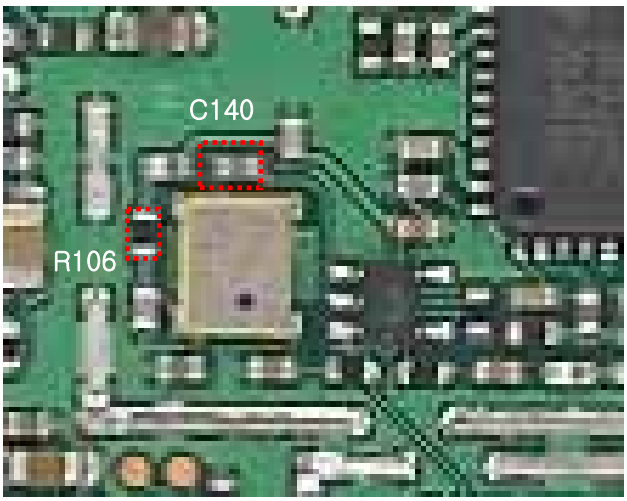
Circuit Diagram



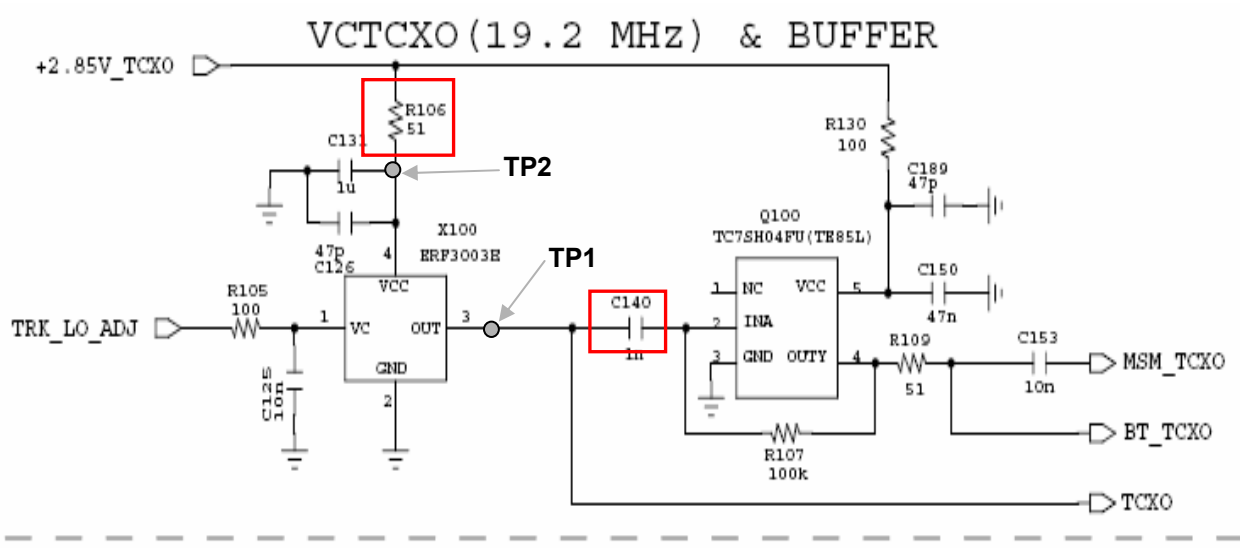


4.1.1.2 Checking VCTCXO circuit

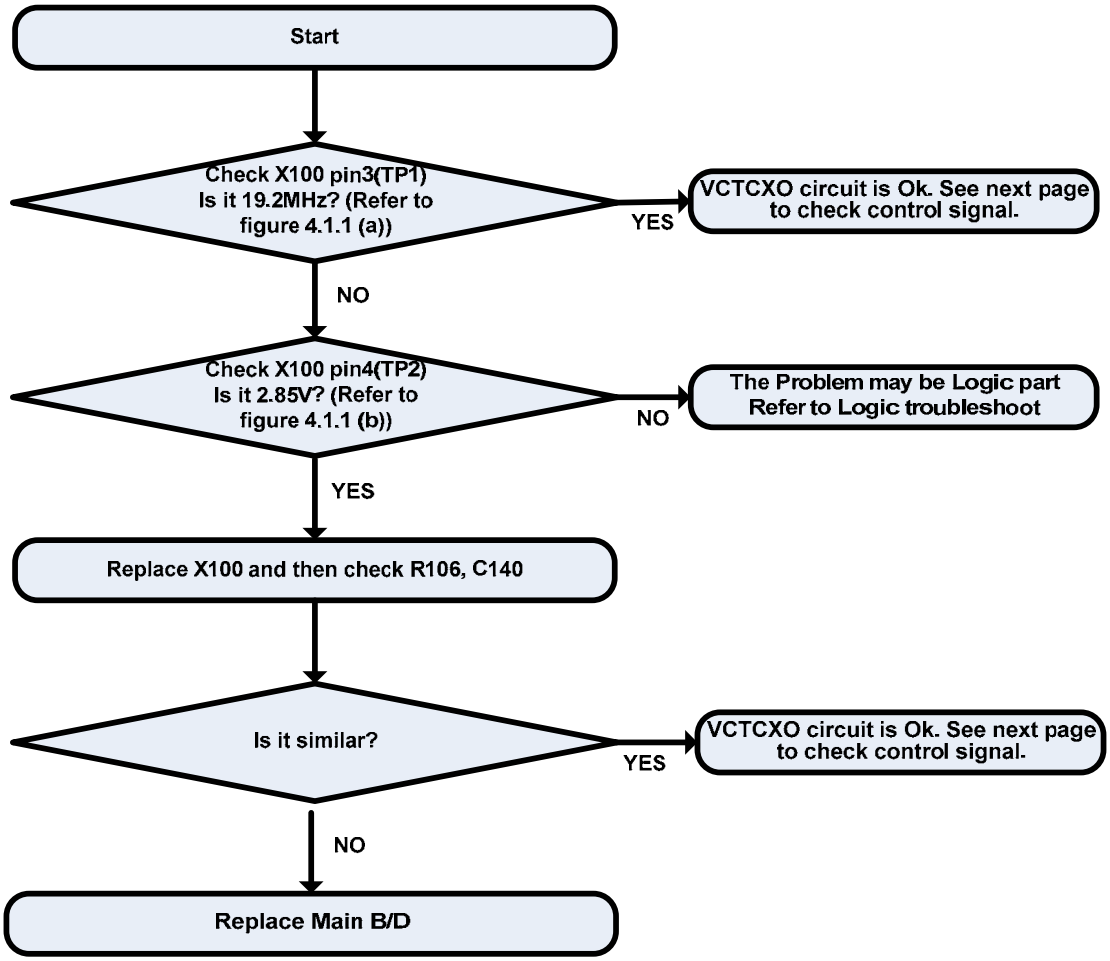
Test Point



Circuit Diagram



Checking Flow



Waveform

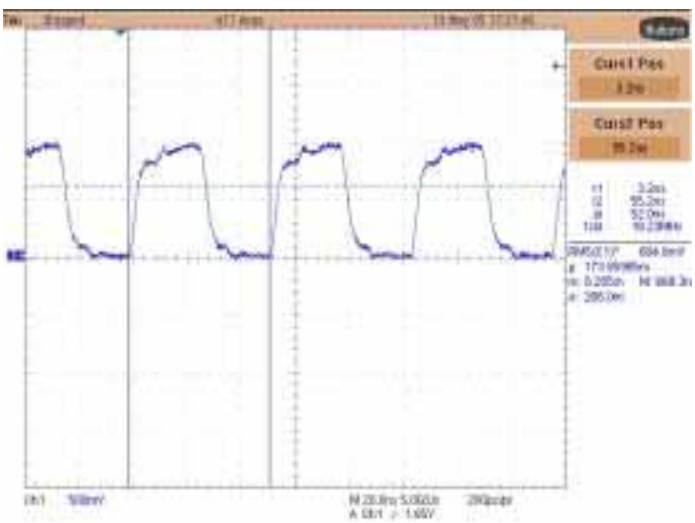


Figure 4.1.1 (a)

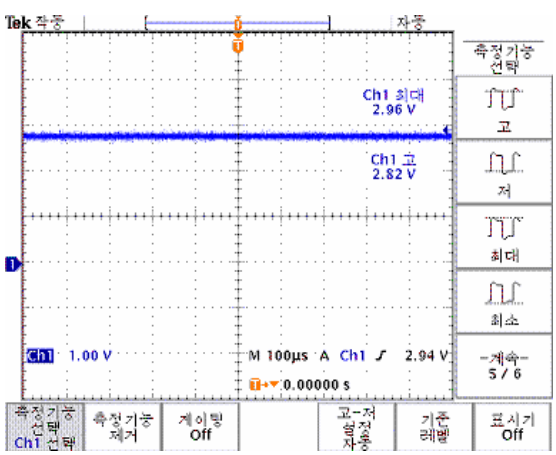


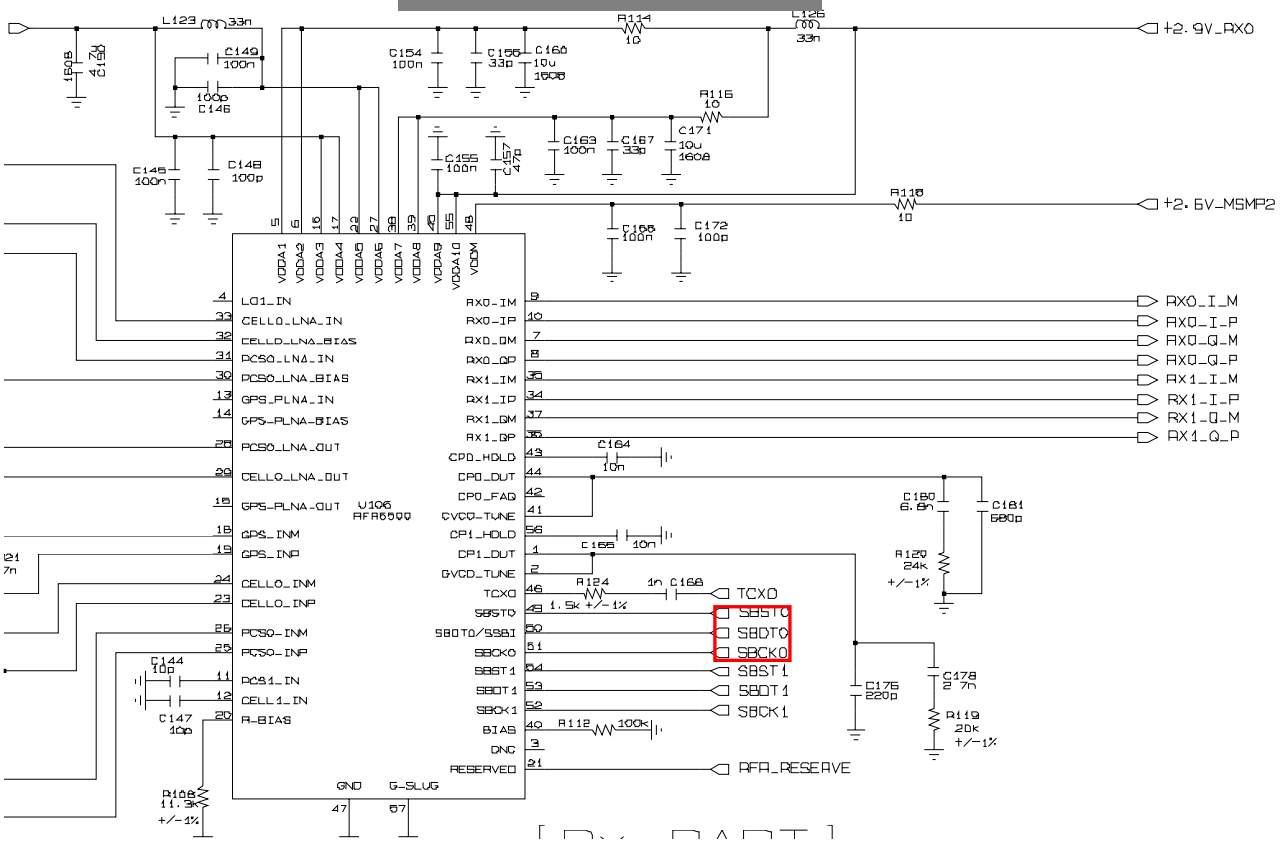
Figure 4.1.1 (b)

4.1.1.3 Checking Control signal

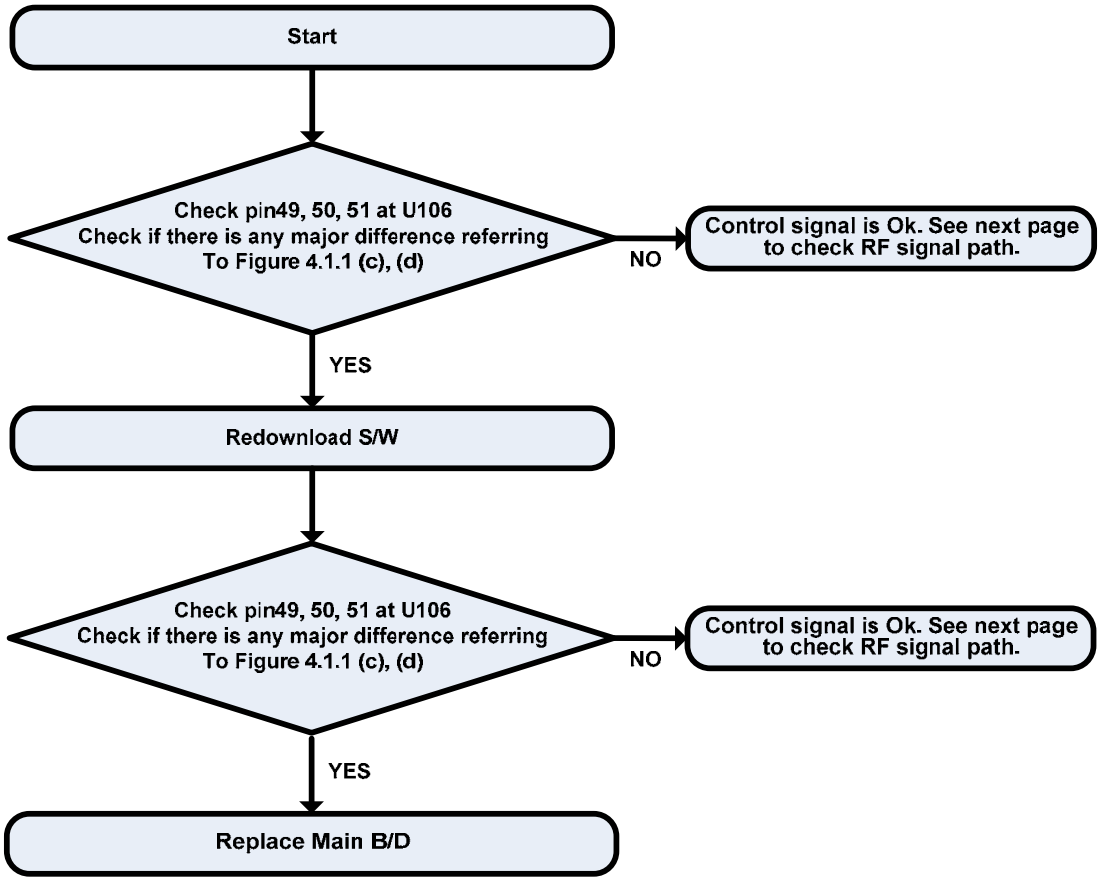
Test Point

U106 pin49(SBST0)
pin50(SBDT0)
pin51(SBCK0)

Circuit Diagram



Checking Flow



Waveform

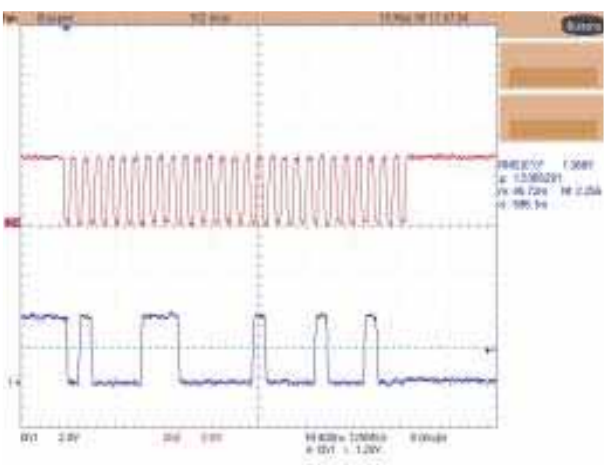


Figure 4.1.1 (c)

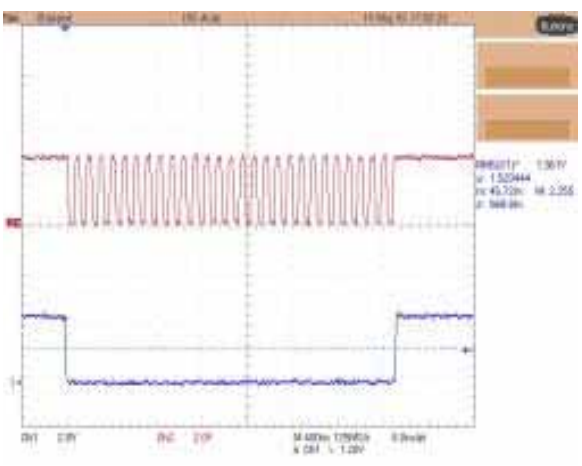
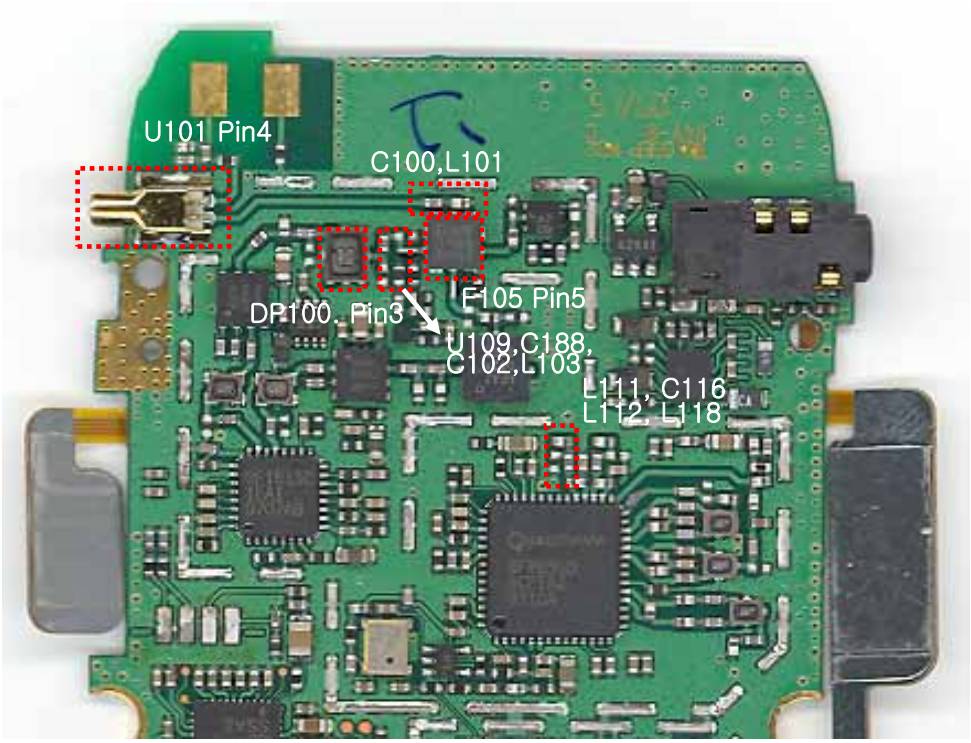


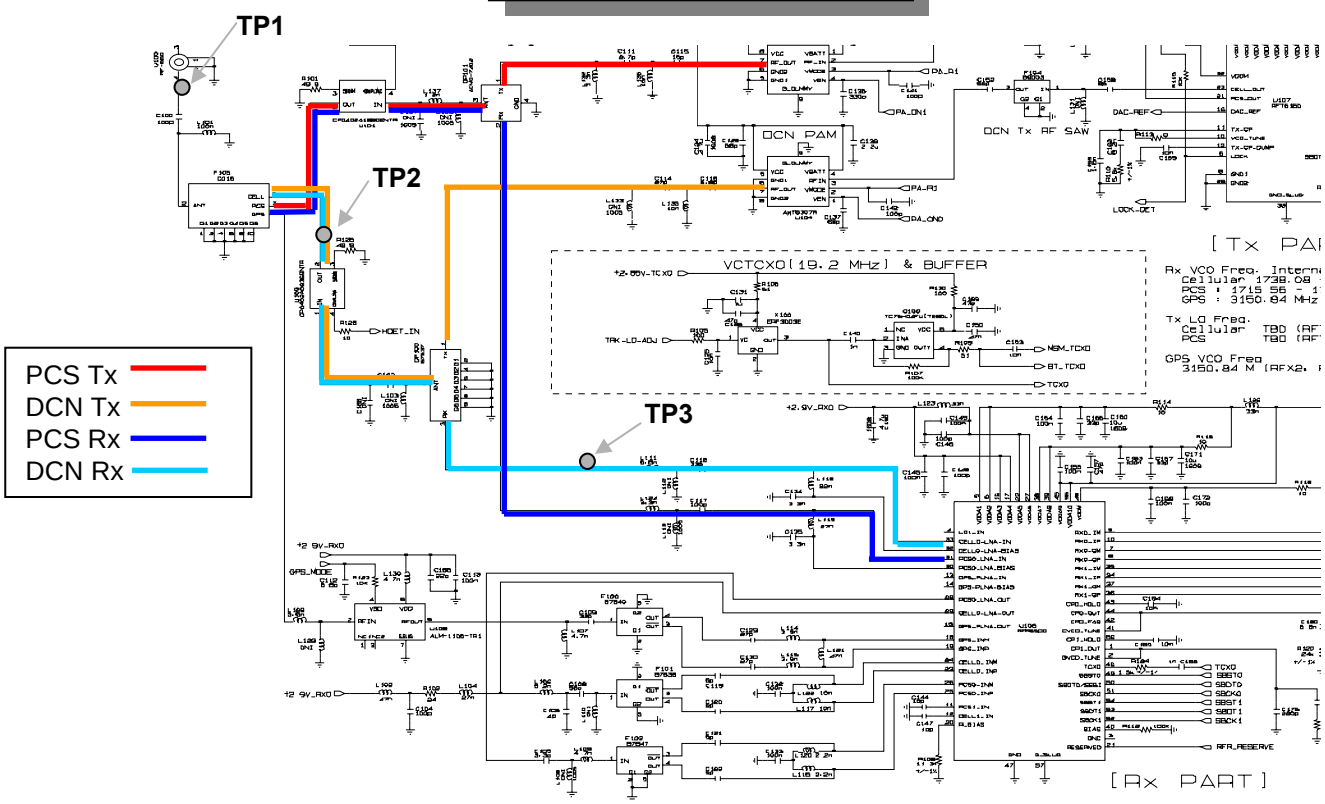
Figure 4.1.1 (d)

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

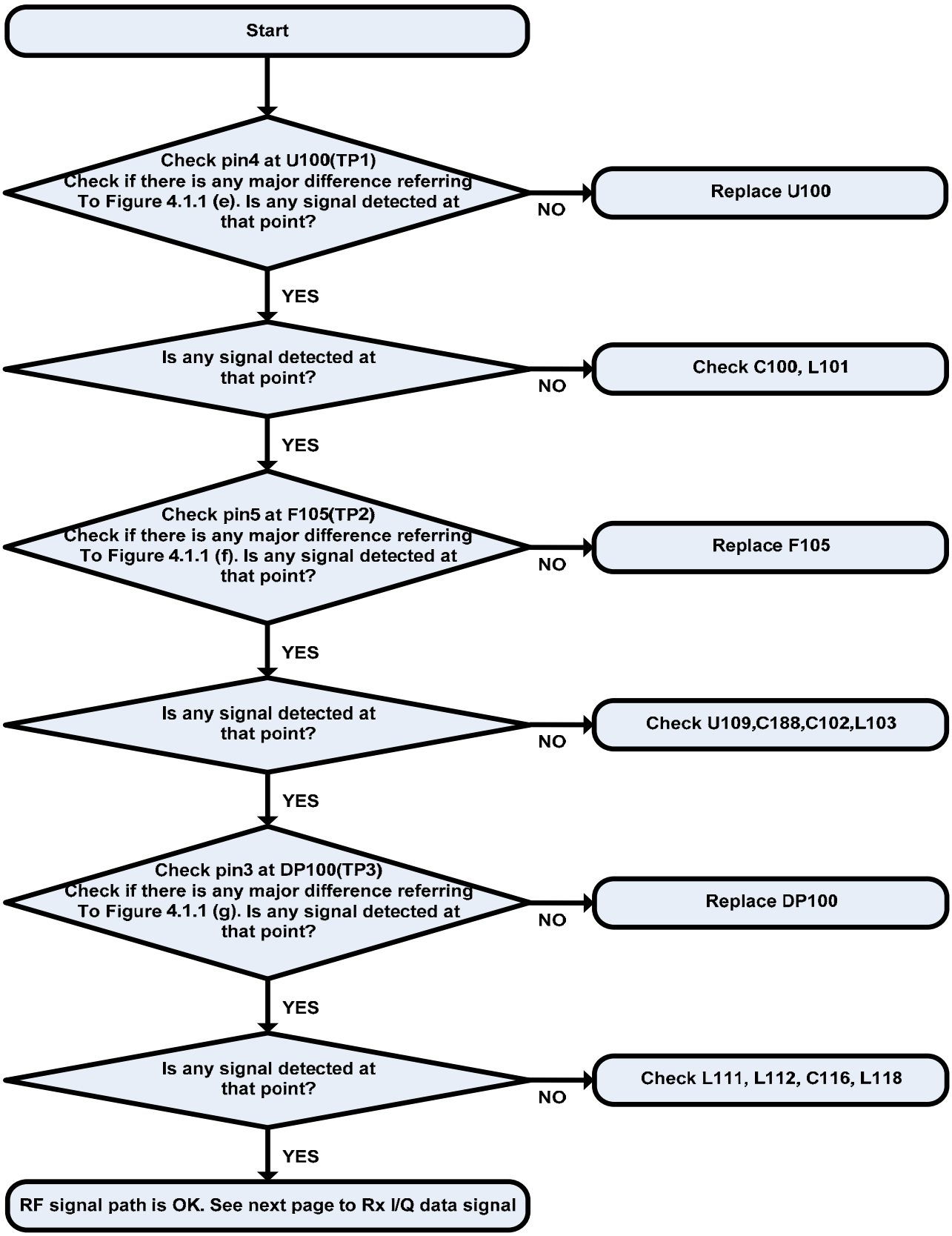
Test Point



Circuit Diagram



Checking Flow



Waveform

U100 pin4

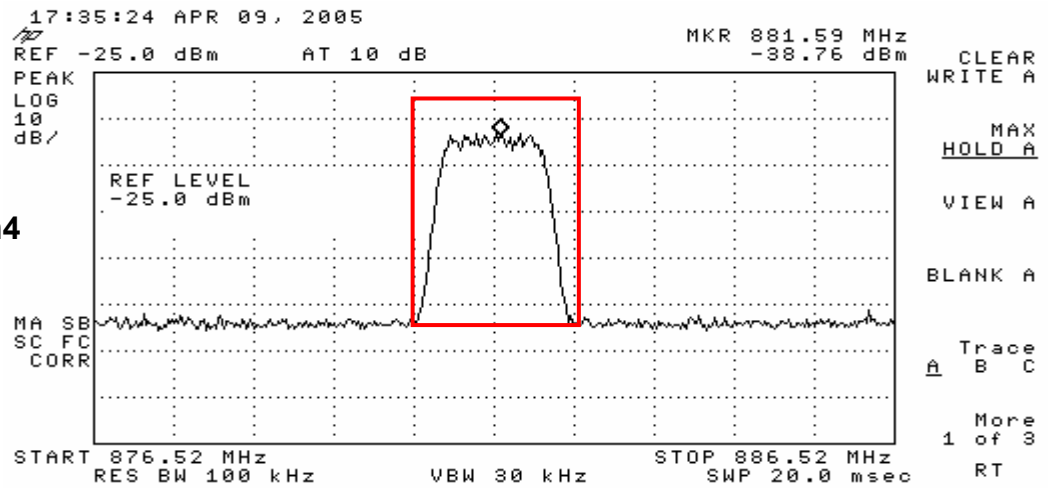


Figure 4.1.1 (e)

F105 pin5

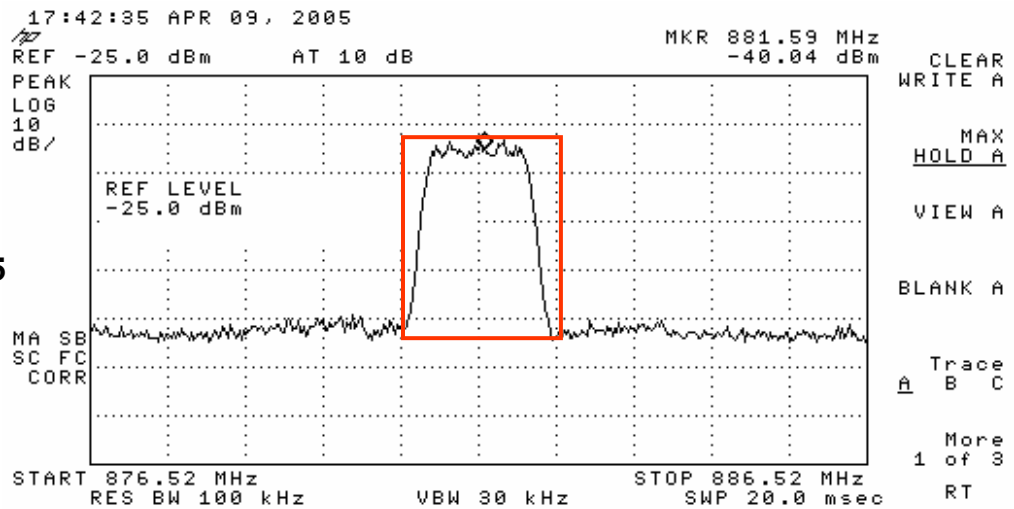


Figure 4.1.1 (f)

DP100 pin3

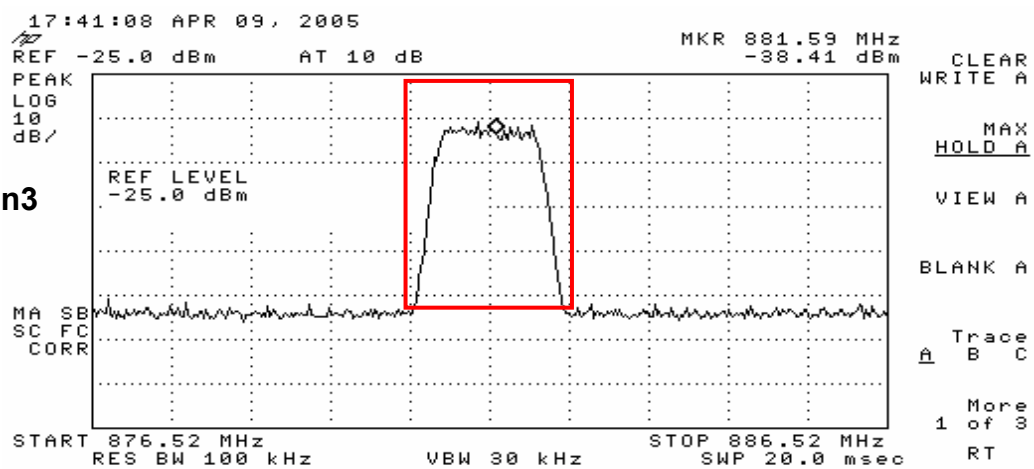
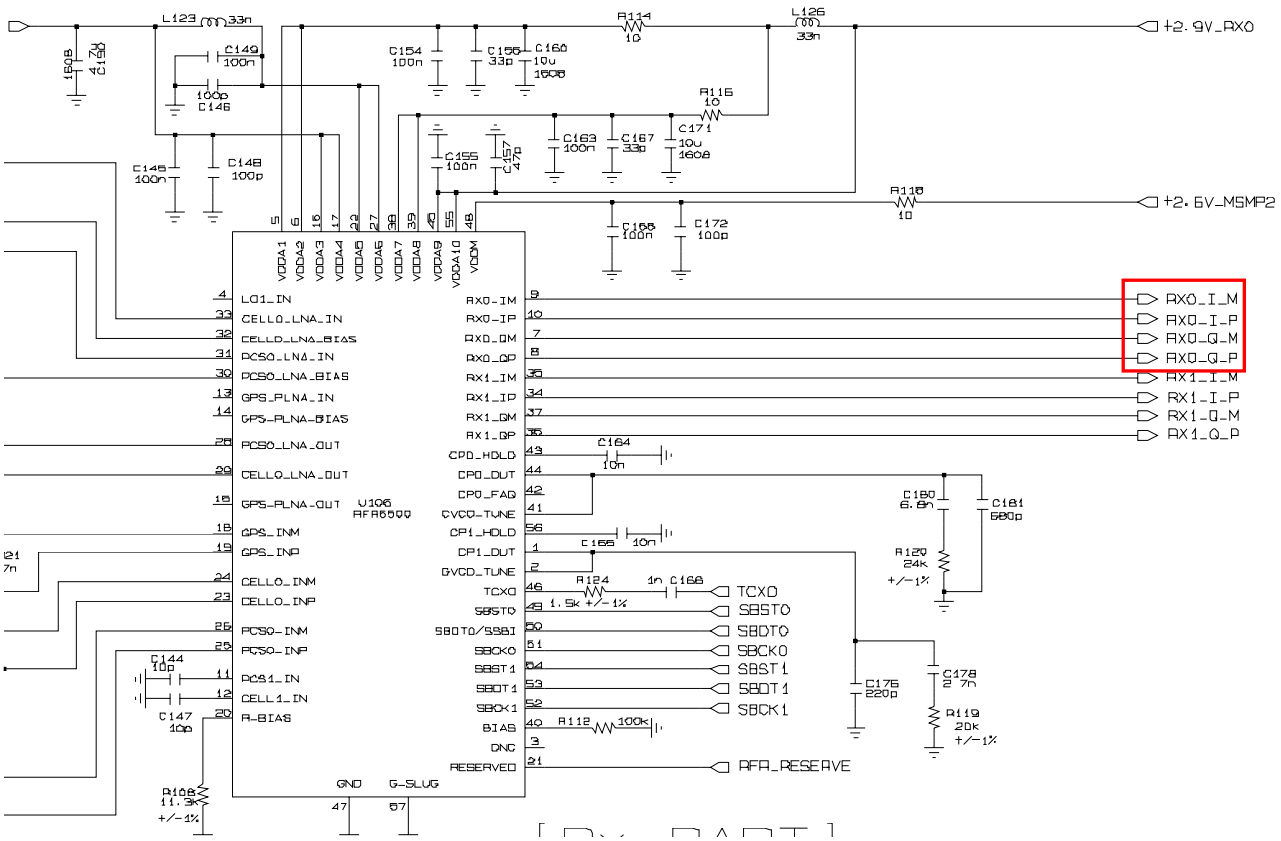


Figure 4.1.1 (g)

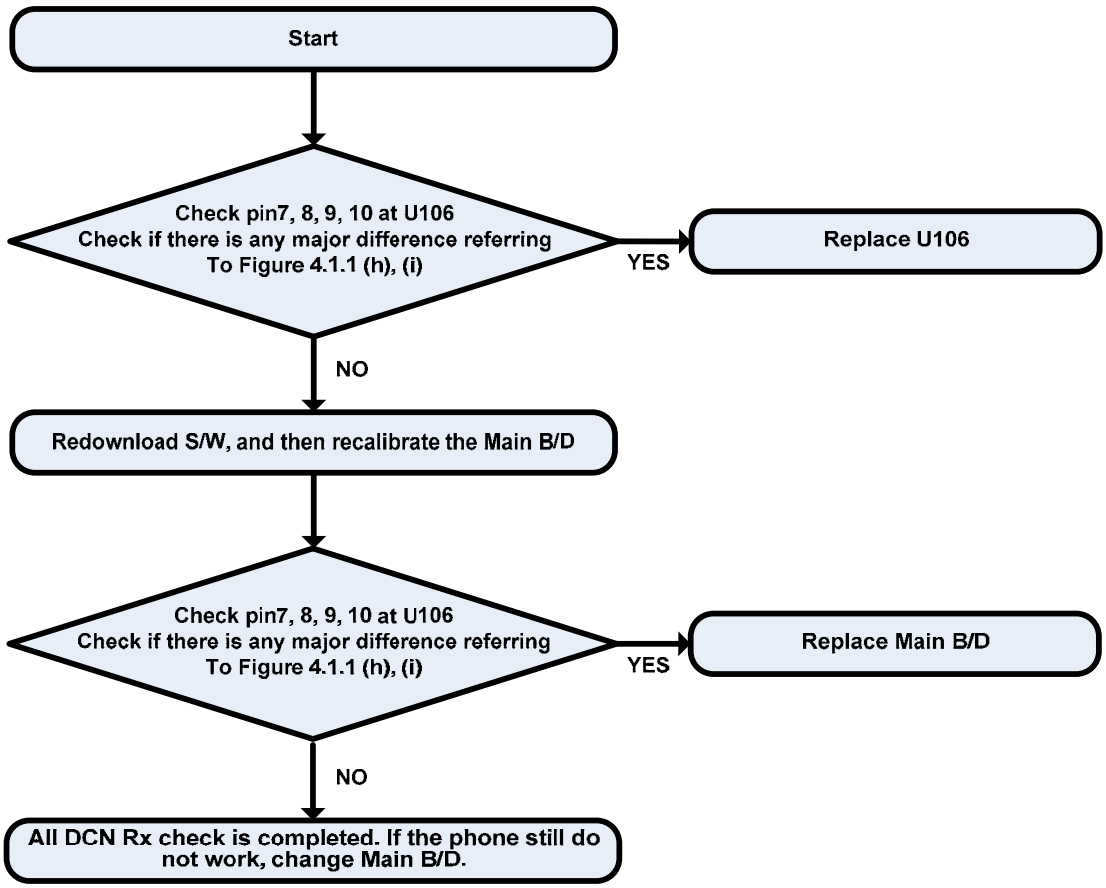
4.1.1.5 Checking Rx I/Q data

Test Point

Circuit Diagram



Checking Flow



Waveform

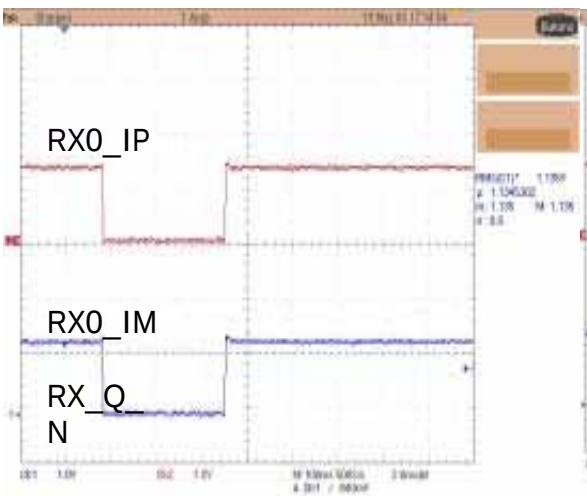


Figure 4.1.1(h)

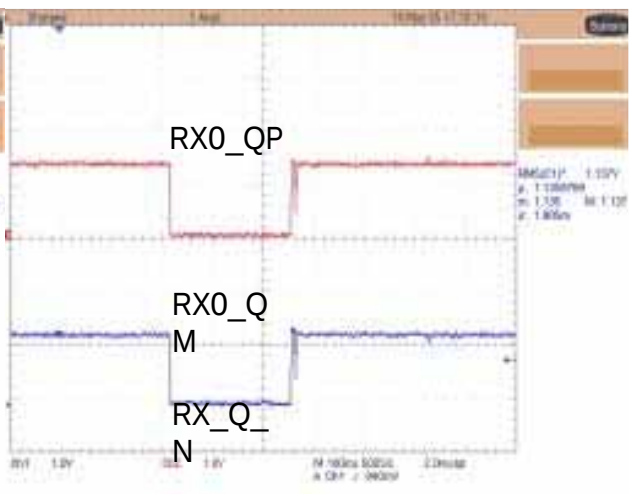
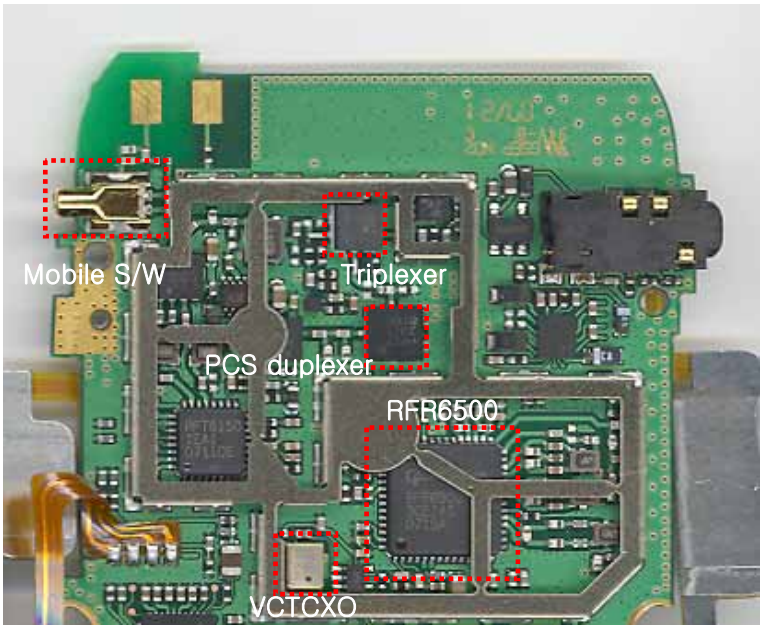


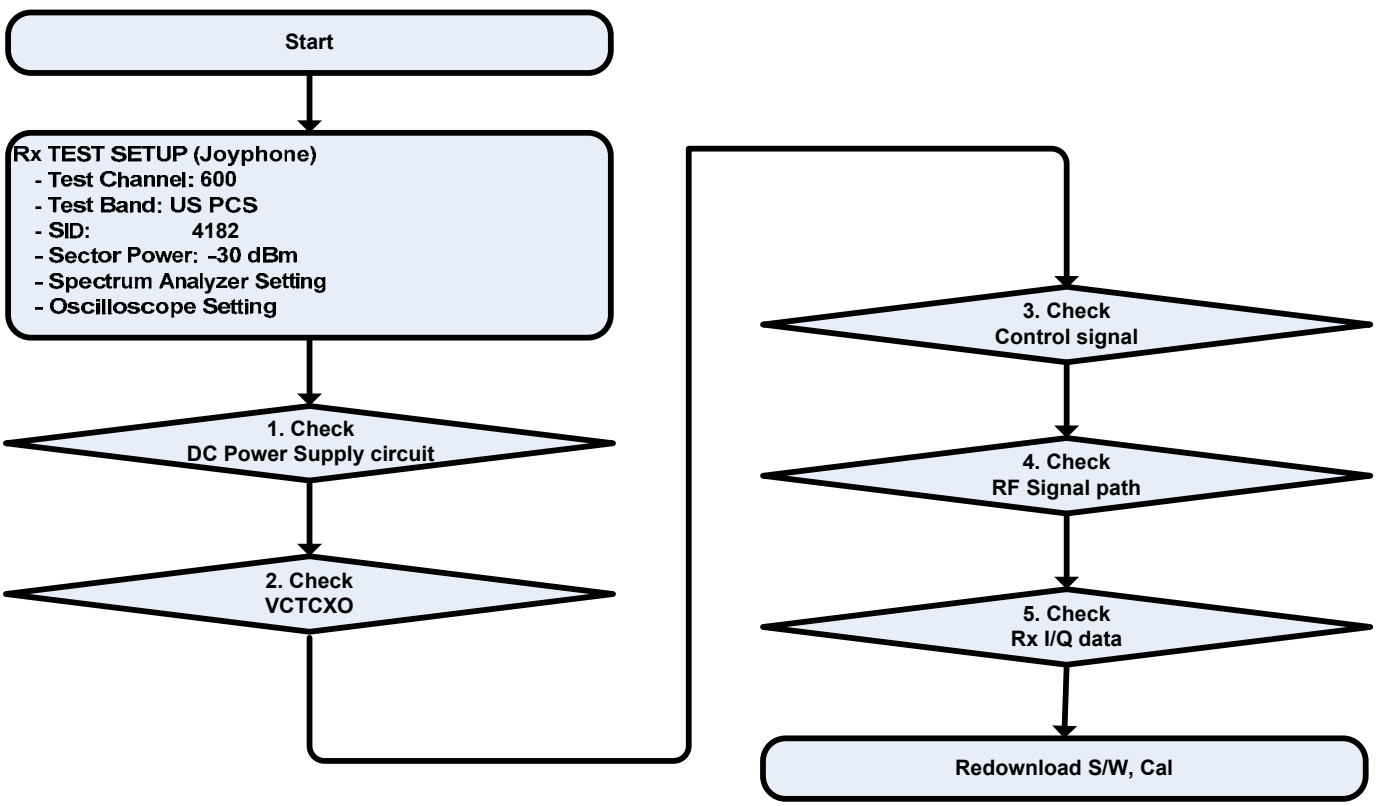
Figure 4.1.1(i)

4.1.2 PCS Rx

Test Point

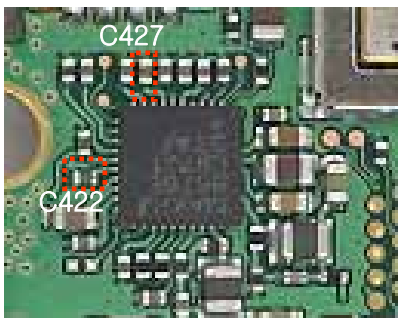


Checking Flow

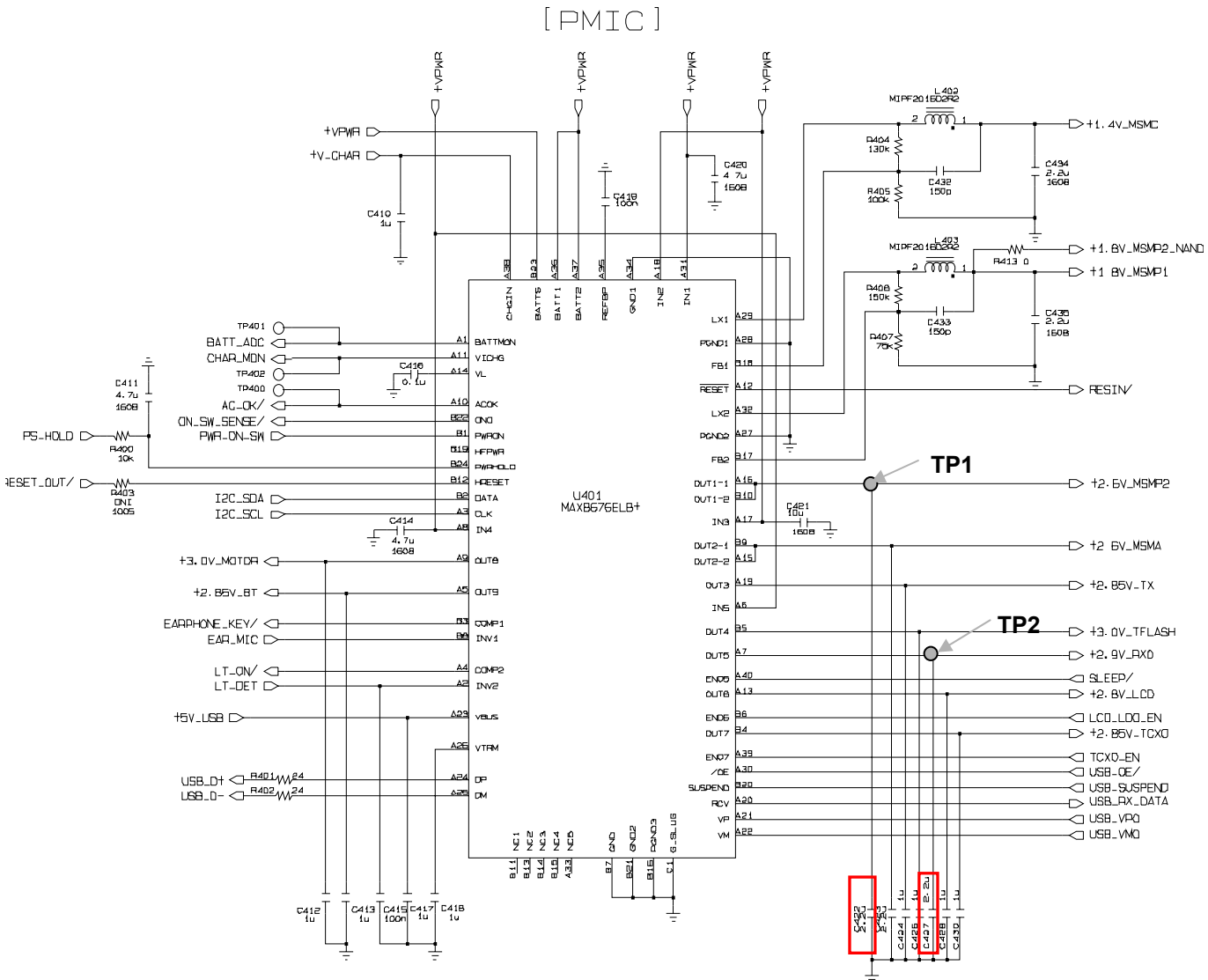


4.1.2.1 Checking DC Power supply circuit (PMIC)

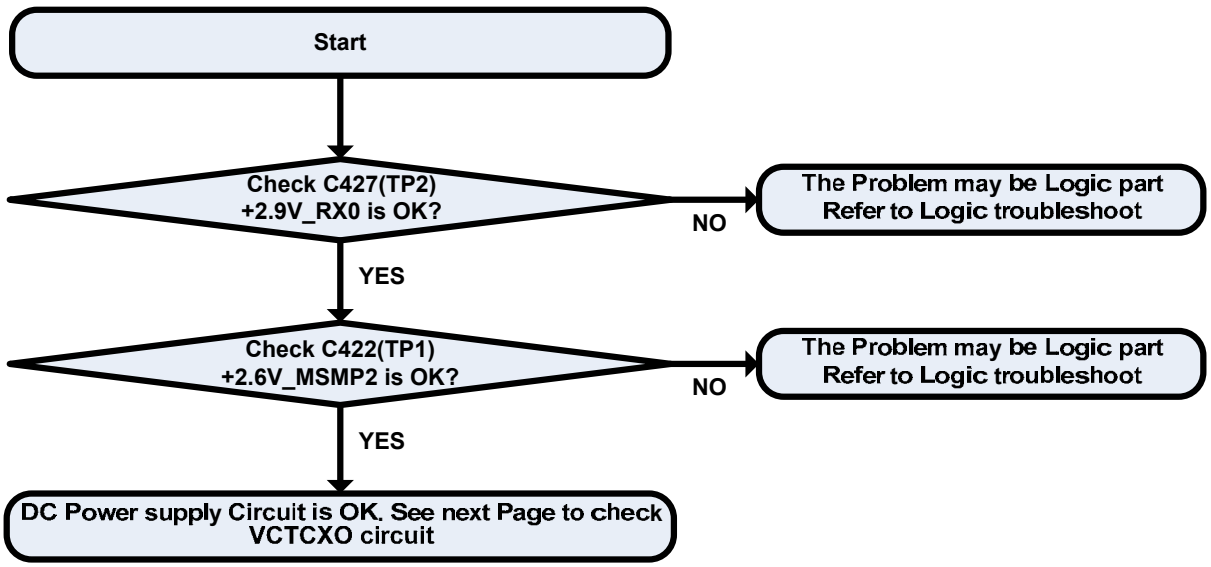
Test Point



Circuit Diagram

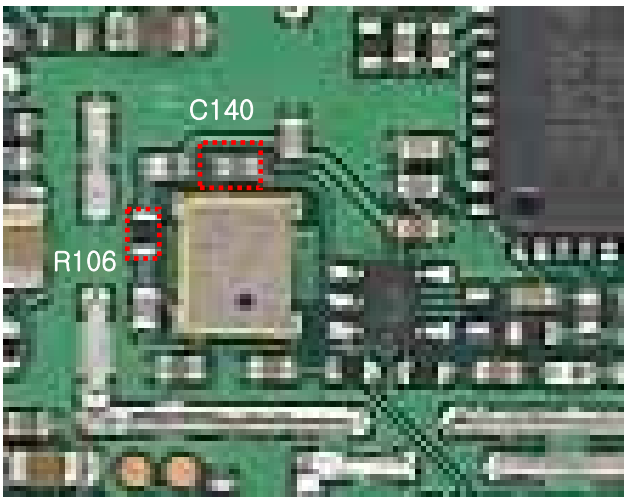


Checking Flow

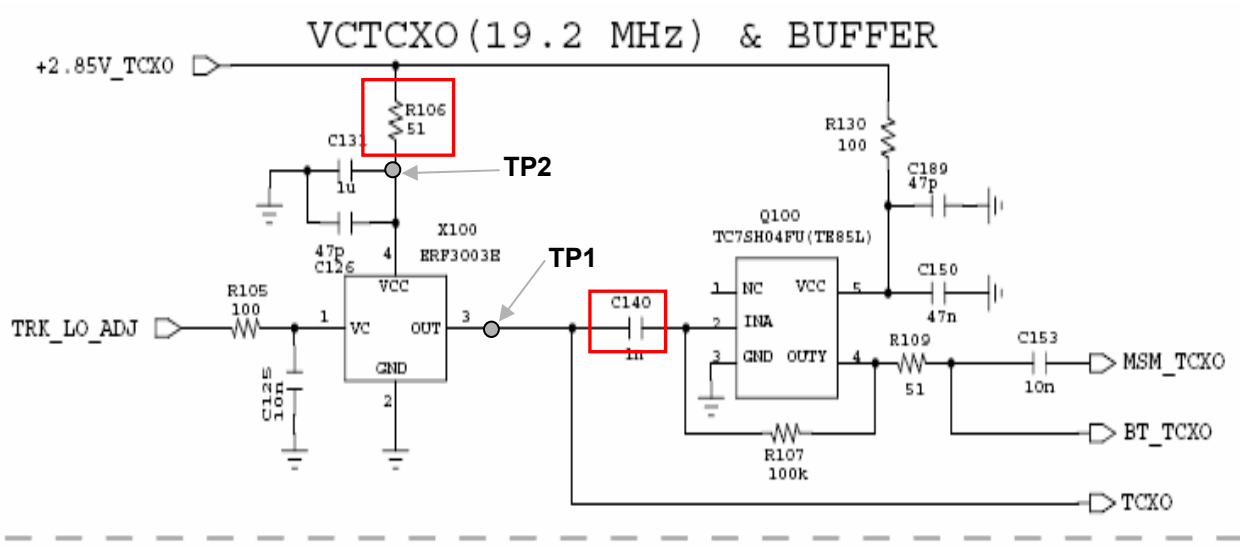


4.1.2.2 Checking VCTCXO circuit

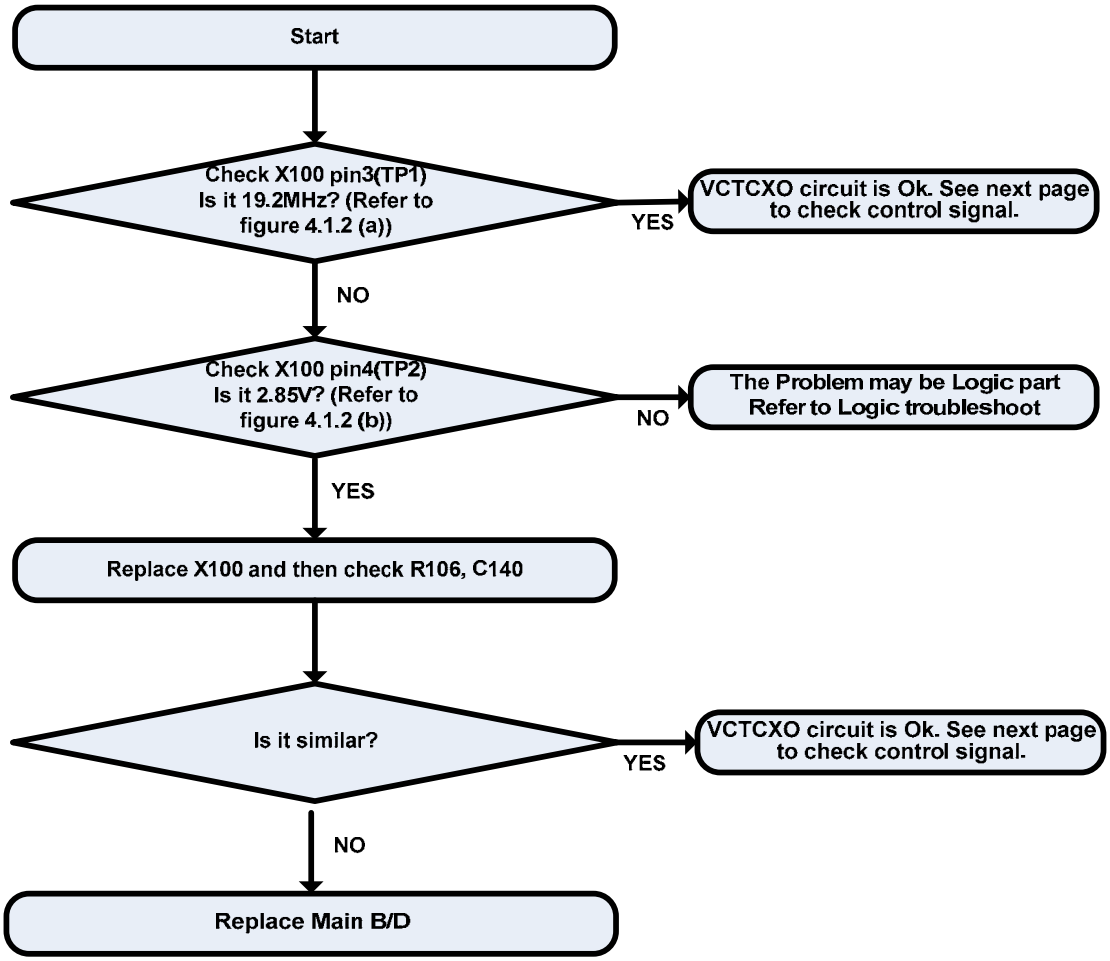
Test Point



Circuit Diagram



Checking Flow



Waveform

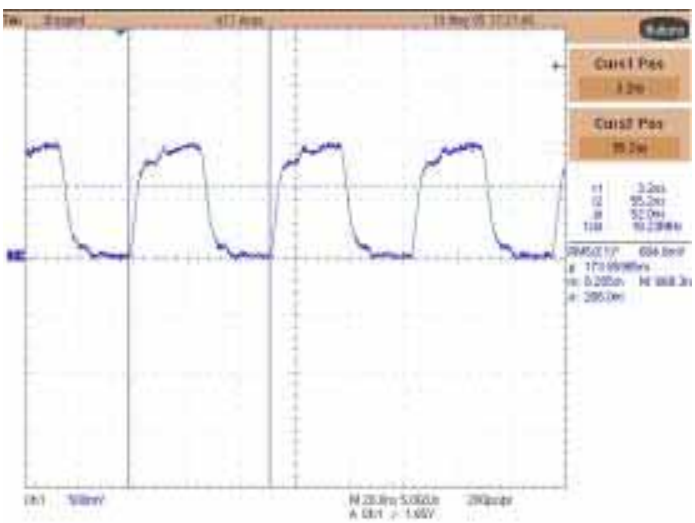


Figure 4.1.2 (a)

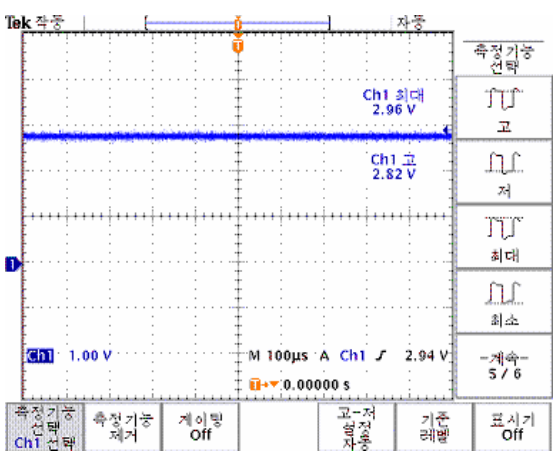


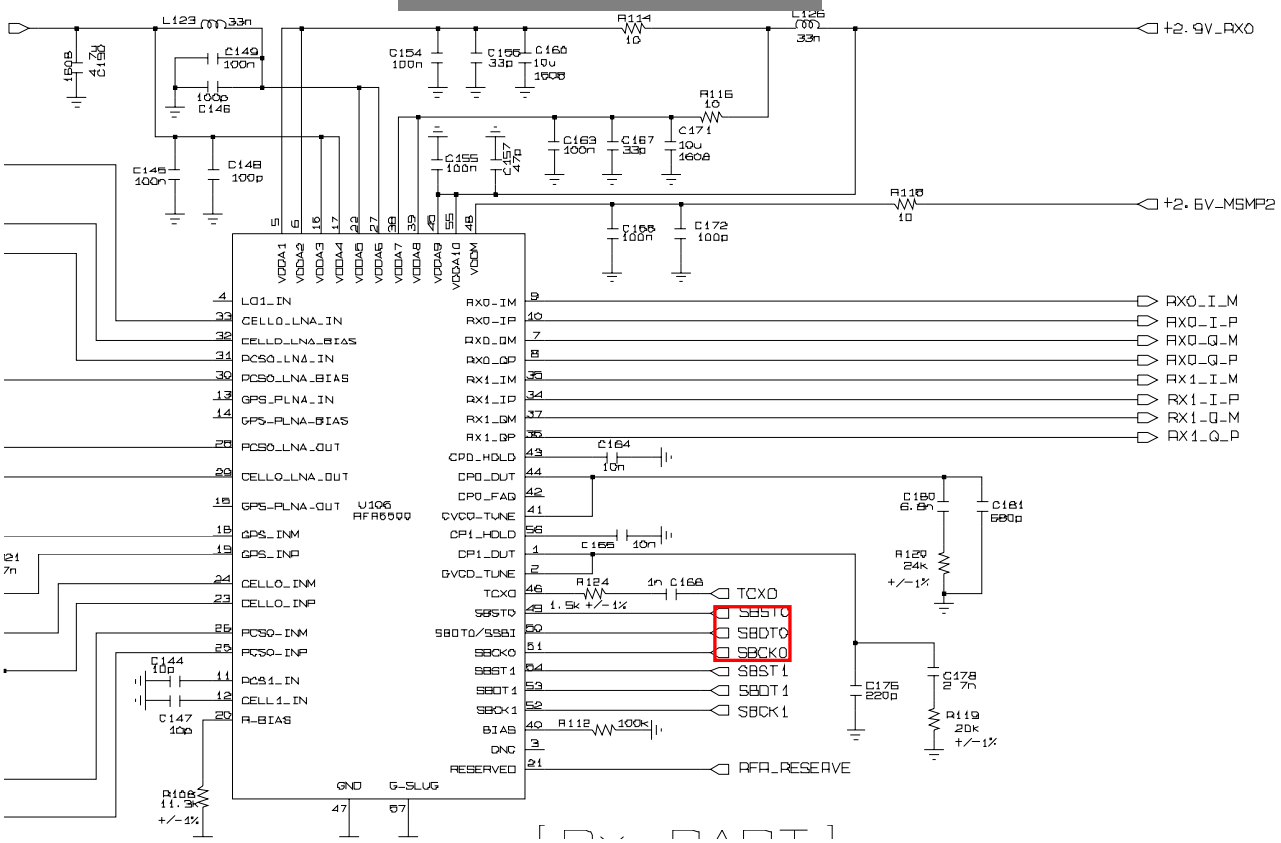
Figure 4.1.2 (b)

4.1.2.3 Checking Control signal

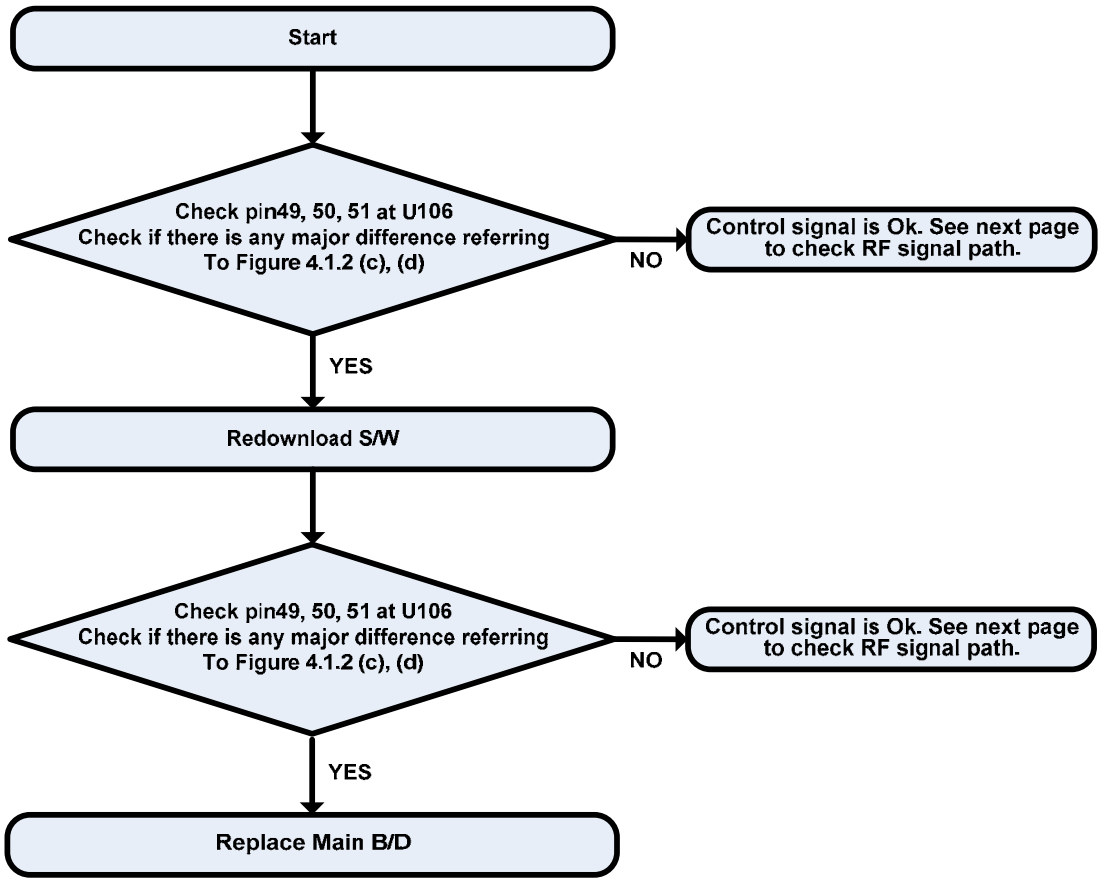
Test Point

U106 pin49(SBST0)
pin50(SBDT0)
pin51(SBCK0)

Circuit Diagram



Checking Flow



Waveform

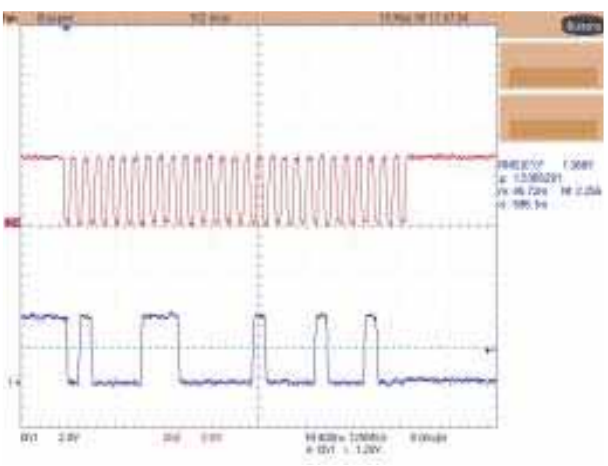


Figure 4.1.2 (c)

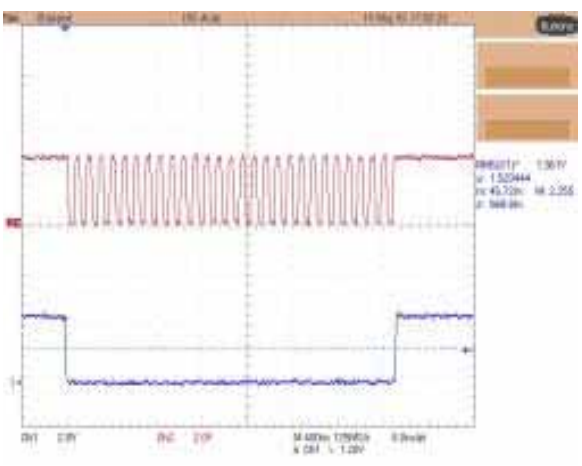
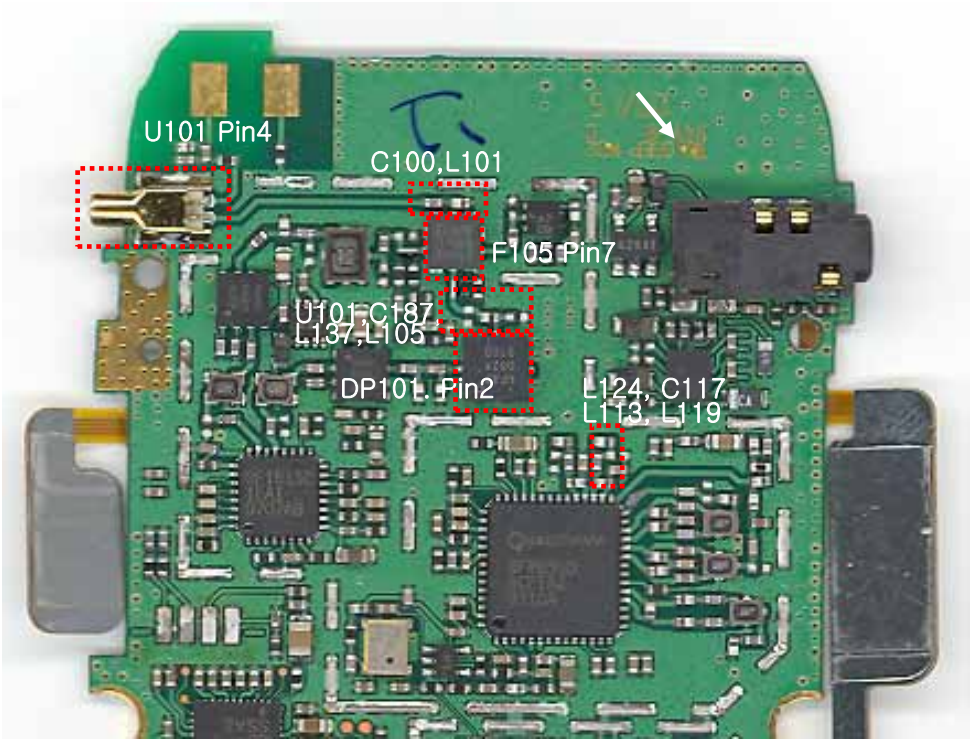


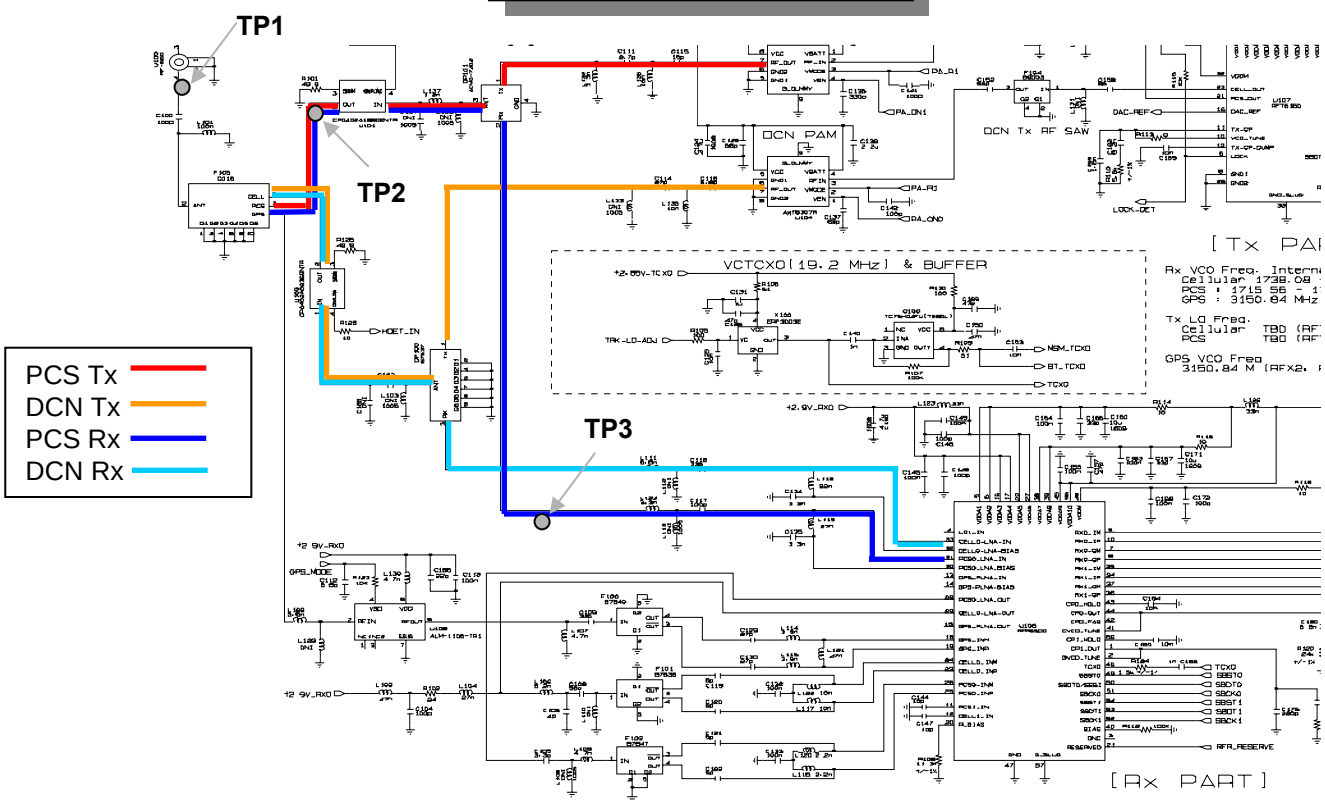
Figure 4.1.2 (d)

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

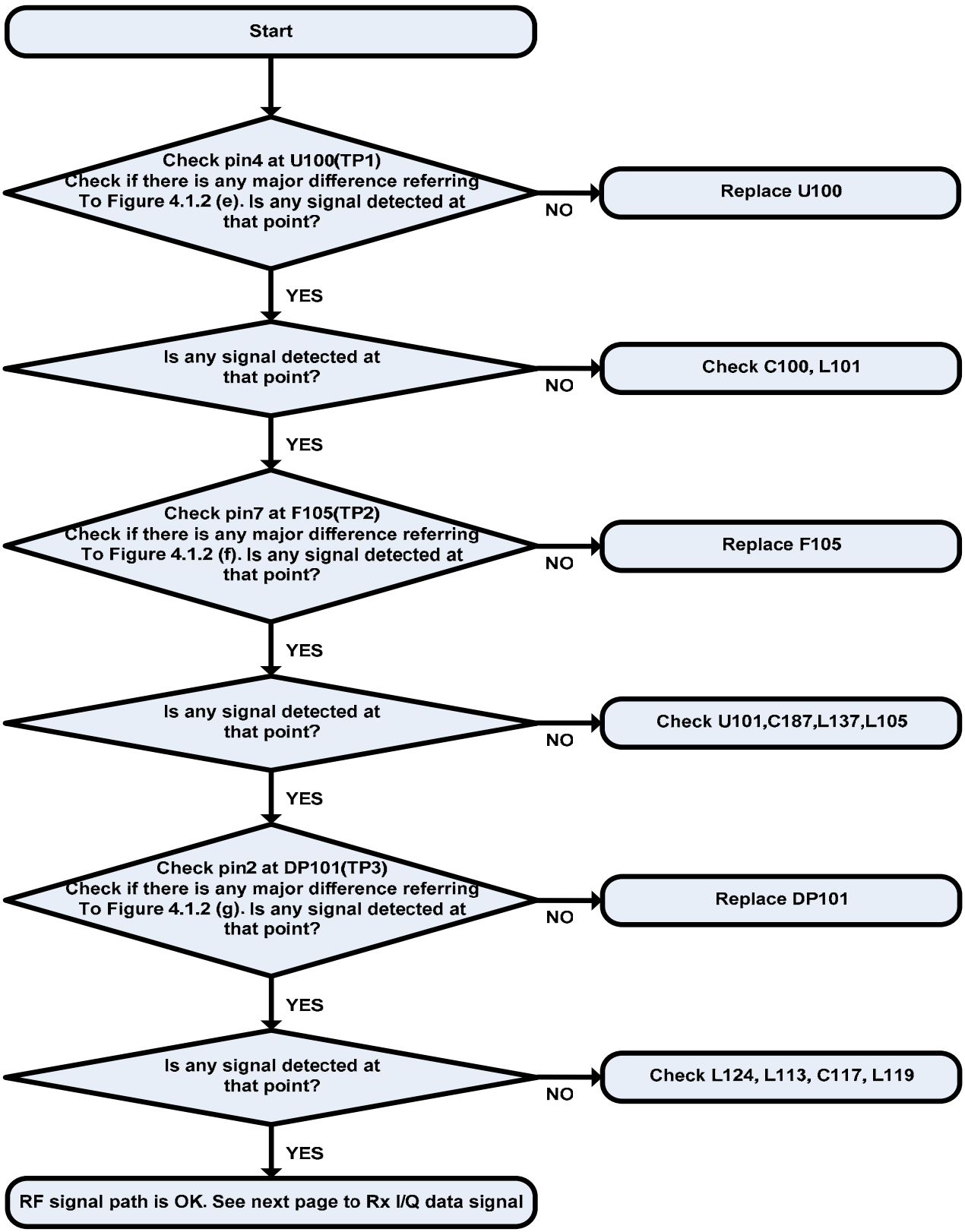
Test Point



Circuit Diagram



Checking Flow



Waveform

U100 Pin 4

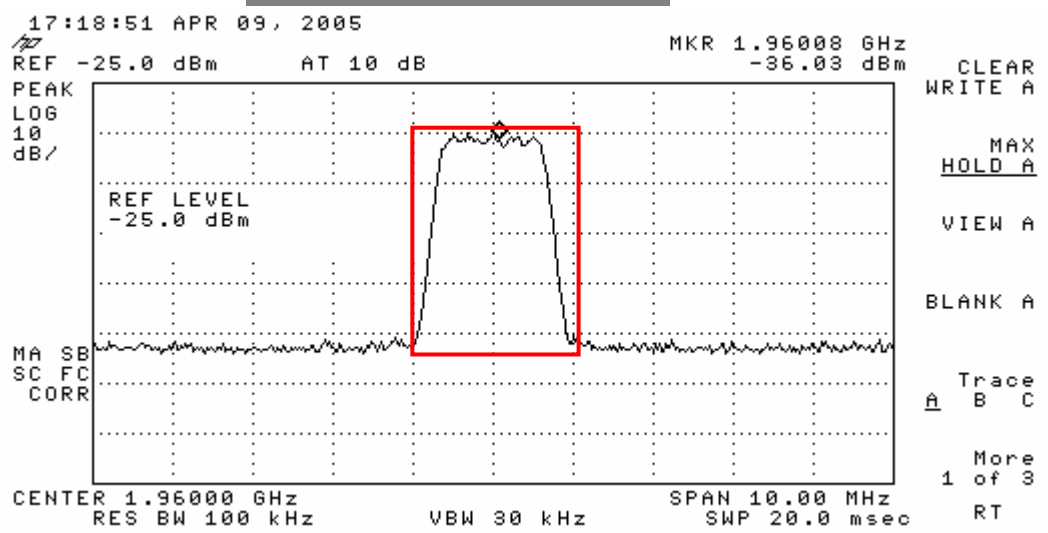


Figure 4.1.2(e)

F105 Pin 7

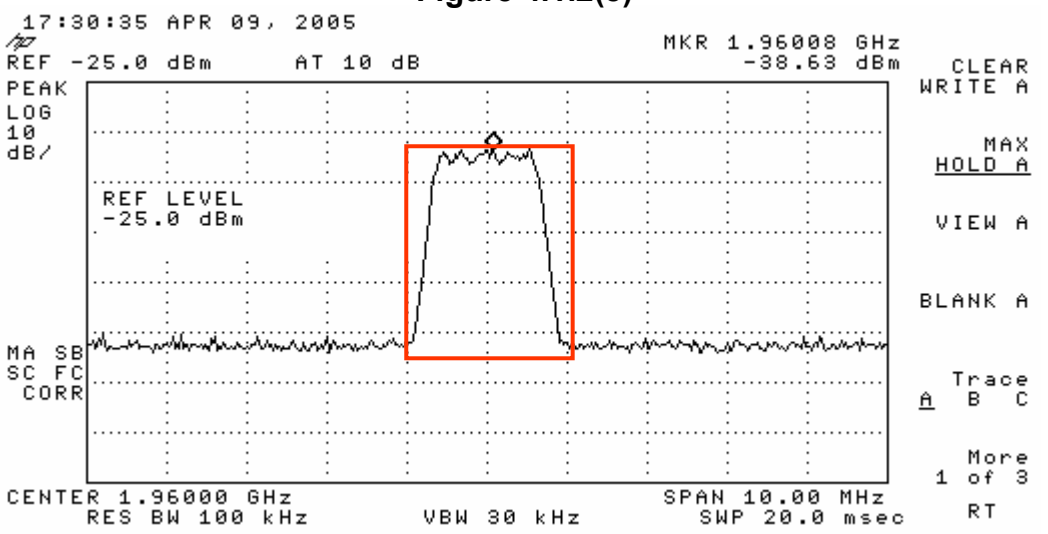


Figure 4.1.2(f)

DP101 Pin 2

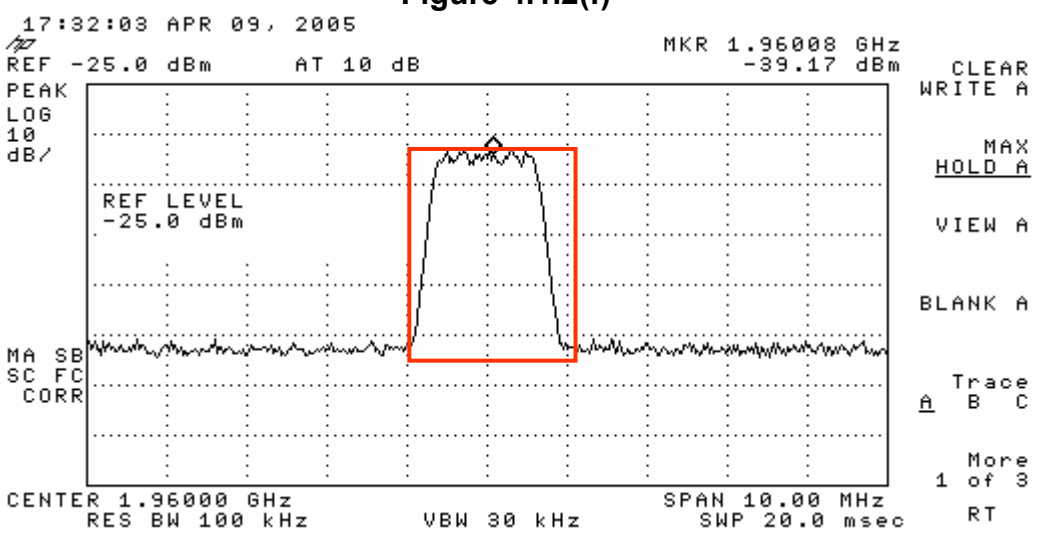
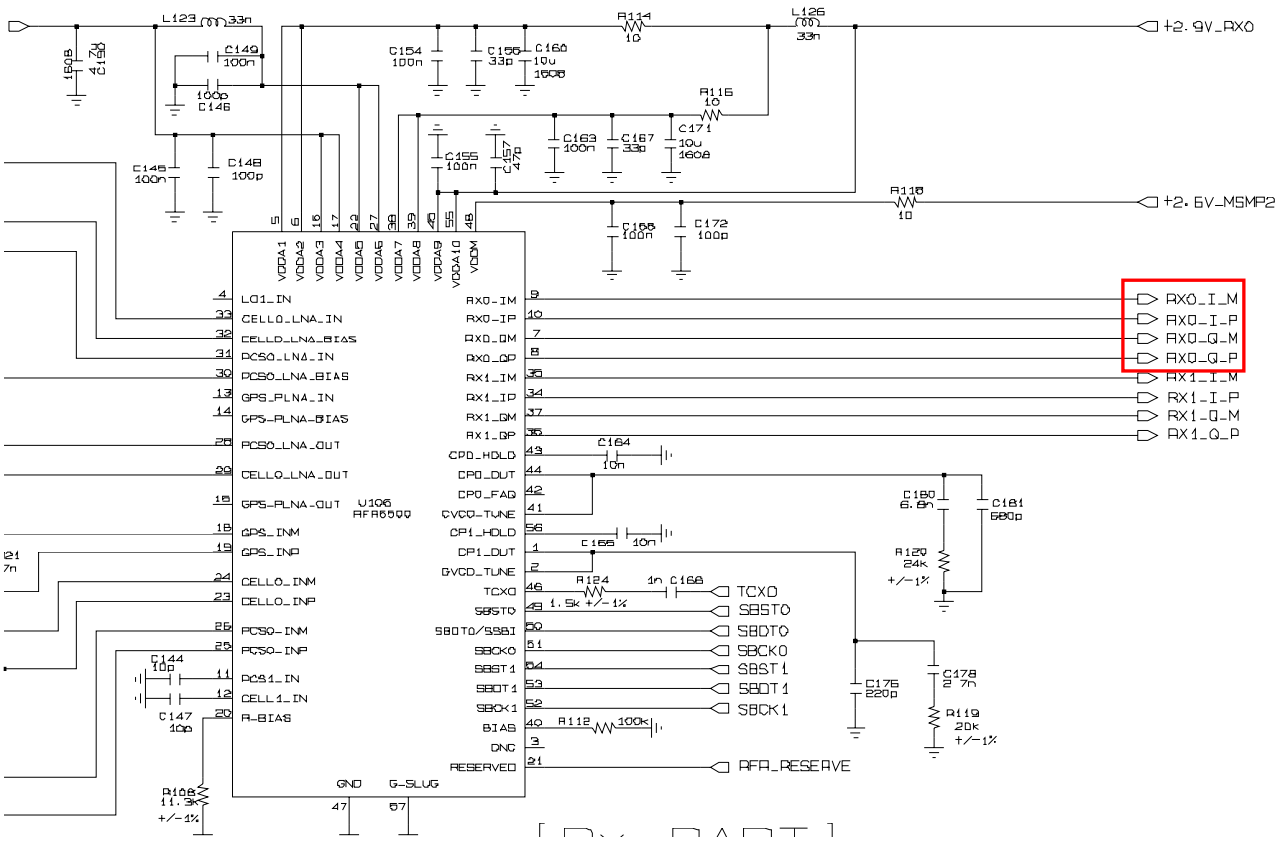


Figure 4.1.2(g)

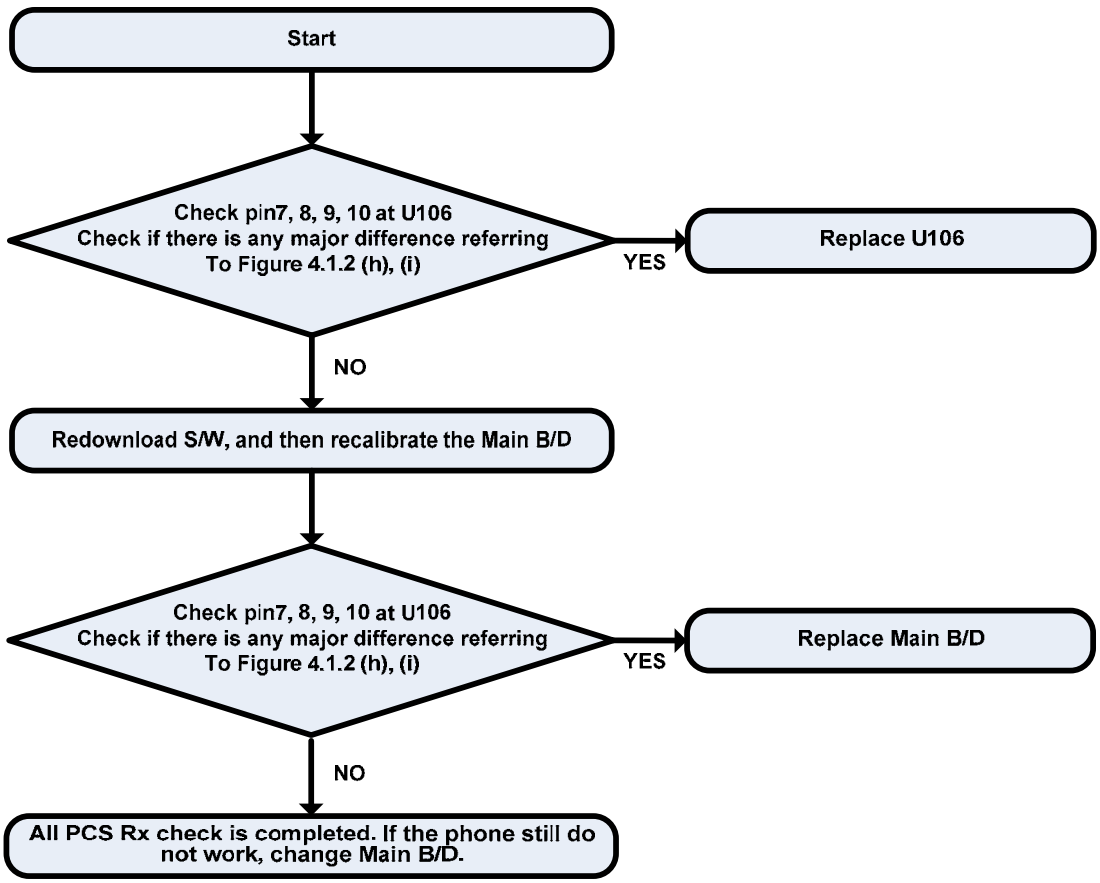
4.1.2.5 Checking Rx I/Q data

Test Point

Circuit Diagram



Checking Flow



Waveform

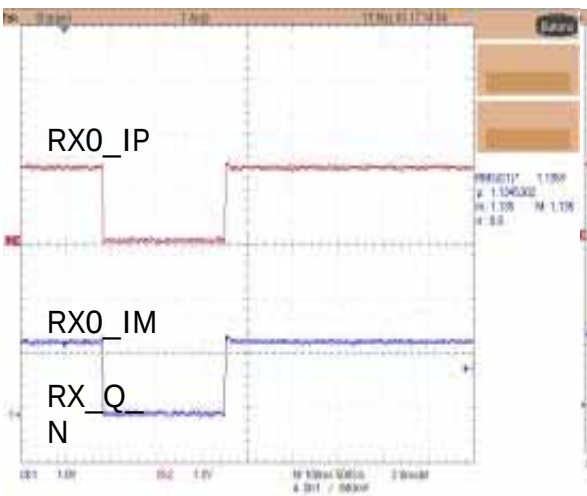


Figure 4.1.2(h)

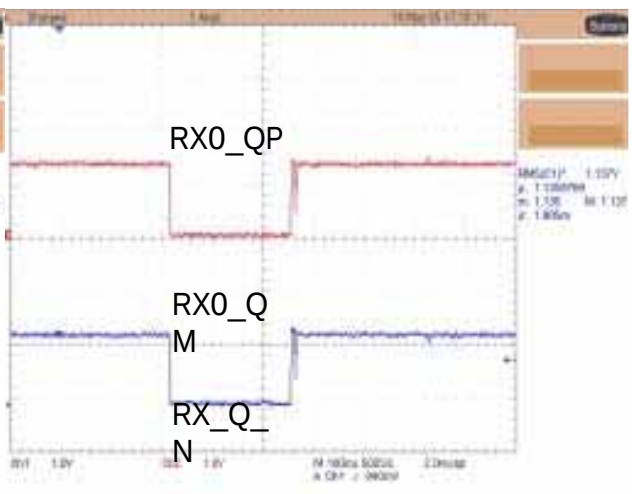
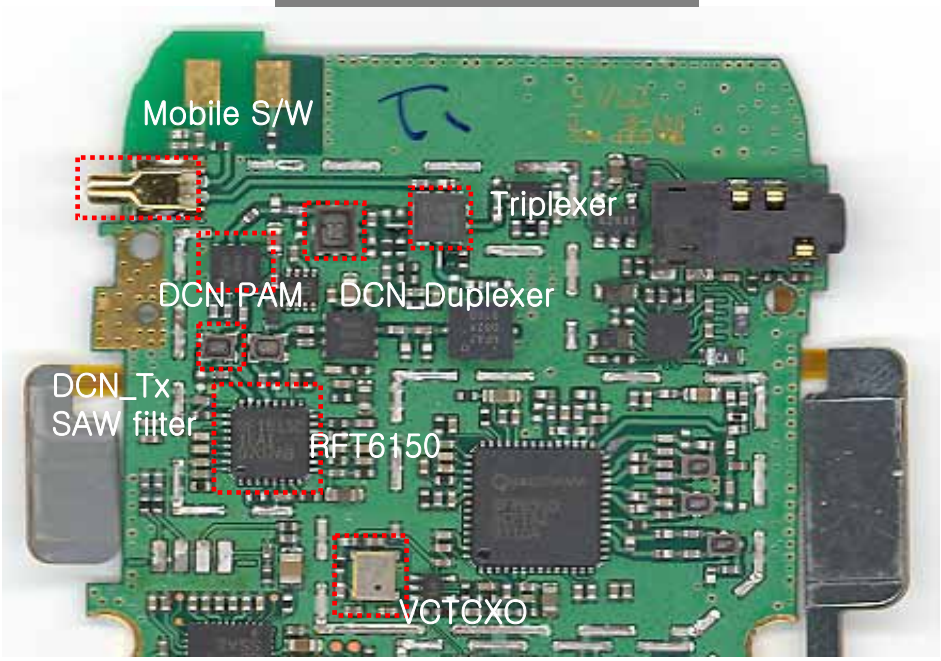


Figure 4.1.2(i)

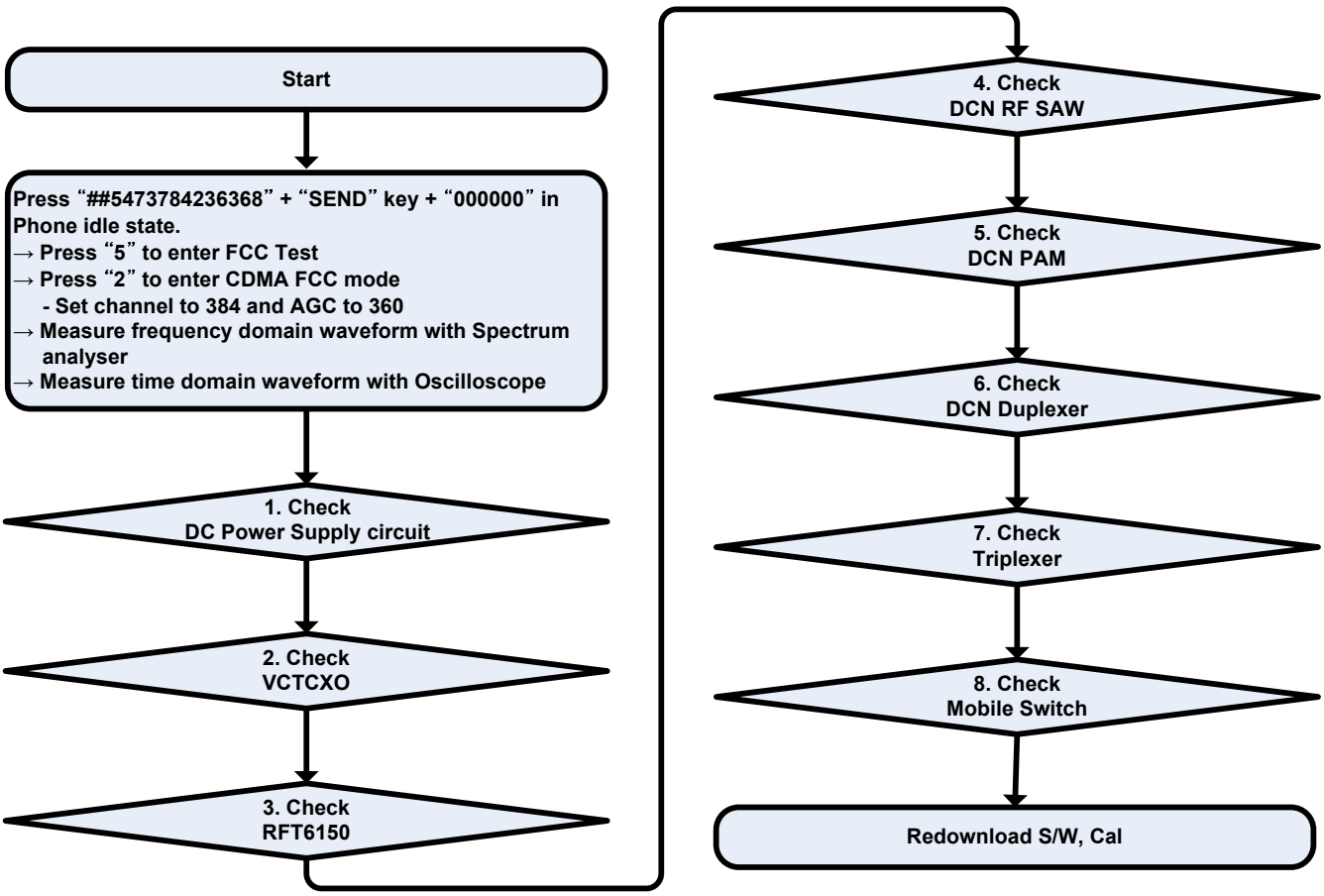
4.2 Tx Part Trouble

4.2.1 DCN Tx

Test Point

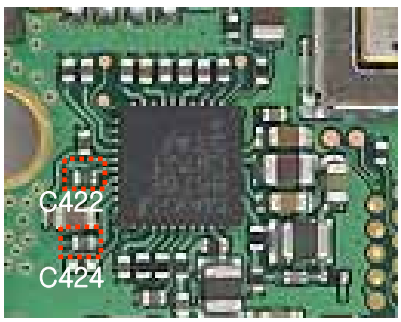


Checking Flow

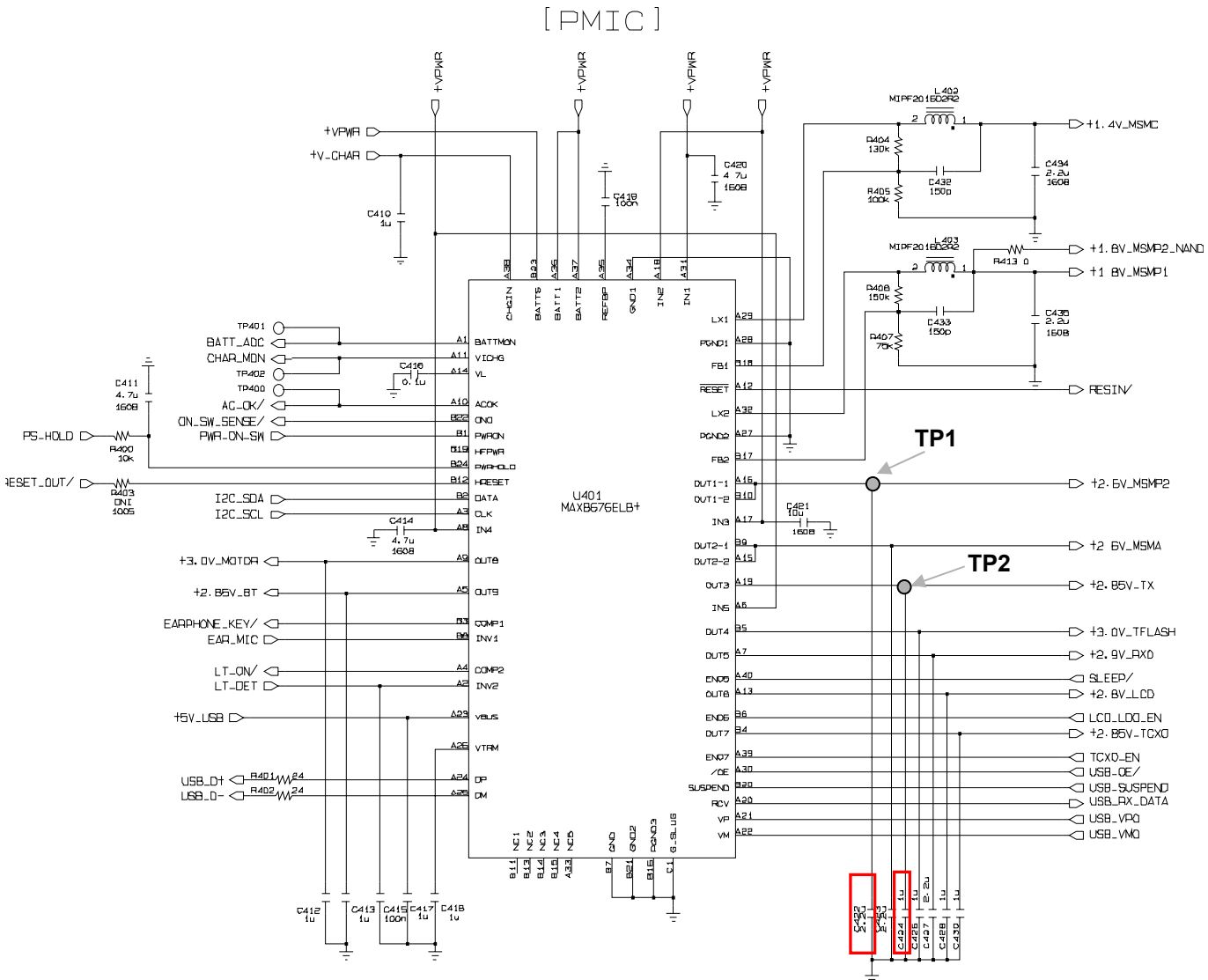


4.2.1.1 Checking DC Power supply circuit (PMIC)

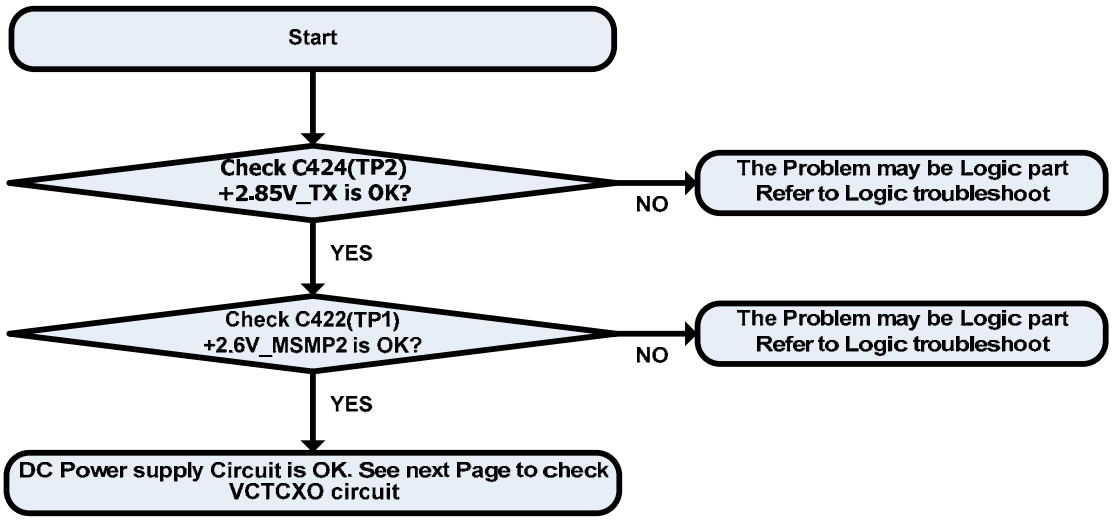
Test Point



Circuit Diagram

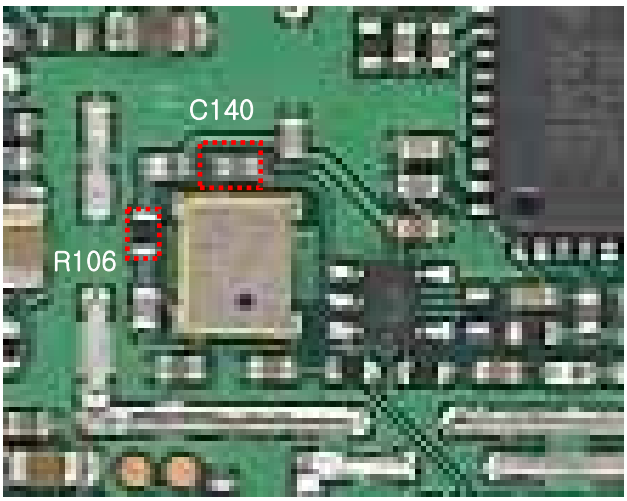


Checking Flow

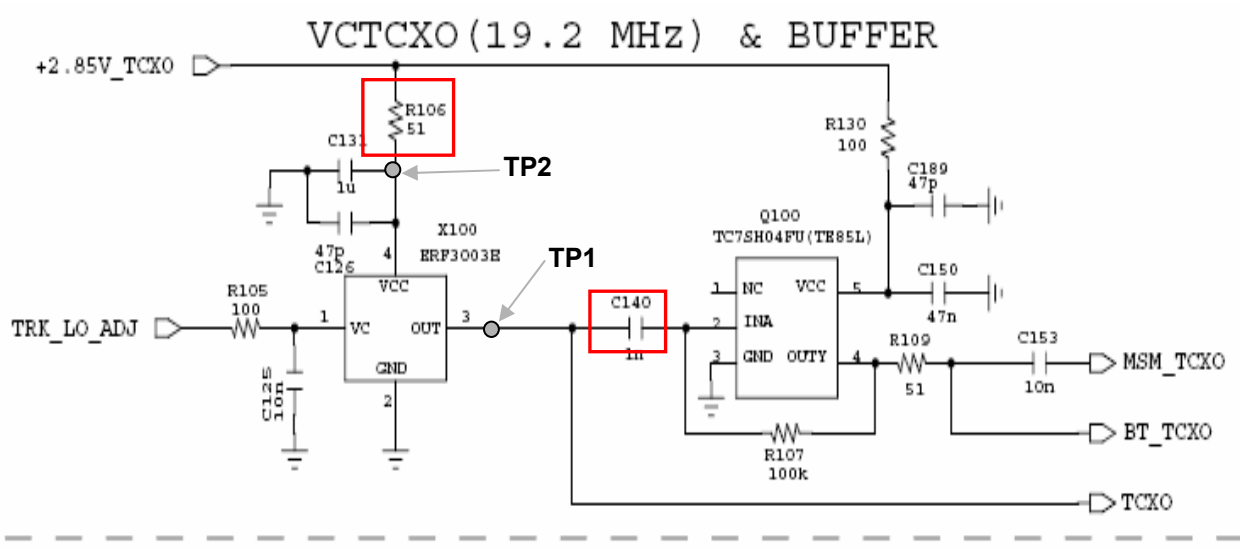


4.2.1.2 Checking VCTCXO circuit

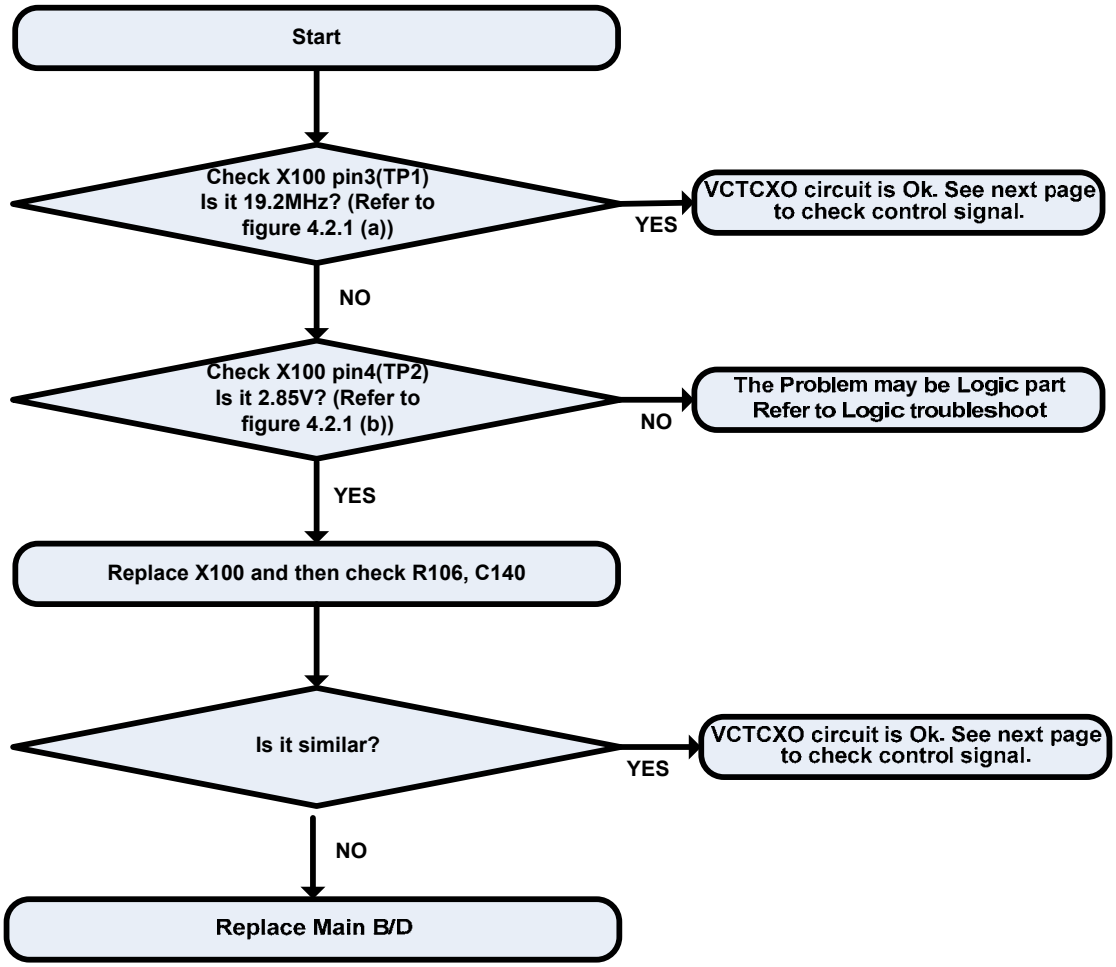
Test Point



Circuit Diagram



Checking Flow



Waveform

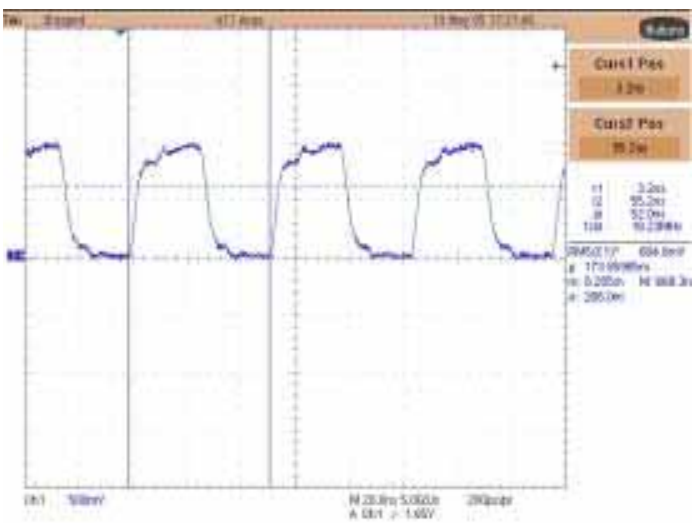


Figure 4.2.1 (a)

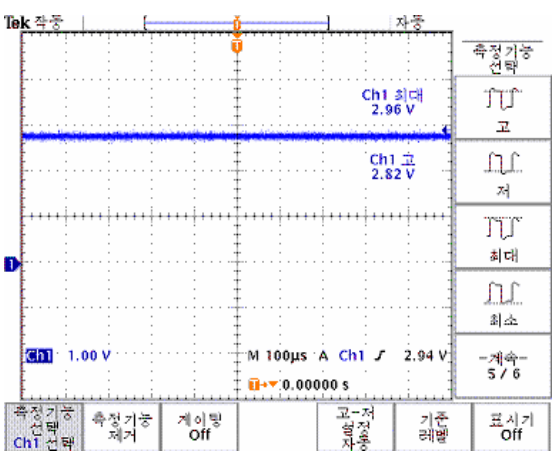
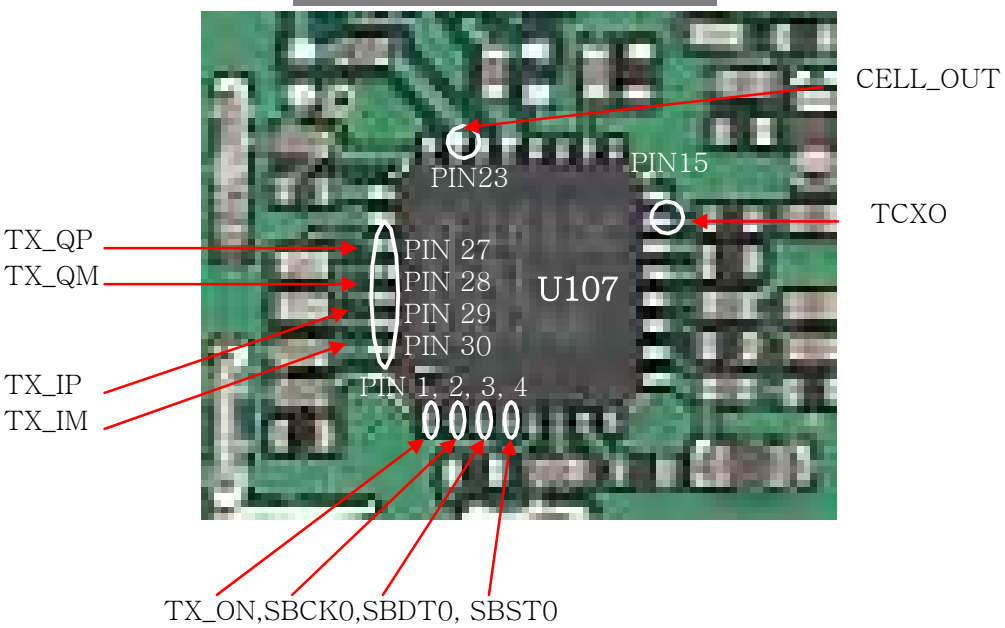


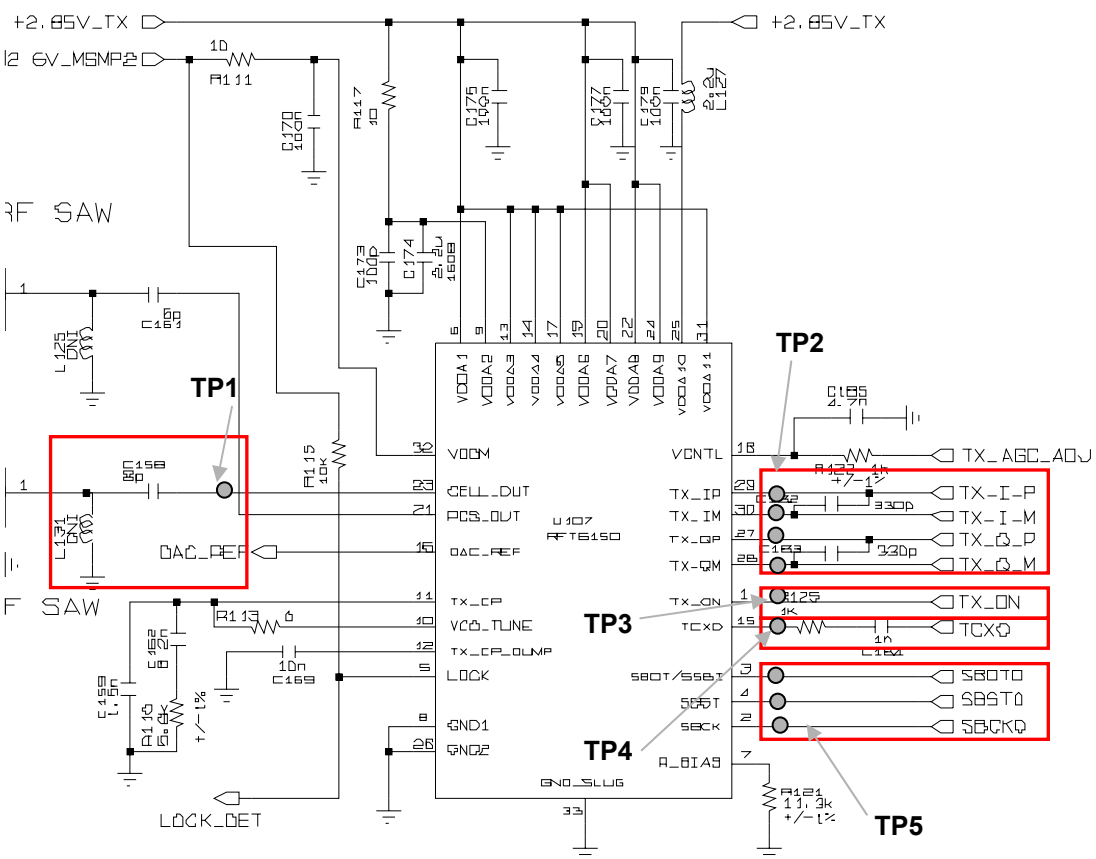
Figure 4.2.1 (b)

4.2.1.3 Checking RFT6150 circuit

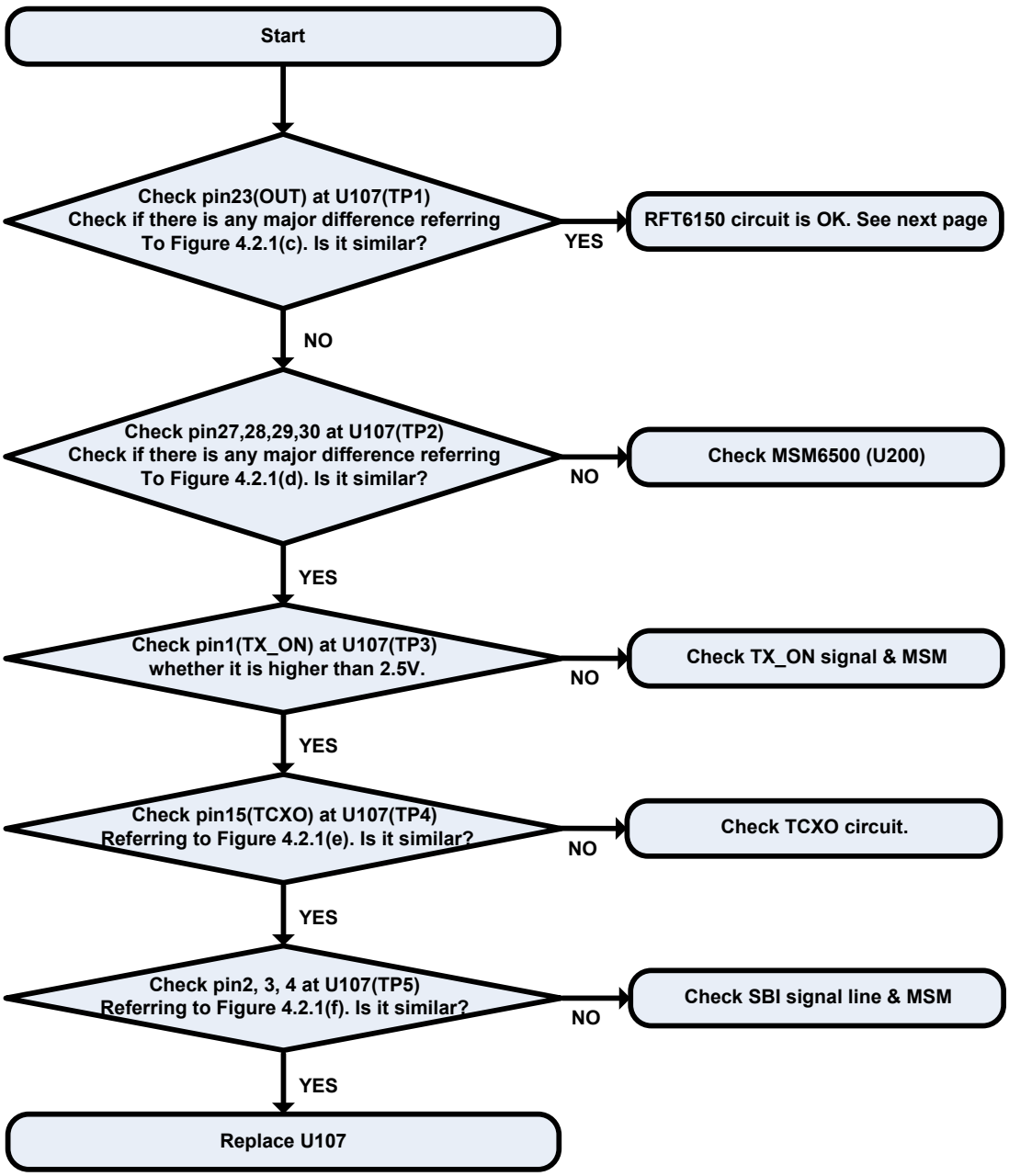
Test Point



Circuit Diagram



Checking Flow



Waveform

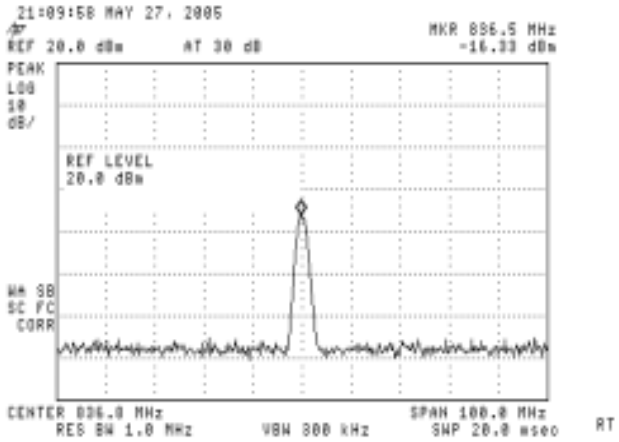


Figure 4.2.1(c)

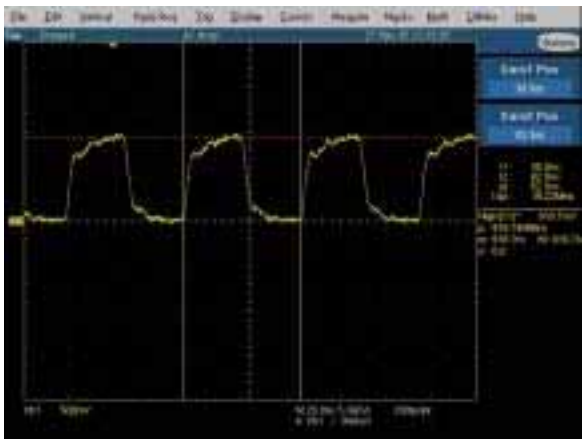
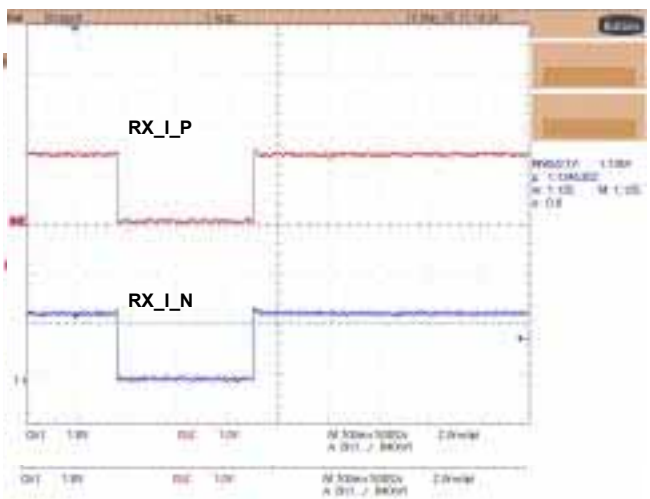


Figure 4.2.1(e)



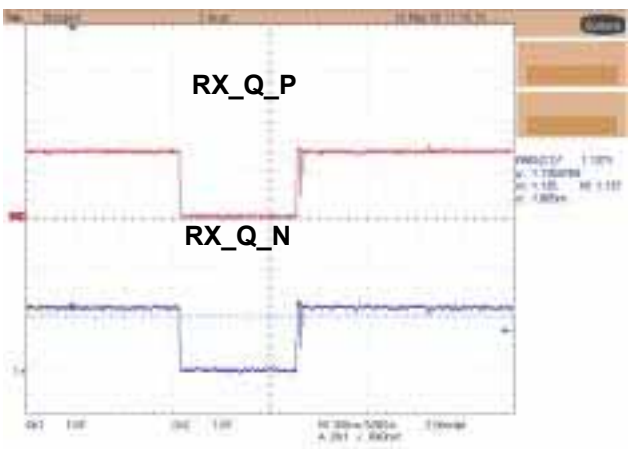
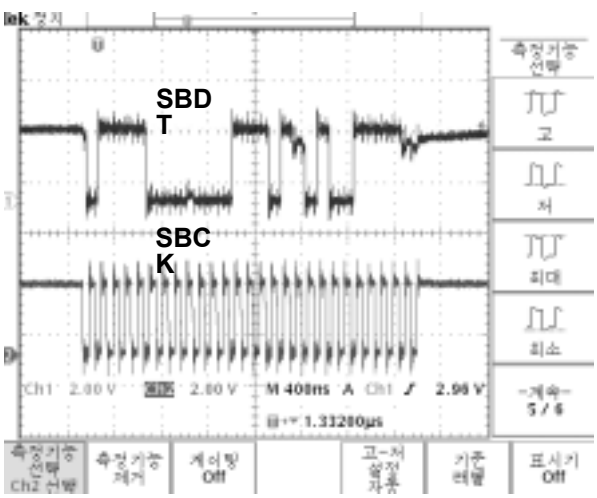


Figure 4.2.1(d)



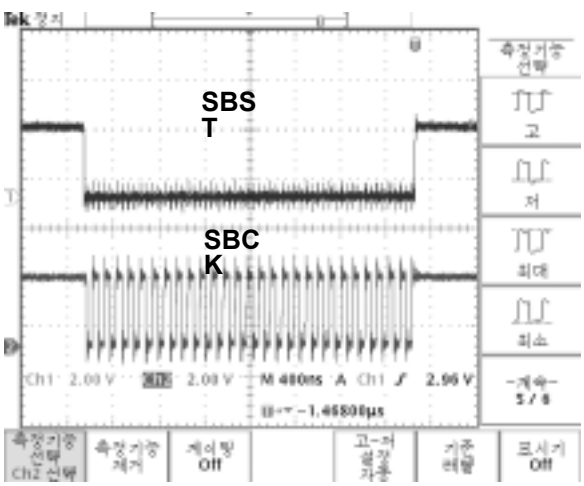
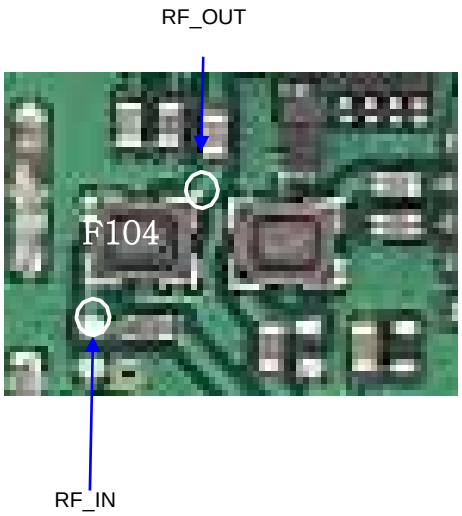


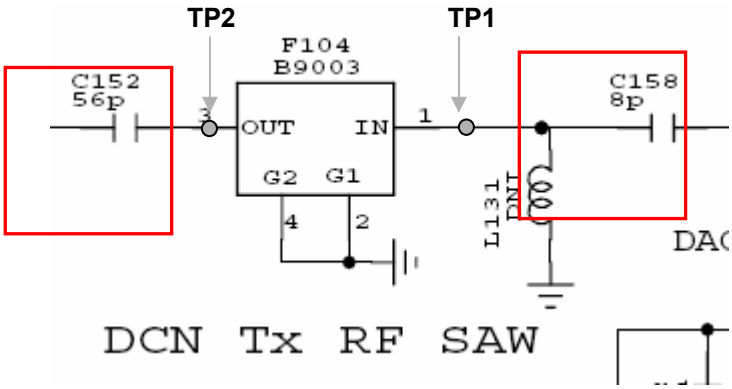
Figure 4.2.1(f)

4.2.1.4 Check DCN RF Tx SAW

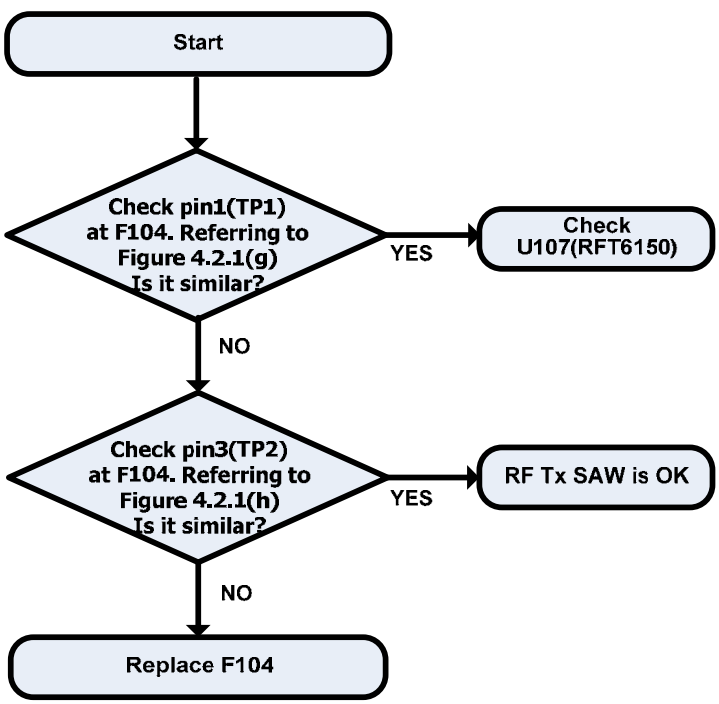
Test Point



Circuit Diagram



Checking Flow



Waveform

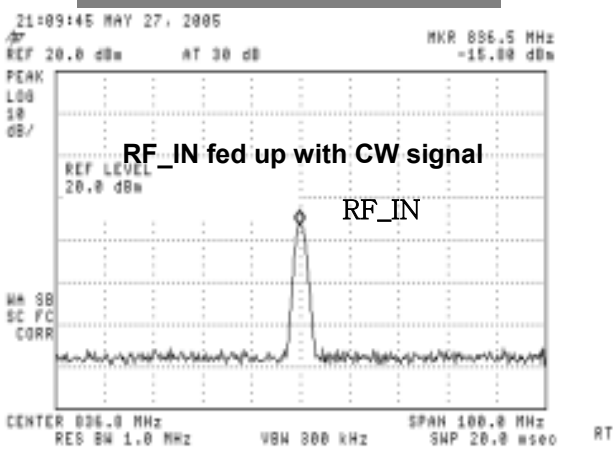
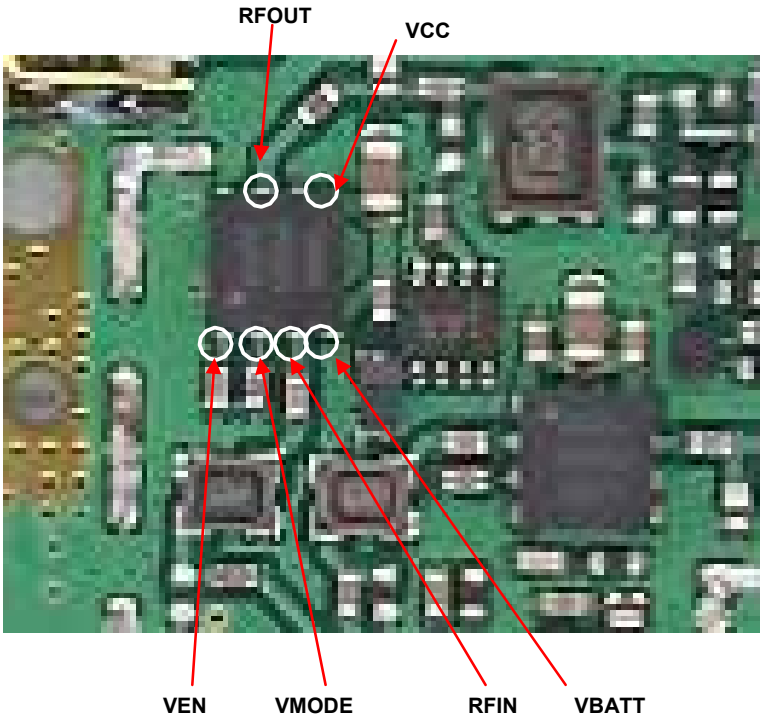


Figure 4.2.1(g)

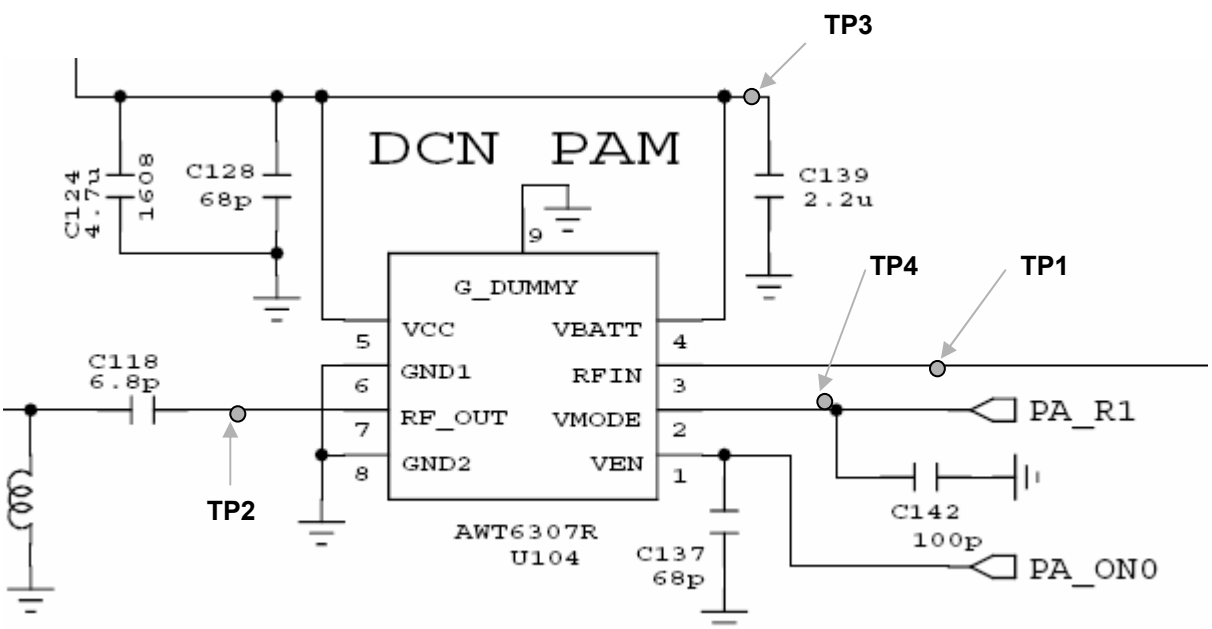
Figure 4.2.1(h)

4.2.1.5 Check DCN PAM circuit

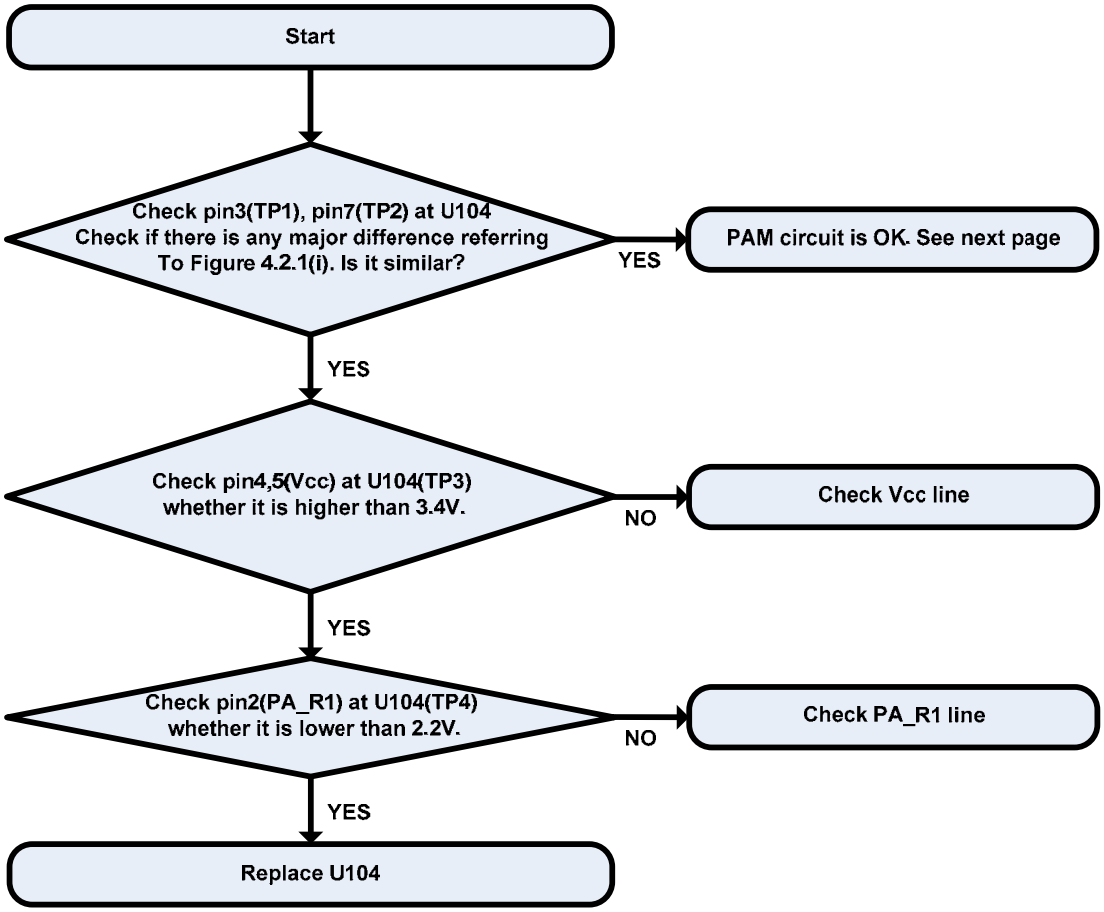
Test Point



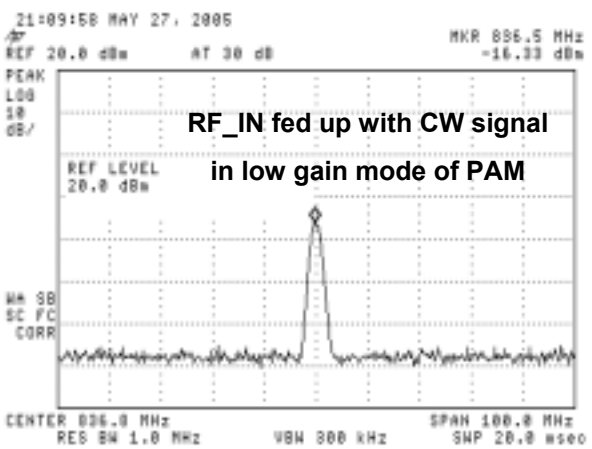
Circuit Diagram



Checking Flow



Waveform

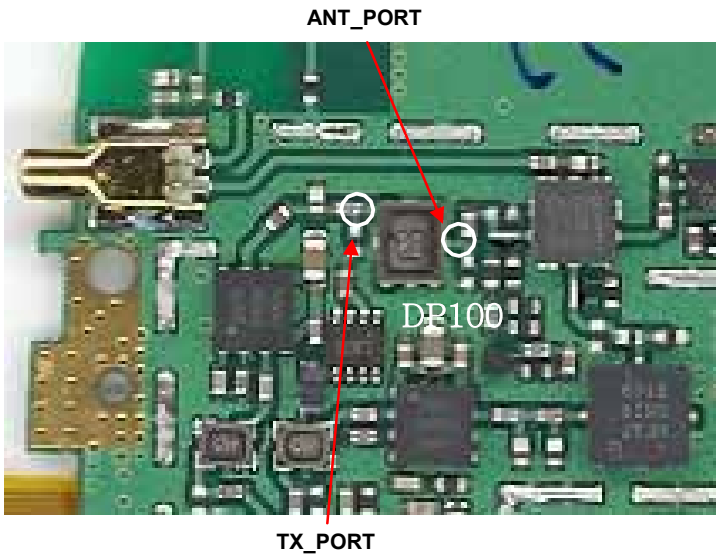


RF_OUT

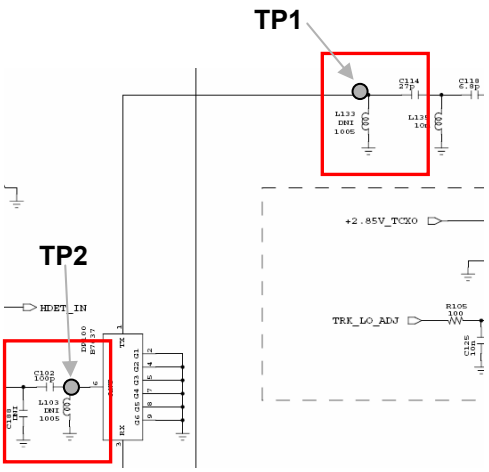
Figure 4.2.1(i)

4.2.1.6 Check DCN Duplexer

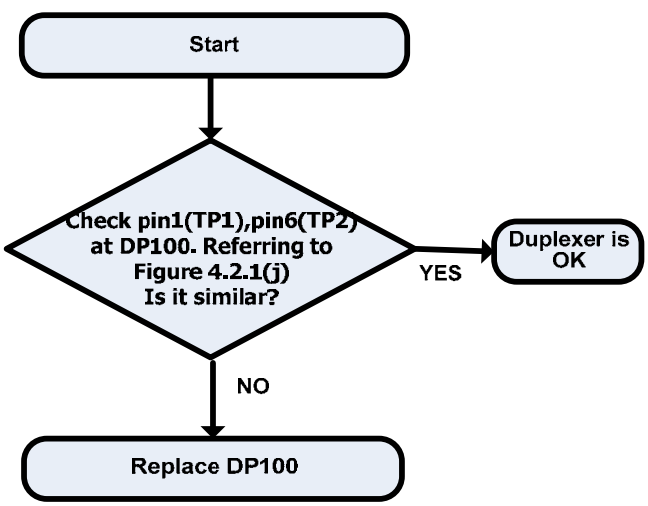
Test Point



Circuit Diagram



Checking Flow



Waveform

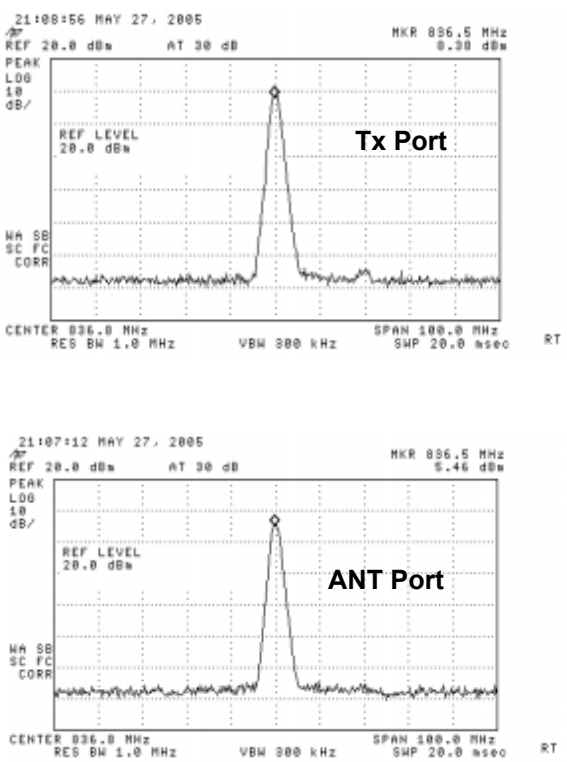
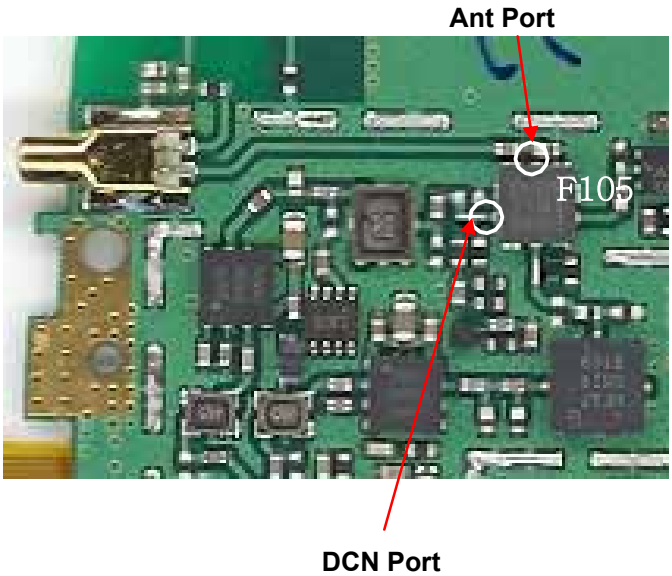


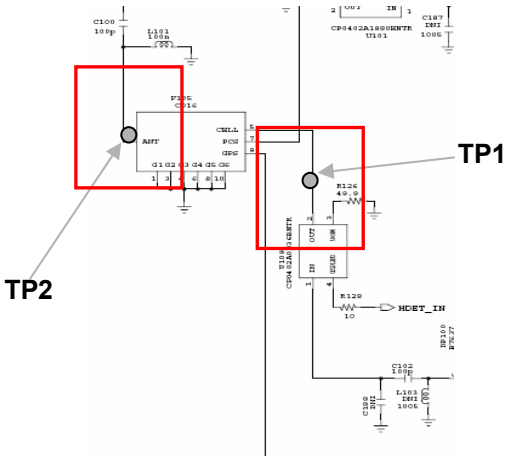
Figure 4.2.1(j)

4.2.1.7 Check Triplexer

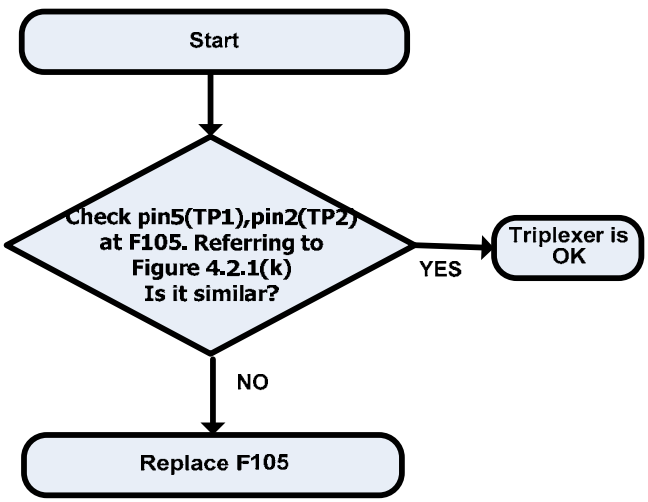
Test Point



Circuit Diagram



Checking Flow



Waveform

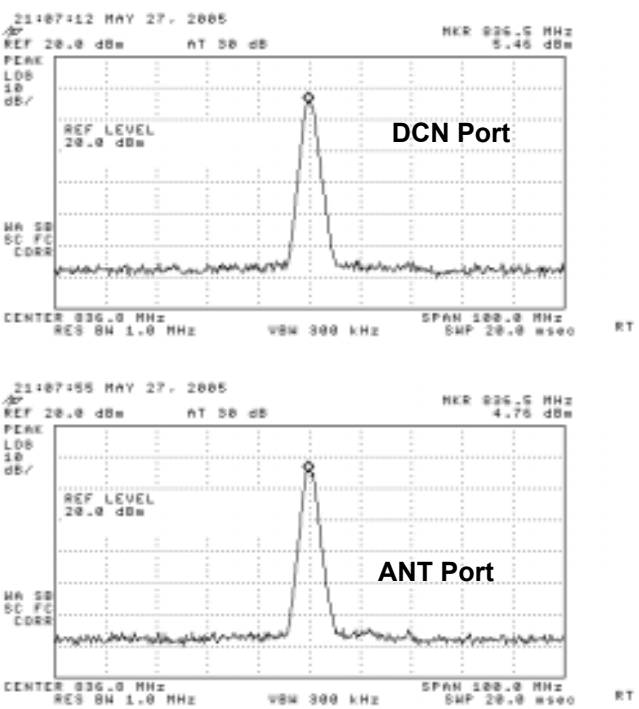
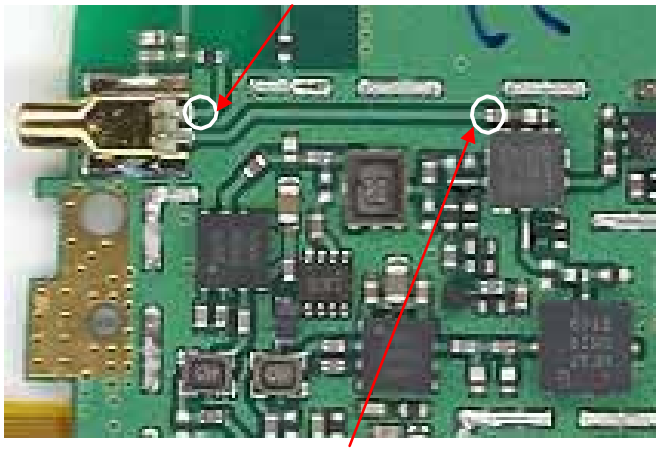


Figure 4.2.1(k)

4.2.1.8 Check Mobile S/W

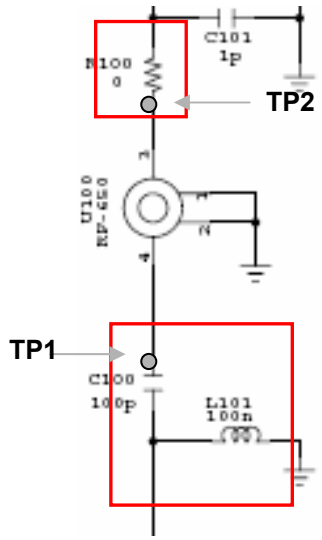
Test Point

RF OUT

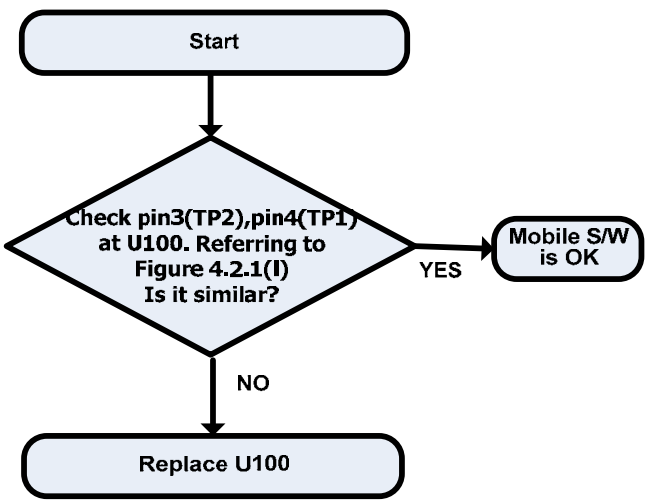


RF IN

Circuit Diagram



Checking Flow



Waveform

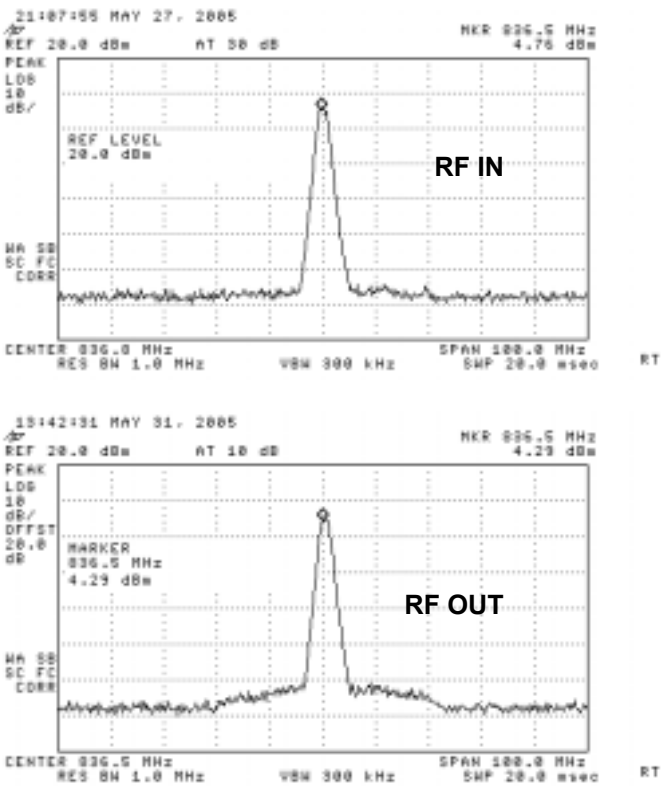
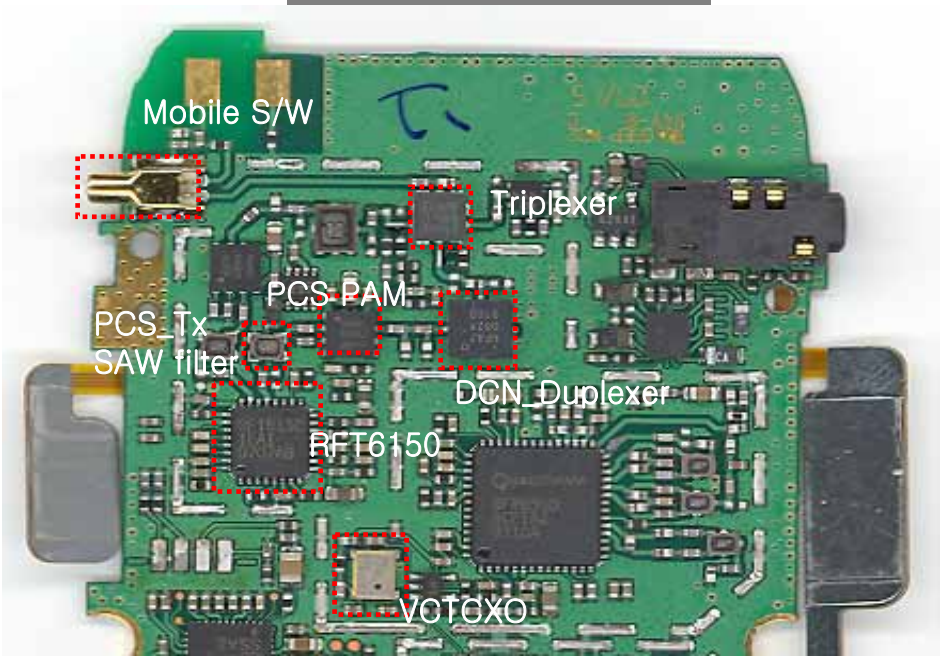


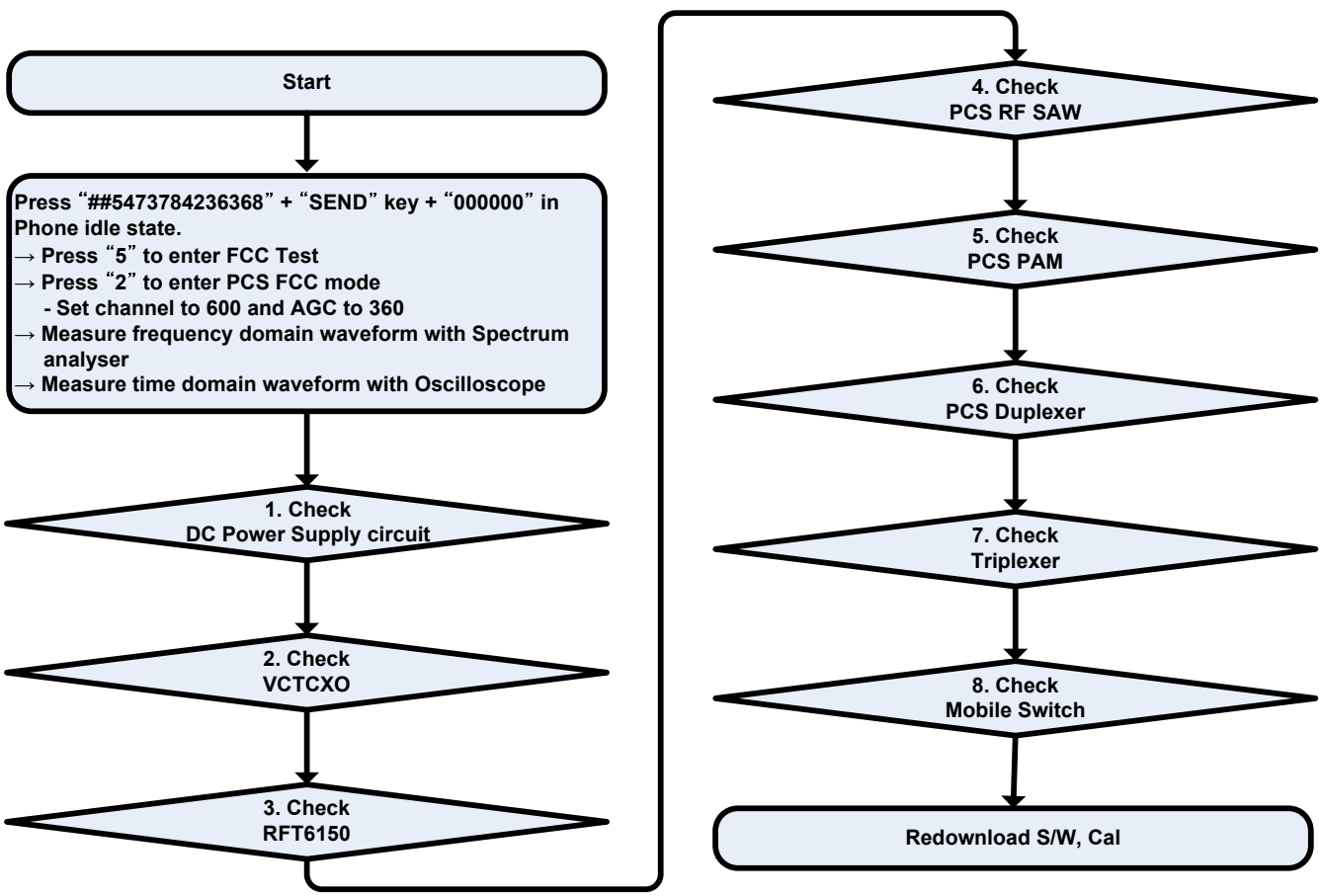
Figure 4.2.1(l)

4.2.2 PCS Tx

Test Point

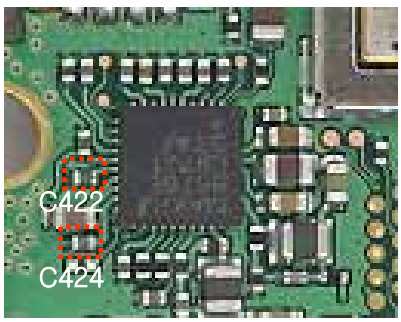


Circuit Diagram

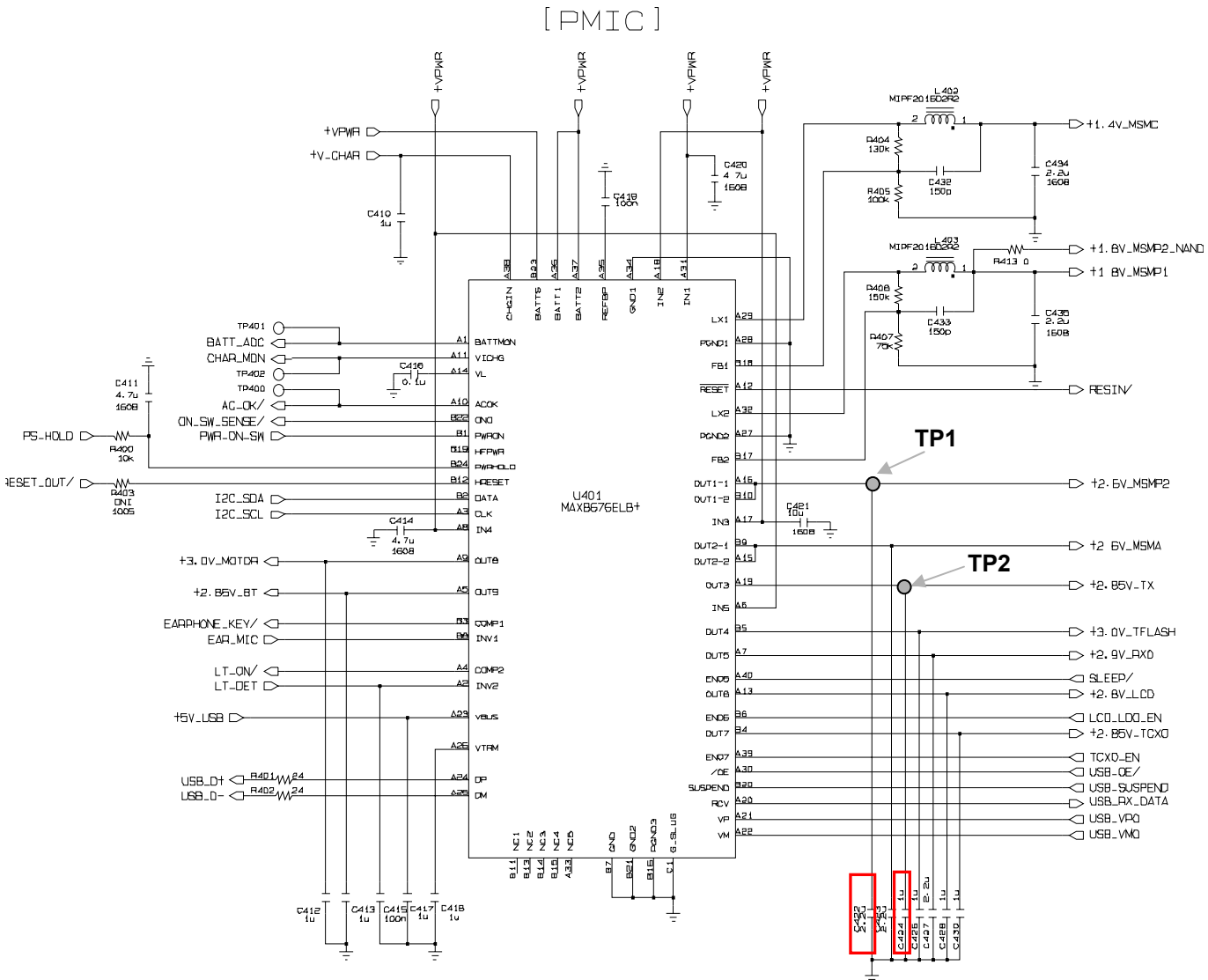


4.2.2.1 Checking DC Power supply circuit (PMIC)

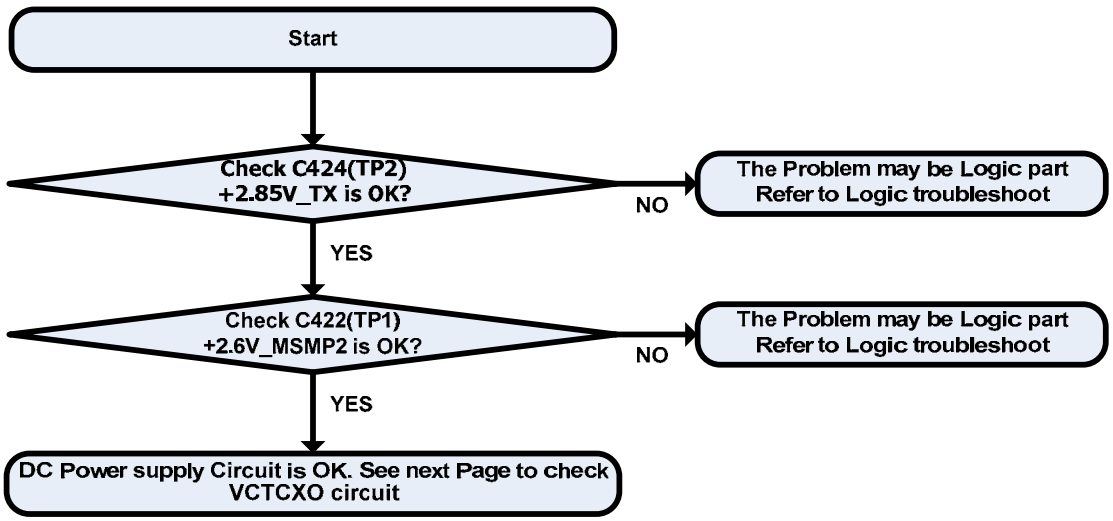
Test Point



Circuit Diagram

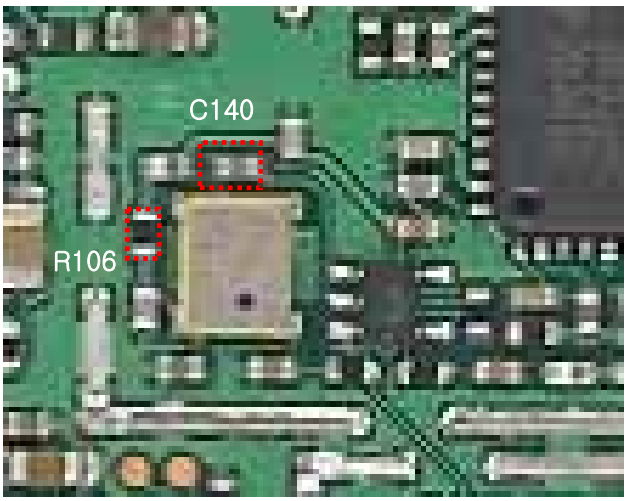


Checking Flow

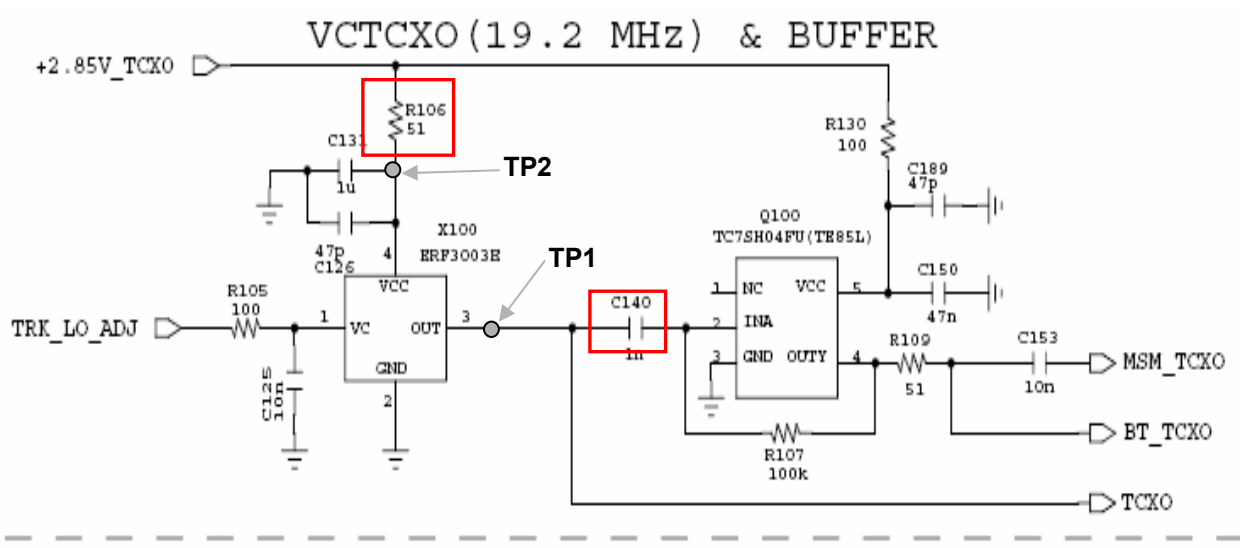


4.2.2.2 Checking VCTCXO circuit

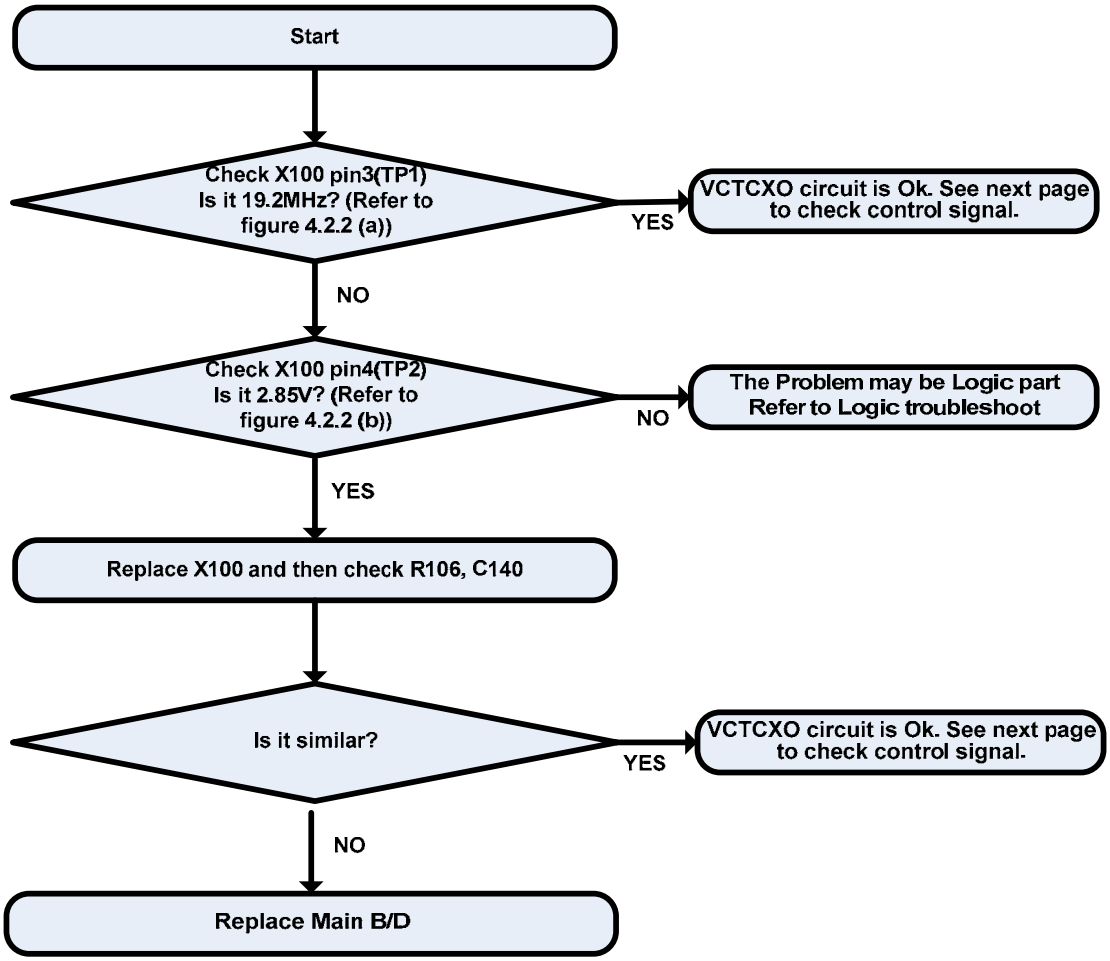
Test Point



Circuit Diagram



Checking Flow



Waveform

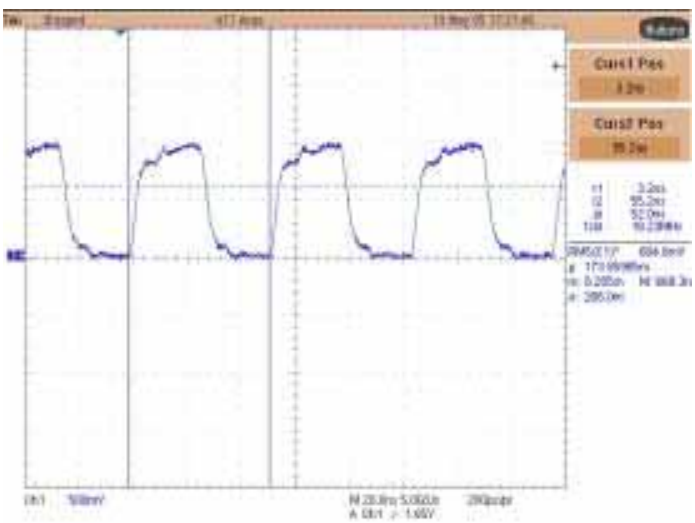


Figure 4.2.2 (a)

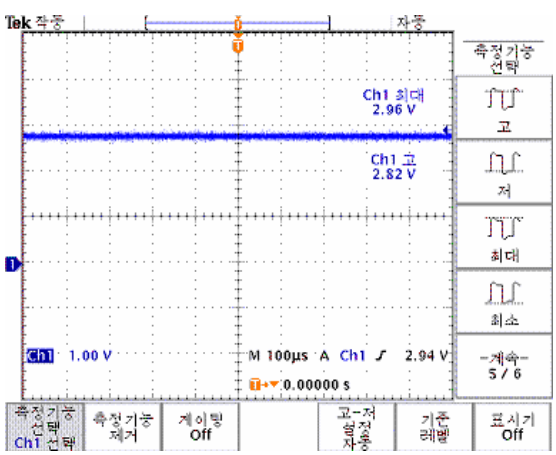
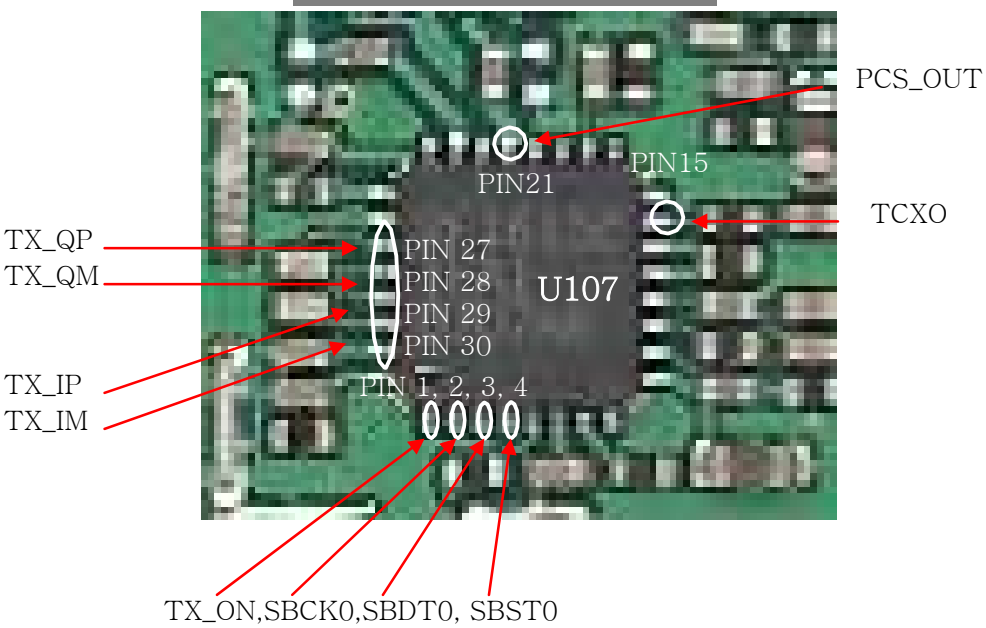


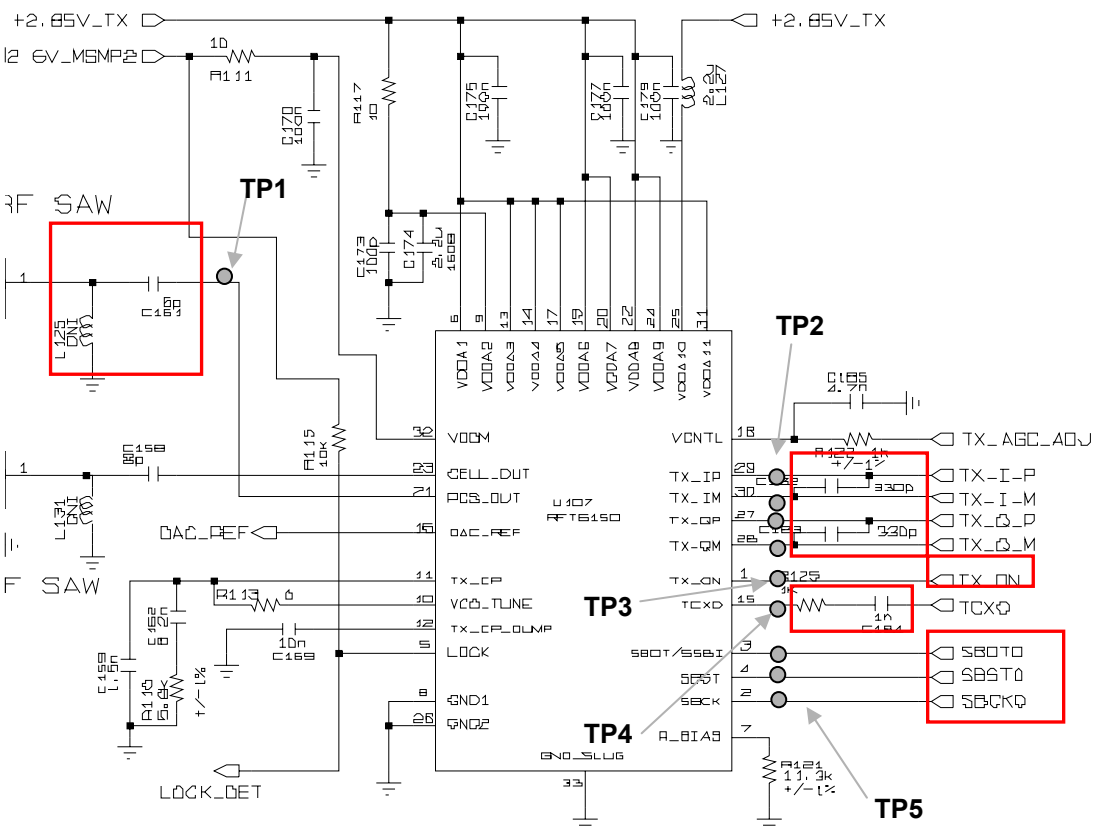
Figure 4.2.2 (b)

4.2.2.3 Checking RFT6150 circuit

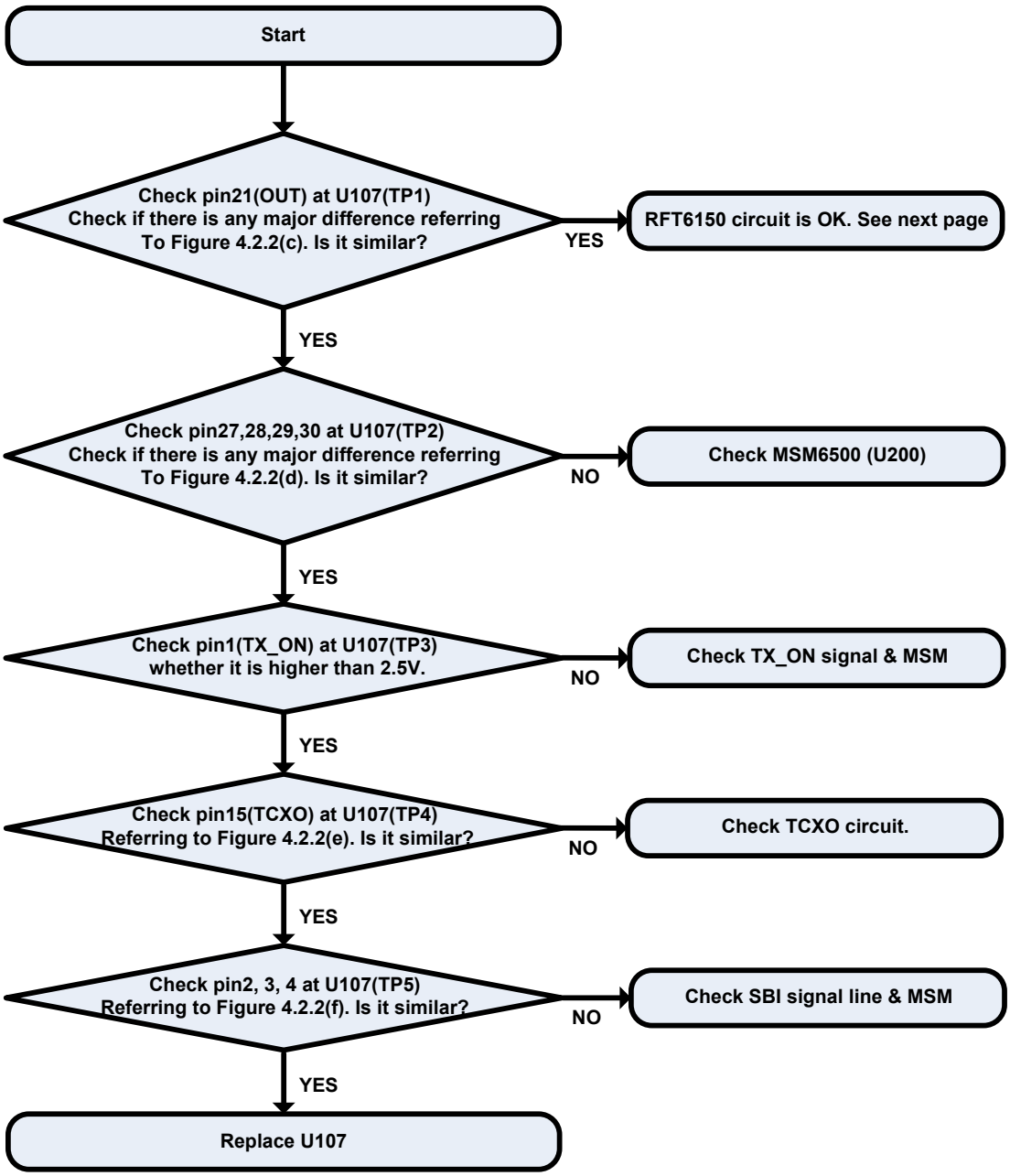
Test Point



Circuit Diagram



Checking Flow



Waveform

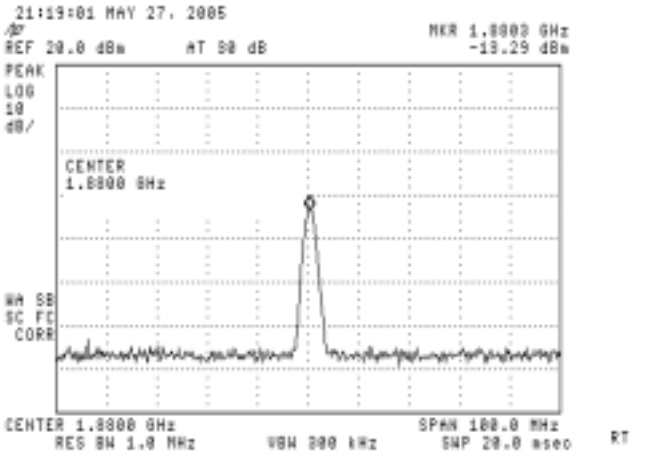


Figure 4.2.2(c)

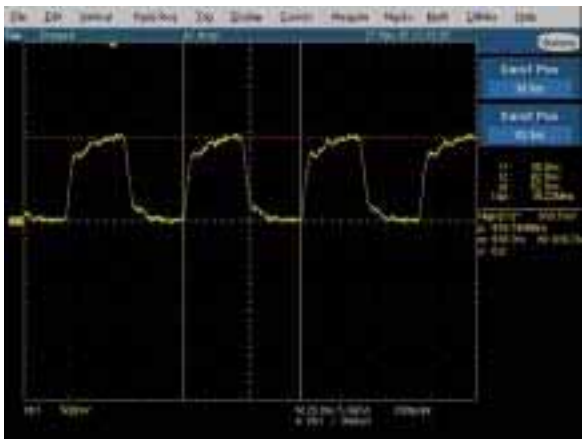
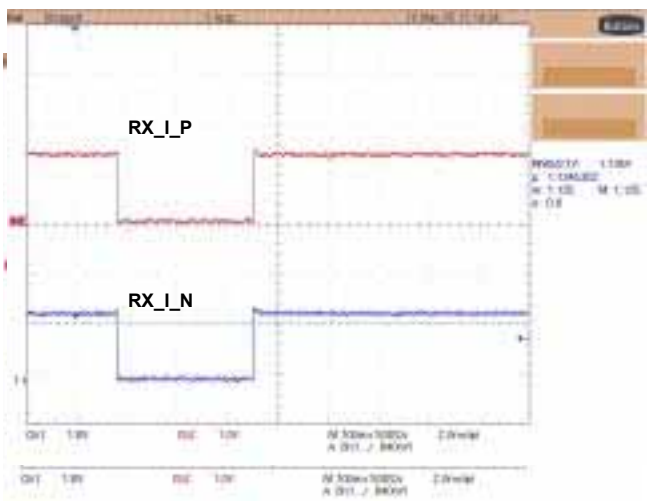


Figure 4.2.2(e)



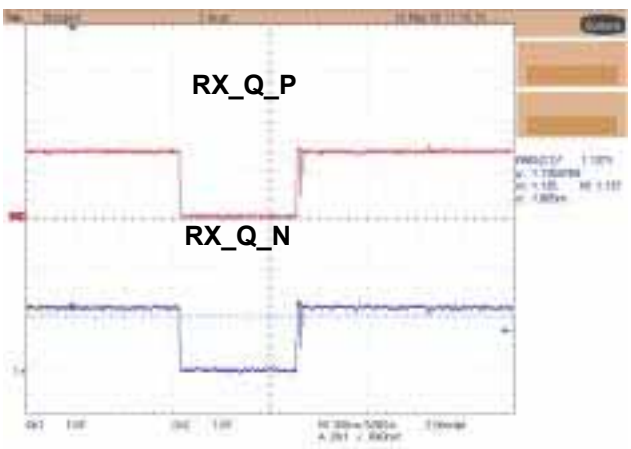
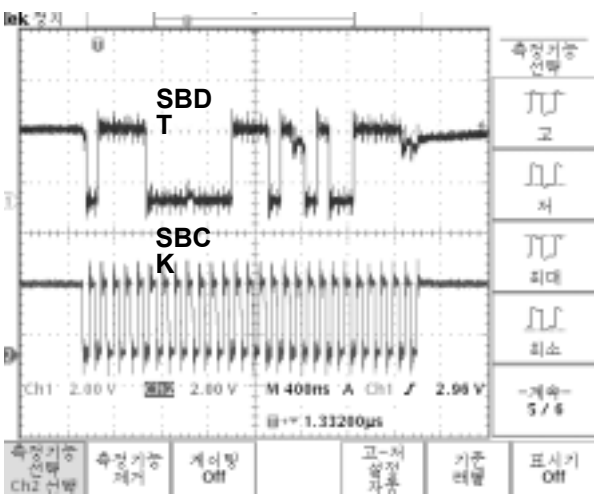


Figure 4.2.2(d)



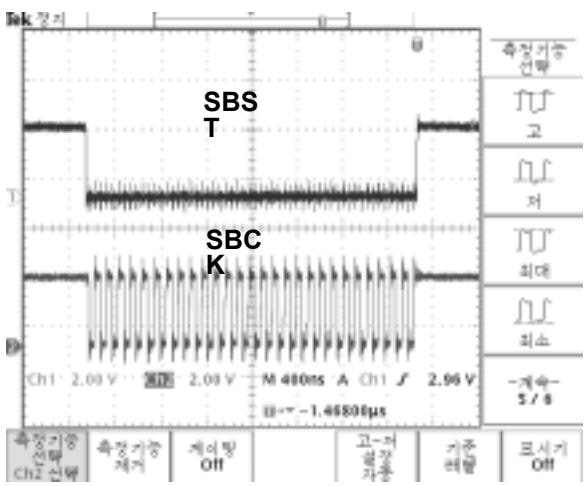
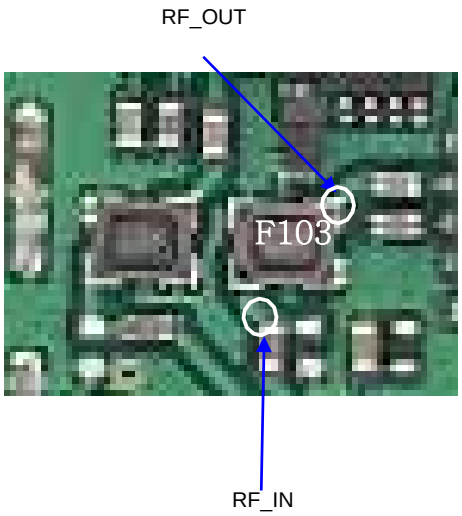


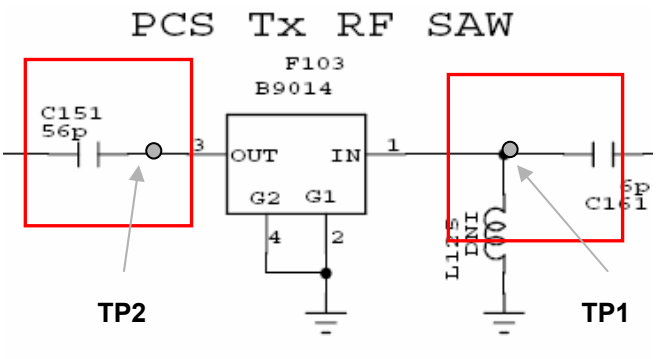
Figure 4.2.2(f)

4.2.2.4 Check PCS RF Tx SAW

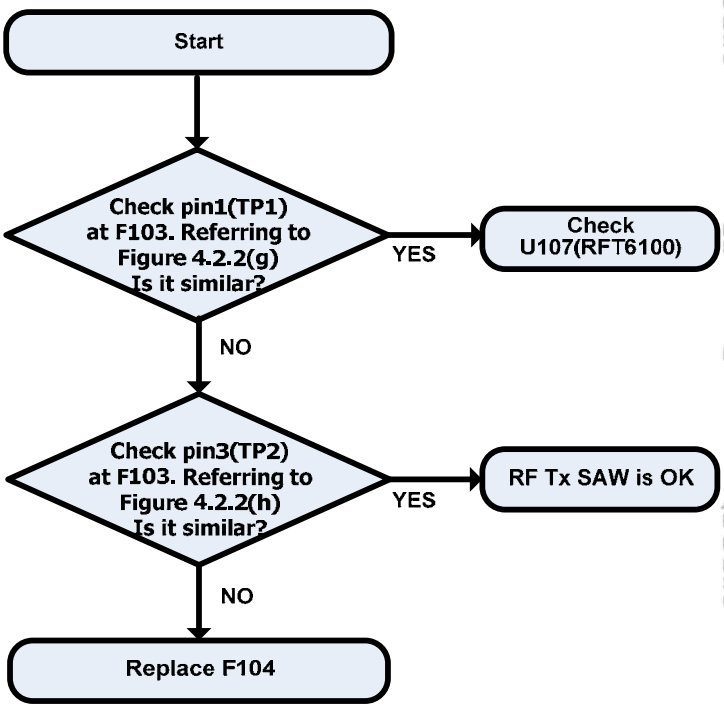
Test Point



Circuit Diagram



Checking Flow



Waveform

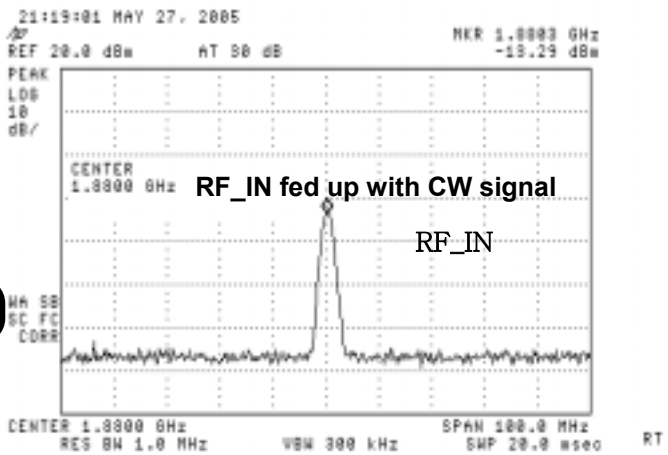


Figure 4.2.2(g)

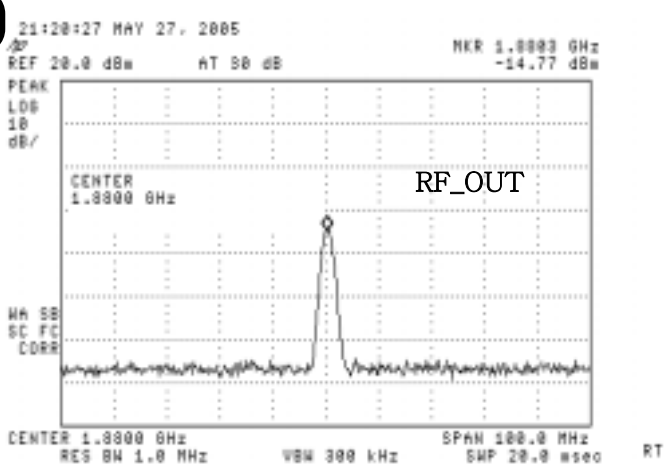
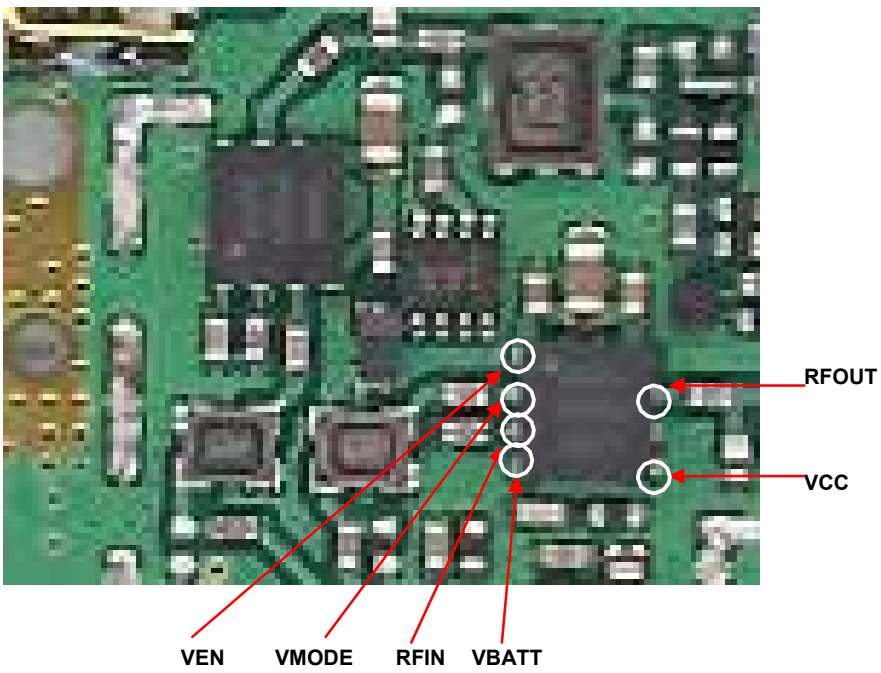


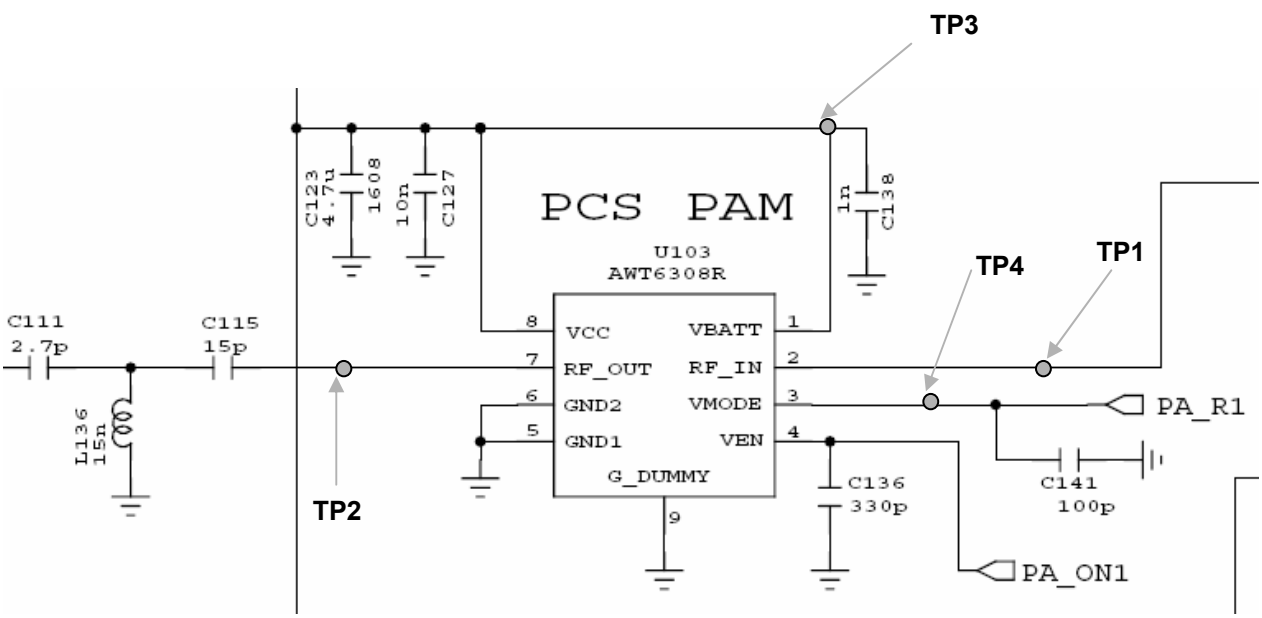
Figure 4.2.2(h)

4.2.2.5 Check PCS PAM circuit

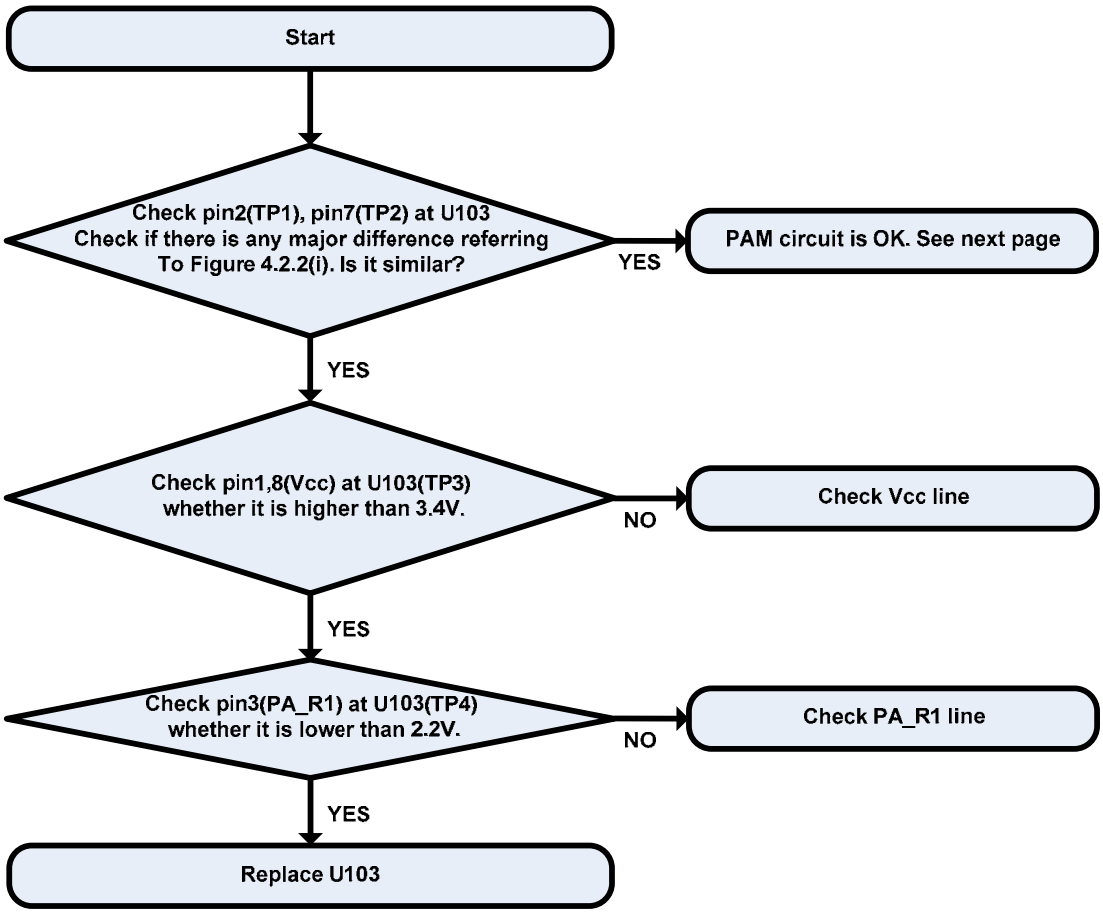
Test Point



Circuit Diagram



Checking Flow



Waveform

RF_IN fed up with CW signal

in low gain mode of PAM

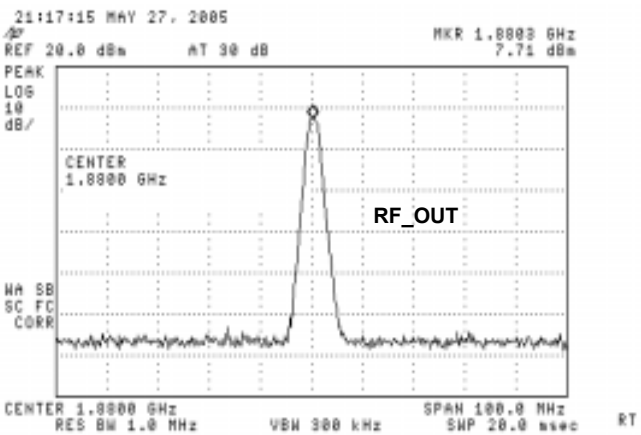
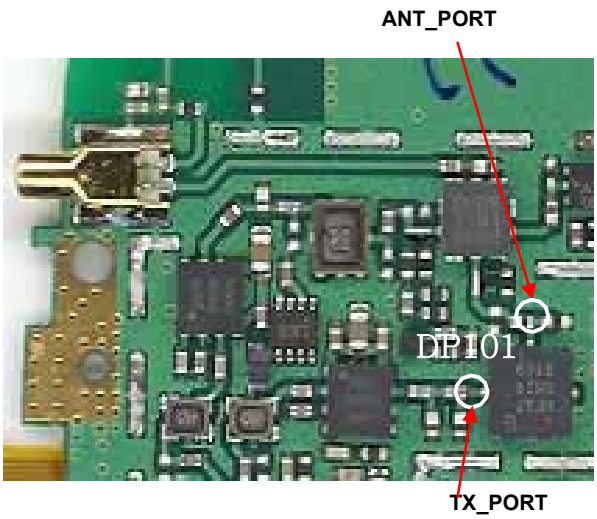


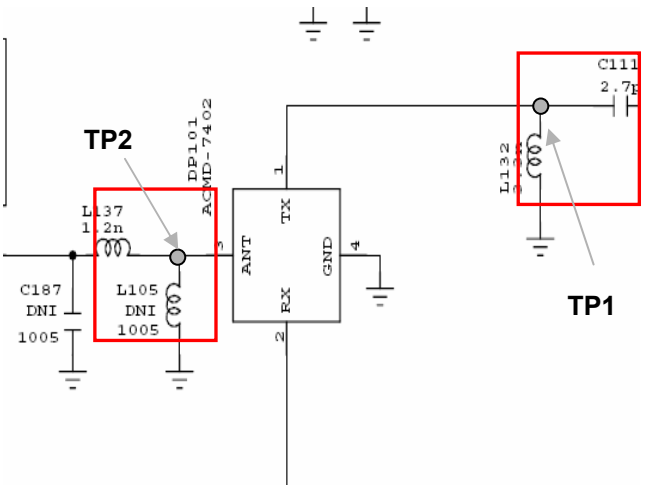
Figure 4.2.2(i)

4.2.2.6 Check PCS Duplexer

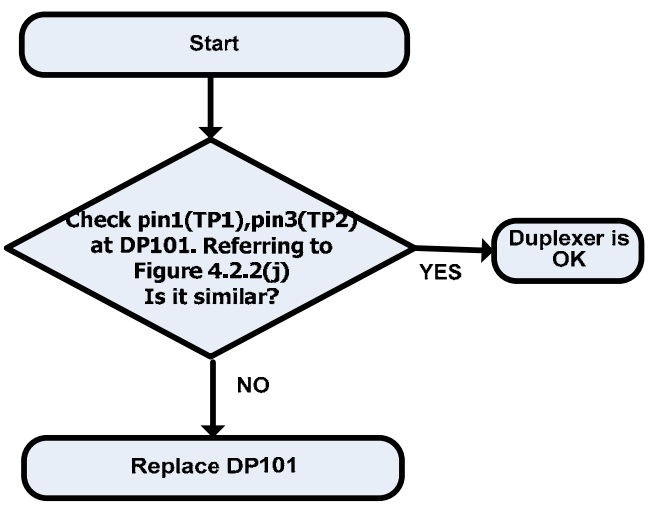
Test Point



Circuit Diagram



Checking Flow



Waveform

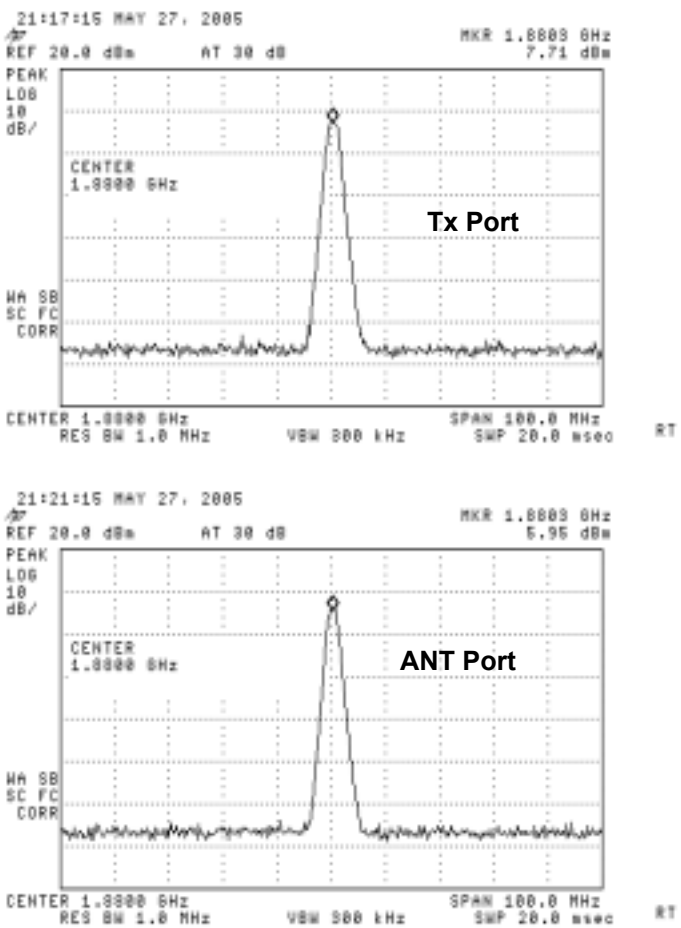
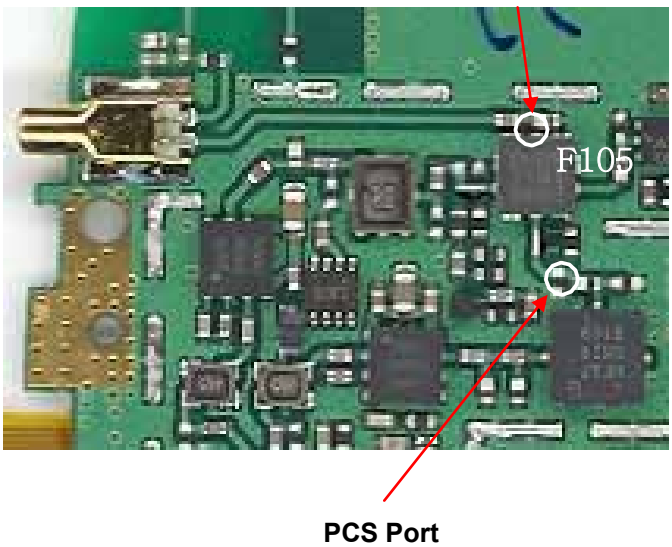


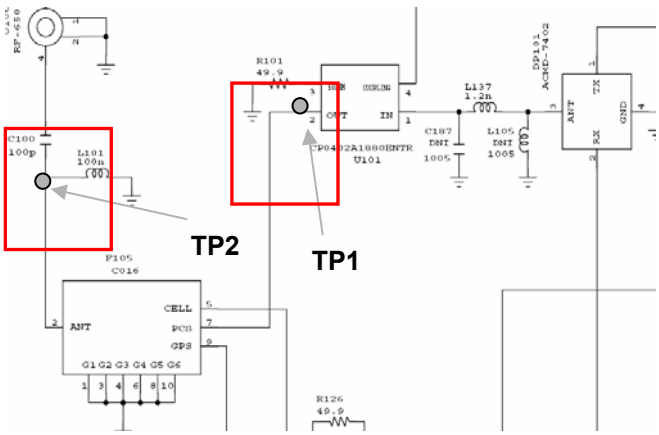
Figure 4.2.2(j)

4.2.2.7 Check Triplexer

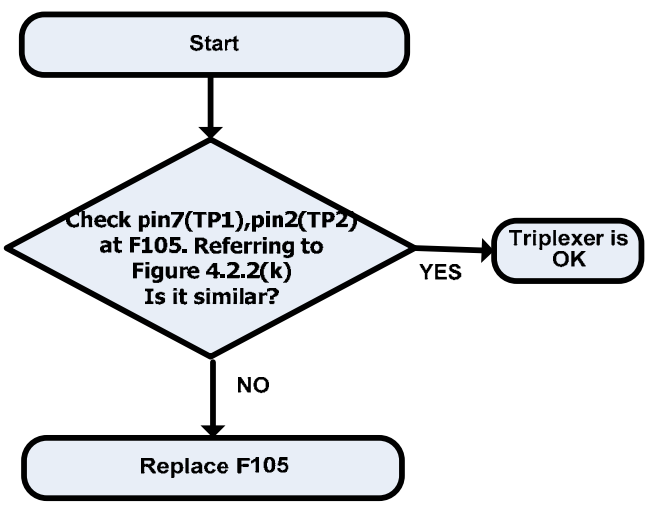
Test Point



Circuit Diagram



Checking Flow



Waveform

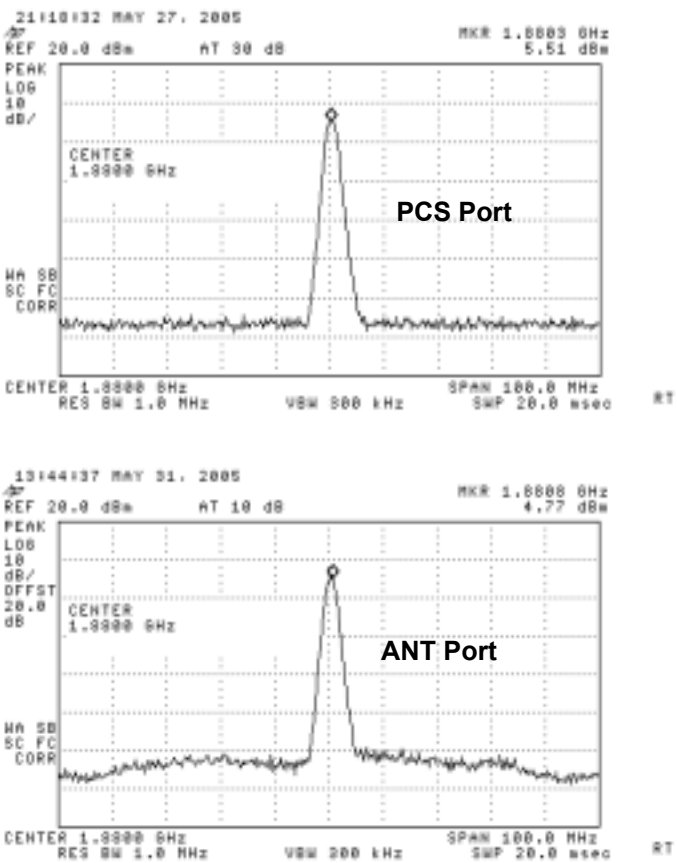
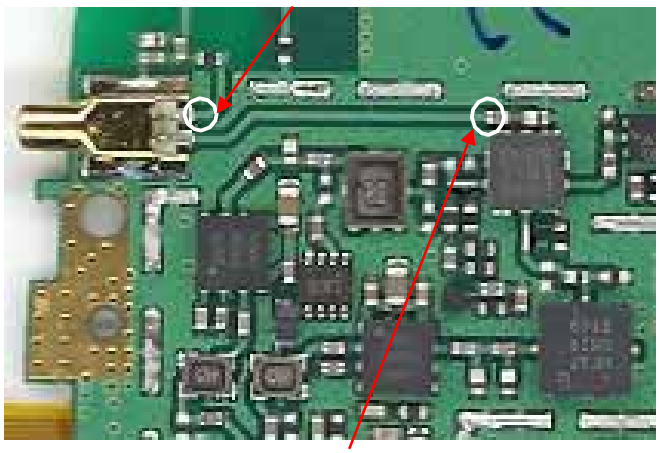


Figure 4.2.2(k)

4.2.2.8 Check Mobile S/W

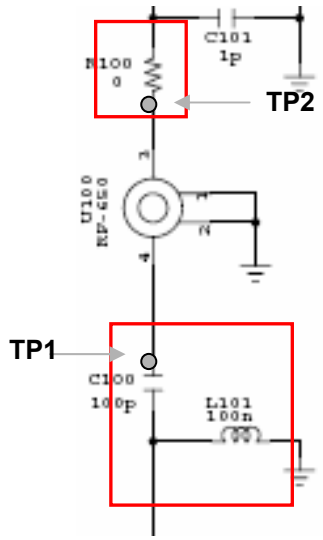
Test Point

RF OUT

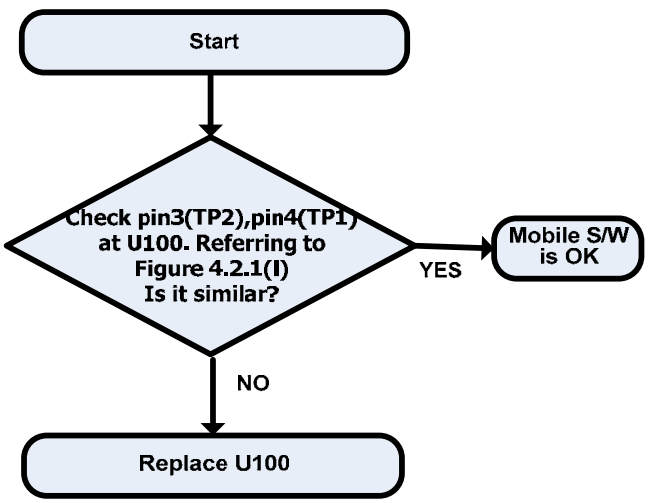


RF IN

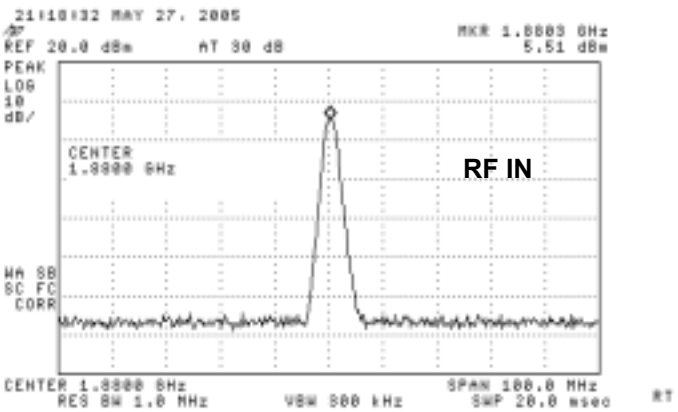
Circuit Diagram



Checking Flow



Waveform



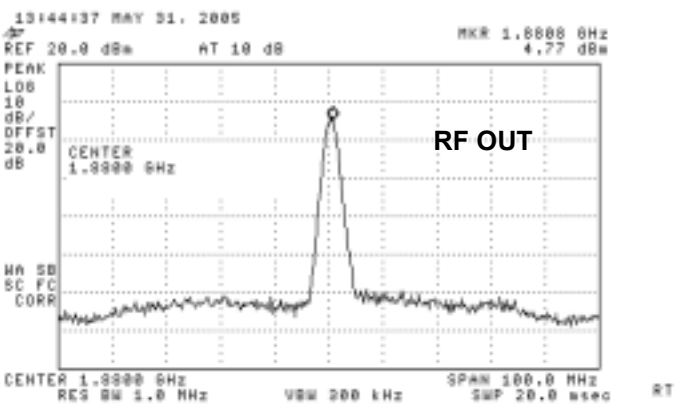


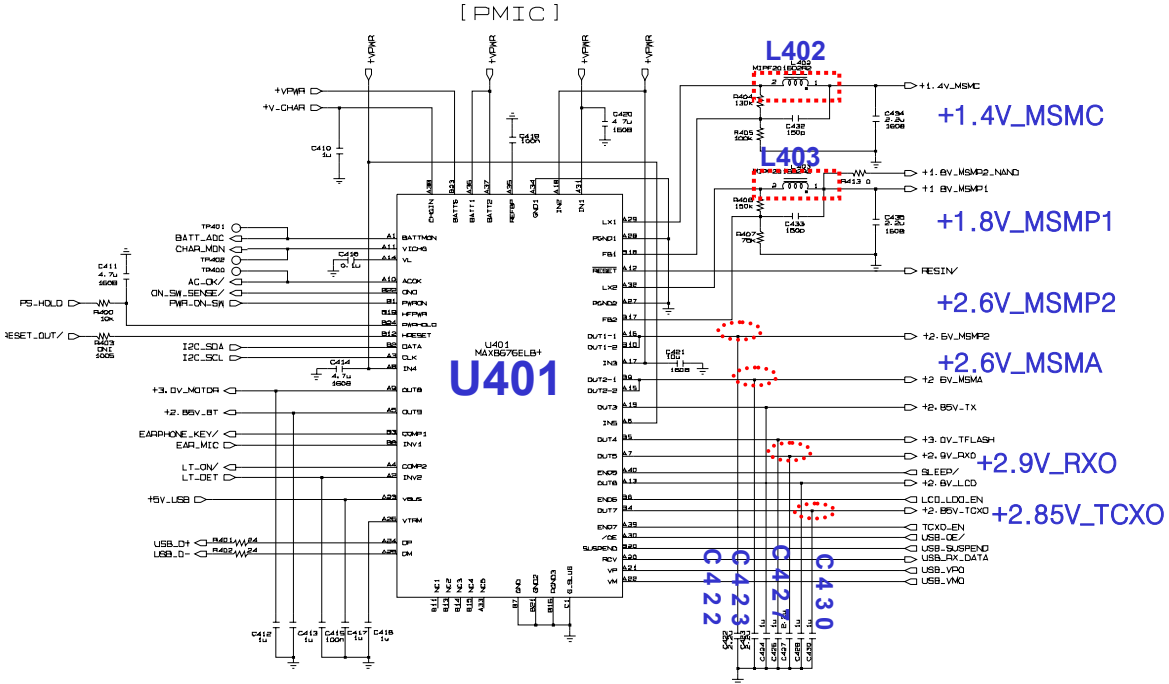
Figure 4.2.2.9

4.3 Logic Part Trouble

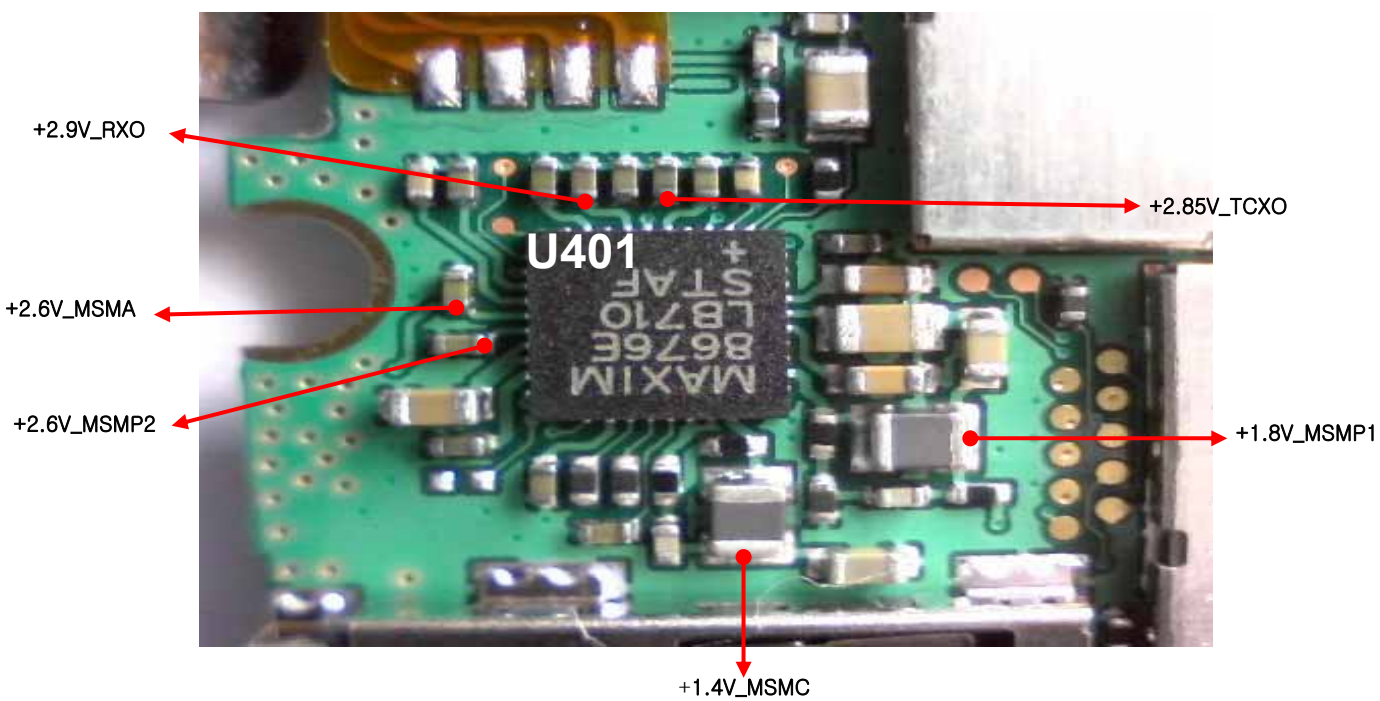
4.3.1 Power

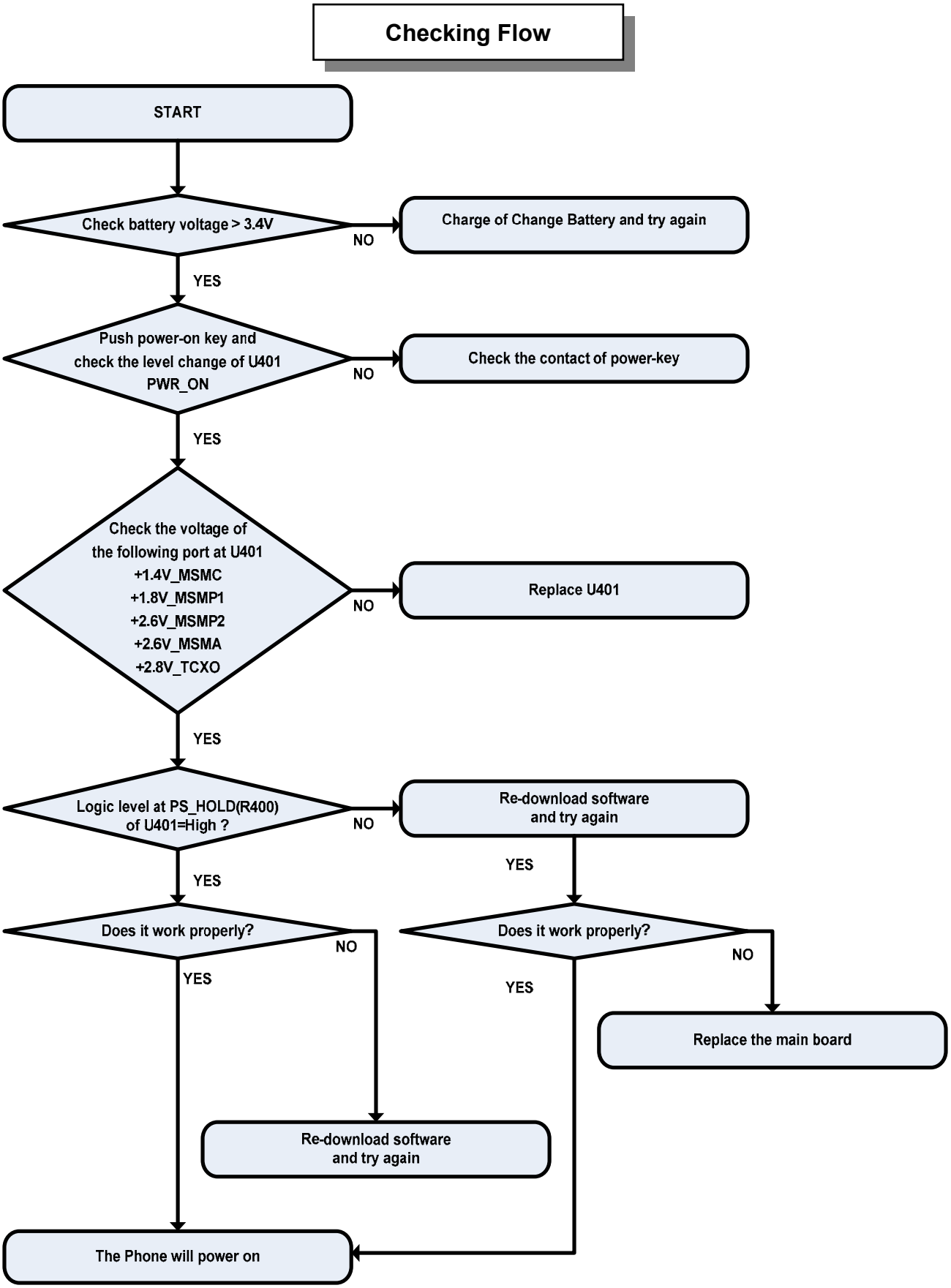
4.3.1.1 Power-On Trouble

Circuit Diagram



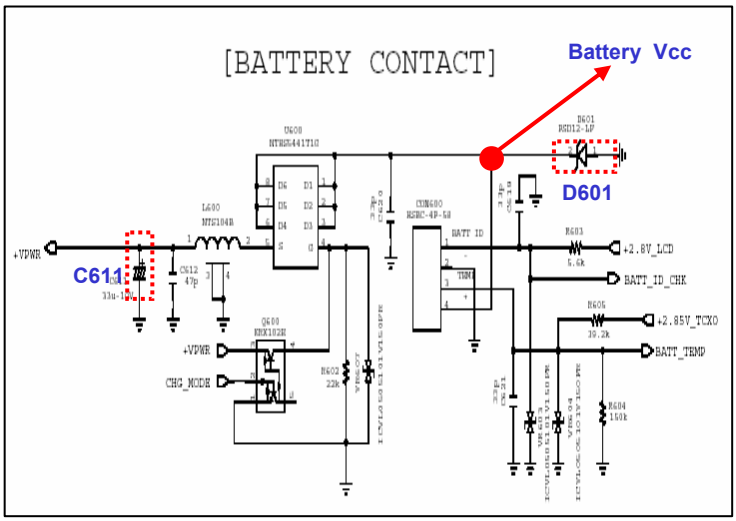
Test point

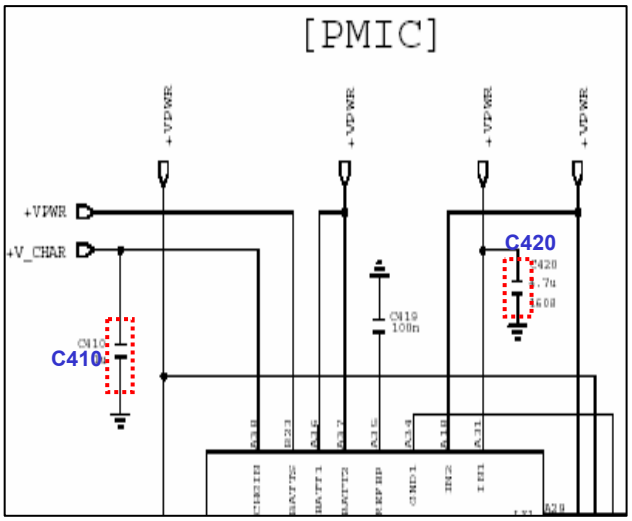




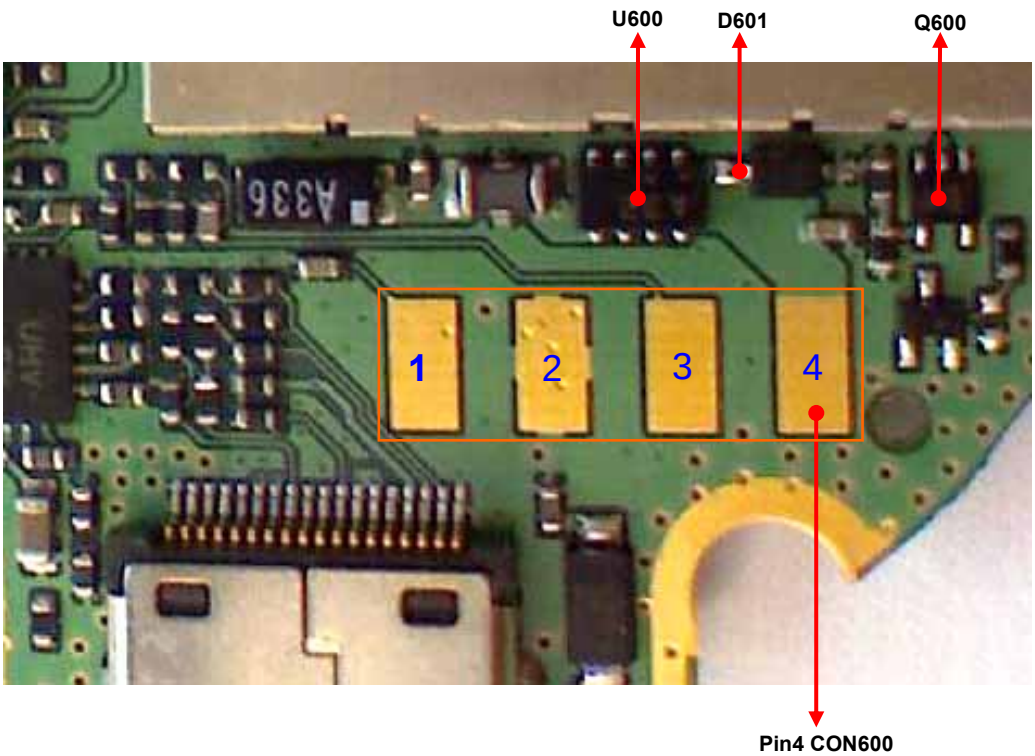
4.3.1.2 Charging Trouble

Circuit Diagram



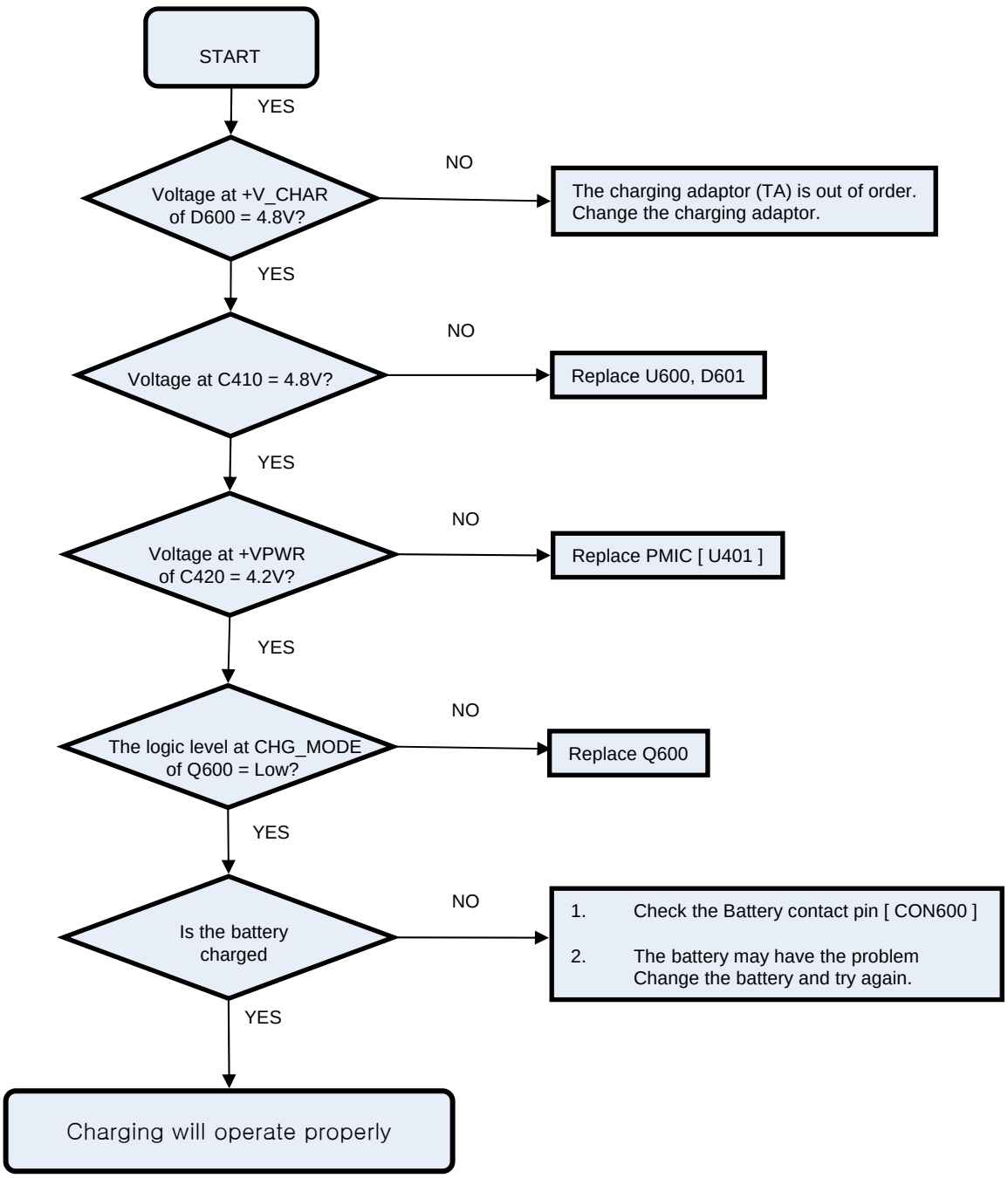


Test point



Checking Flow

SETTING : Connect the battery and the charging adaptor (TA) to the phone



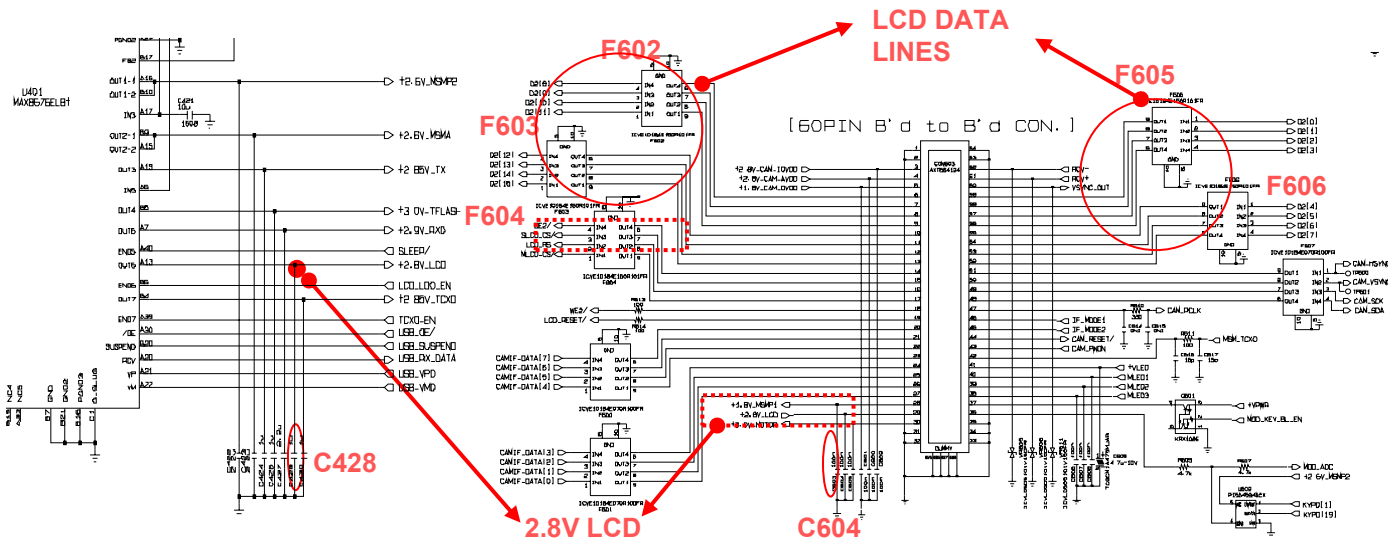
4.3.2 LCD

4.3.2.1 LCD Trouble

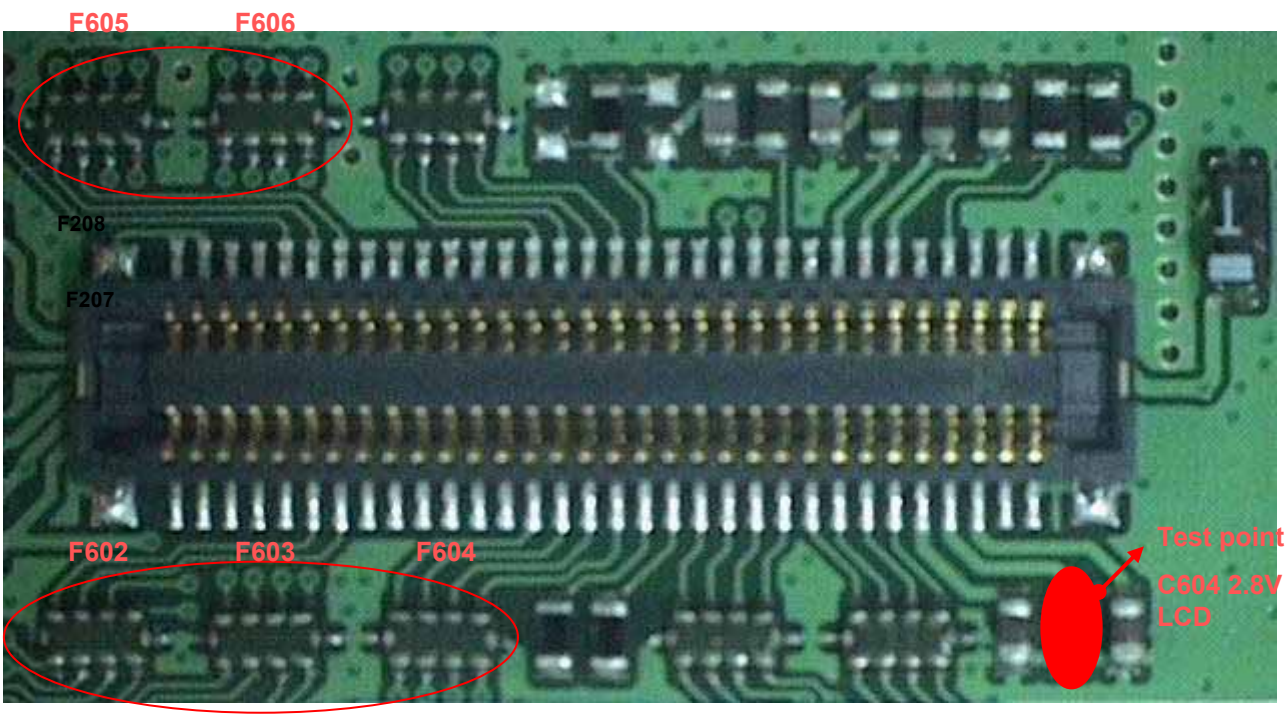
Circuit Diagram

Check point

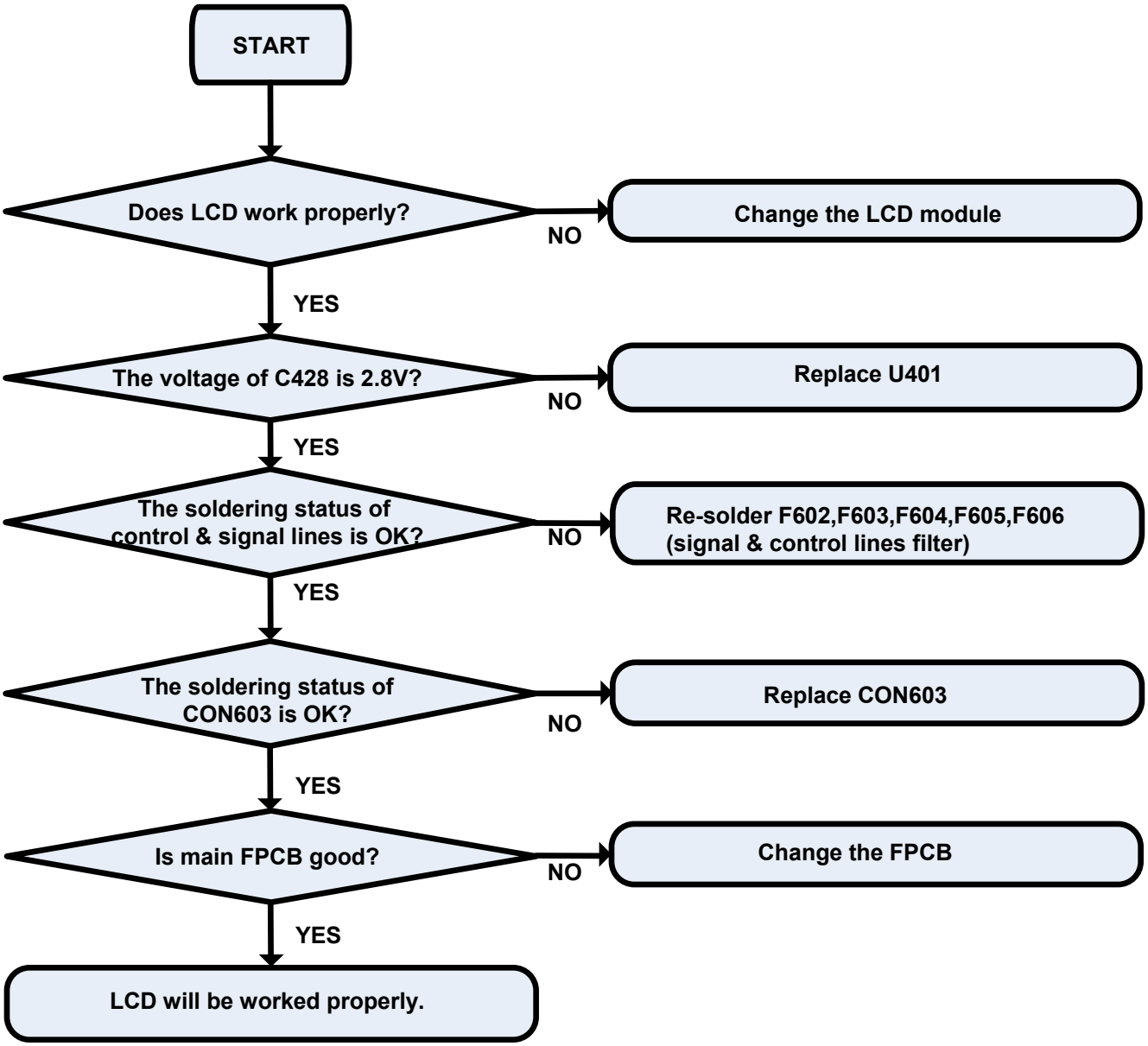
- The assembly status of the LCD Module
- The assembly status of the main connector
- The Soldering of connector



Test point



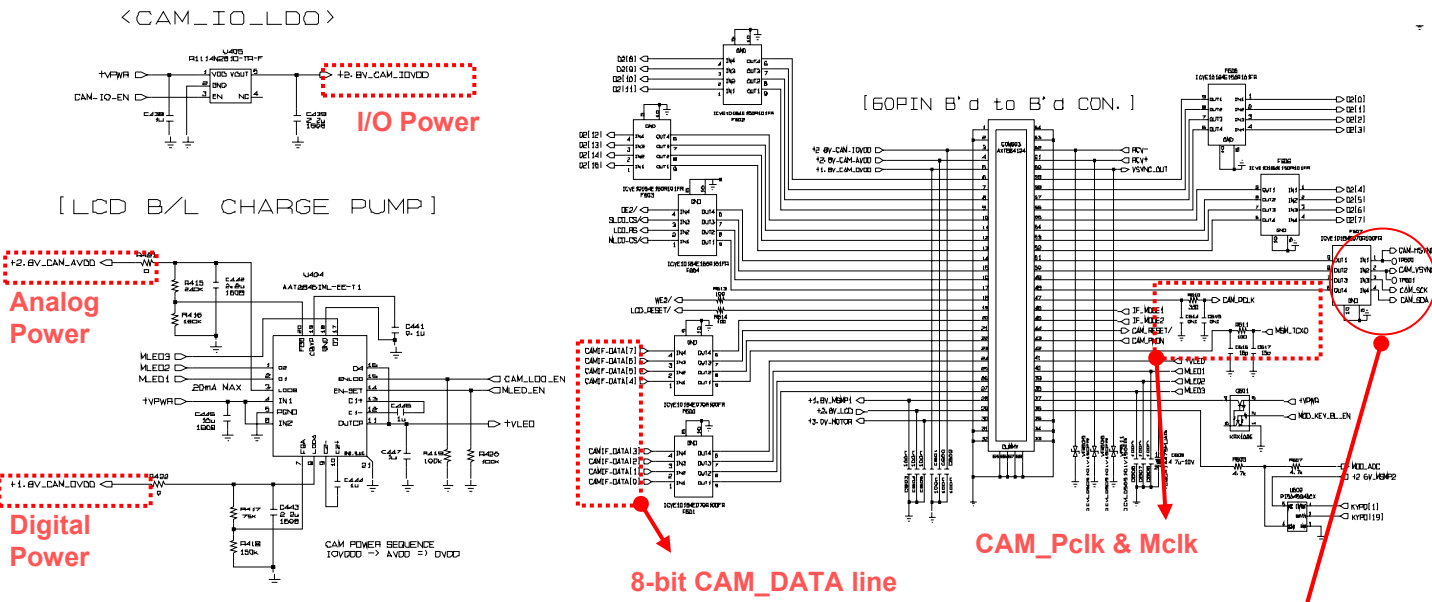
Checking Flow



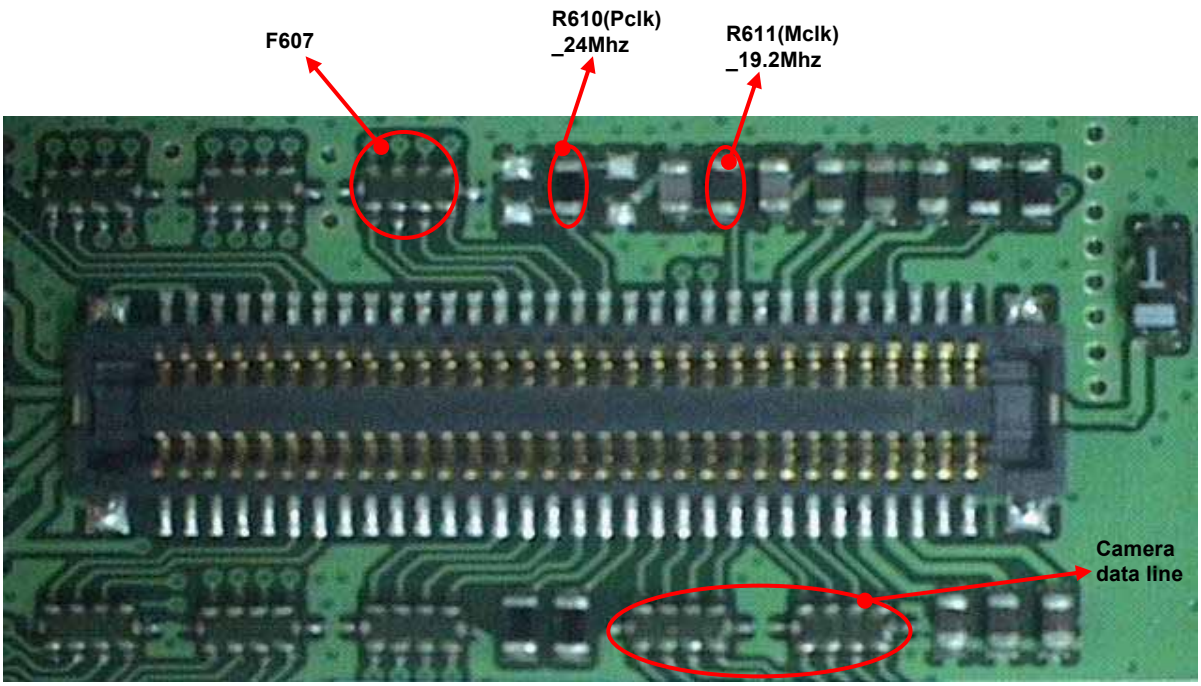
4.3.3 Camera

4.3.3.1 Camera Trouble

Circuit Diagram

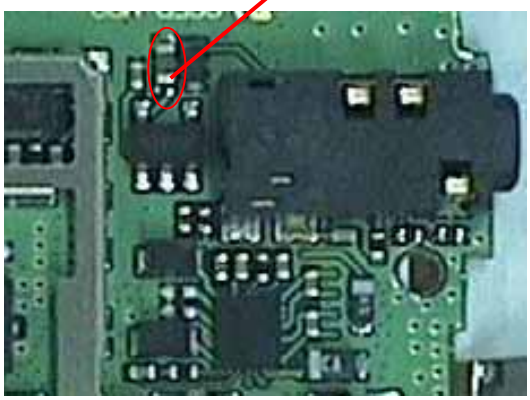


Test point



Test point

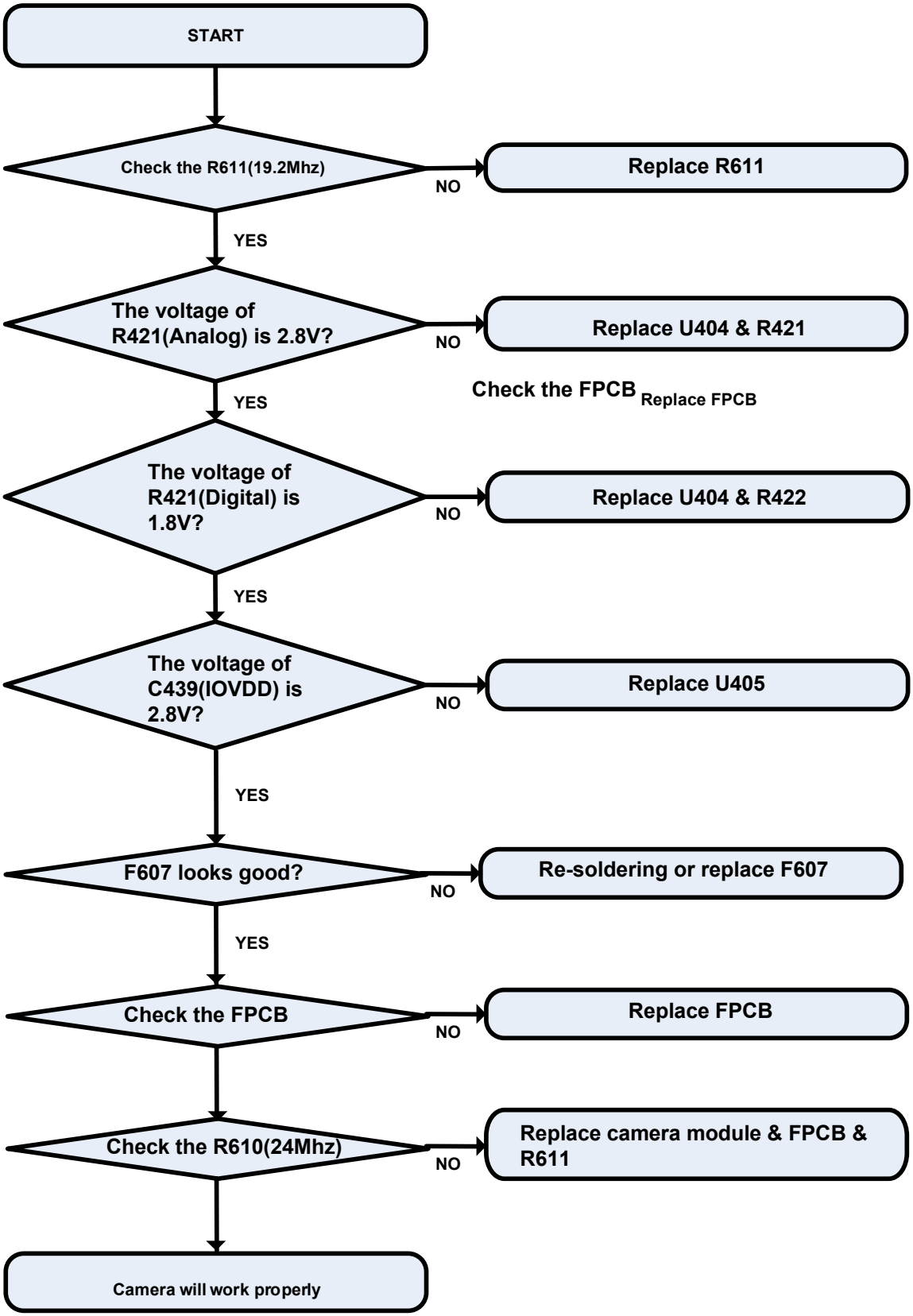
C439_ IOVDD



R421_ AVDD

R422_ DVDD

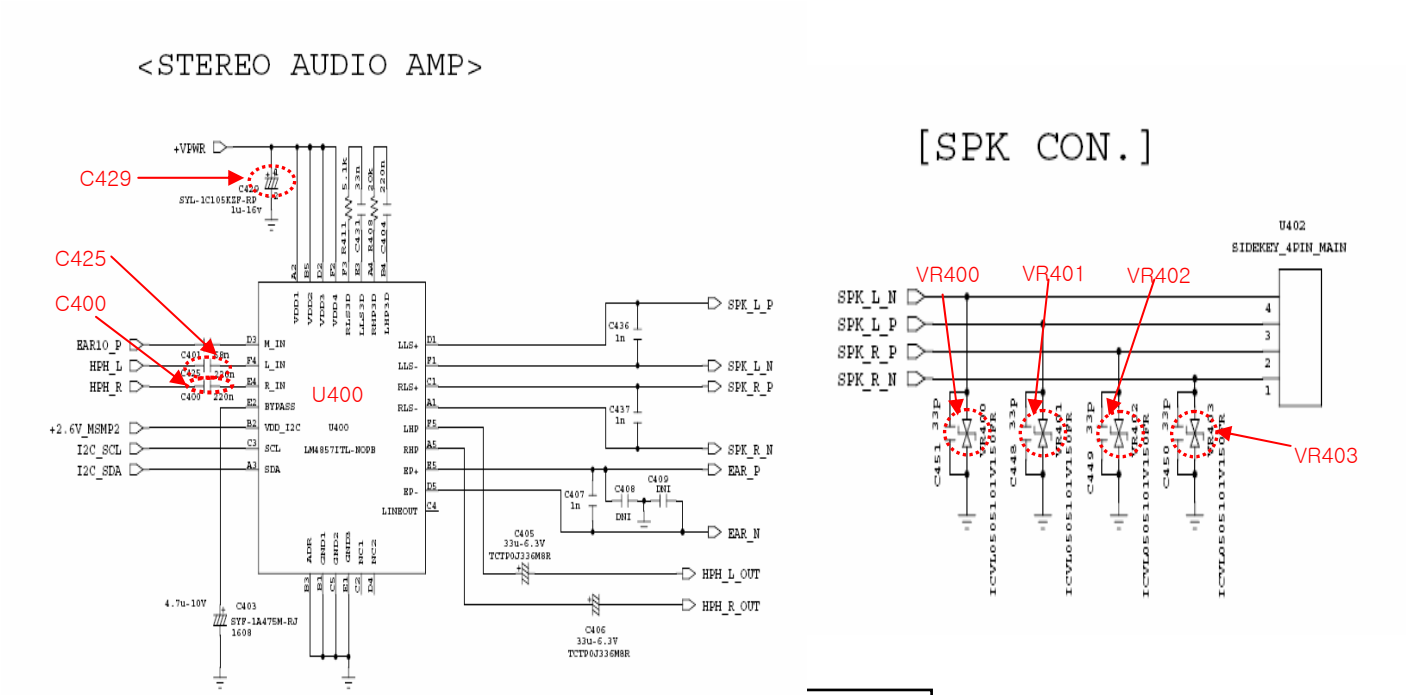
Checking Flow



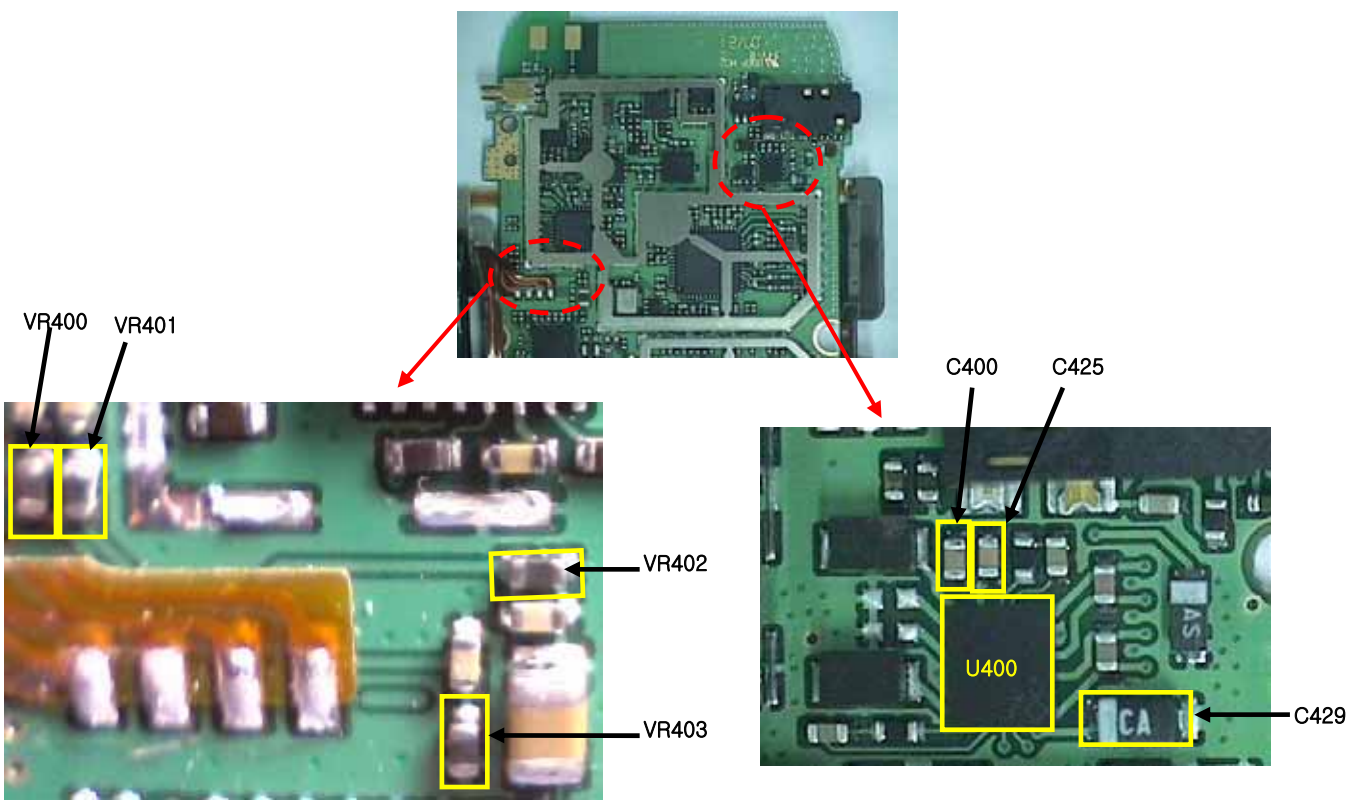
4.3.4Audio

4.3.4.1 Speaker Trouble

Circuit Diagram

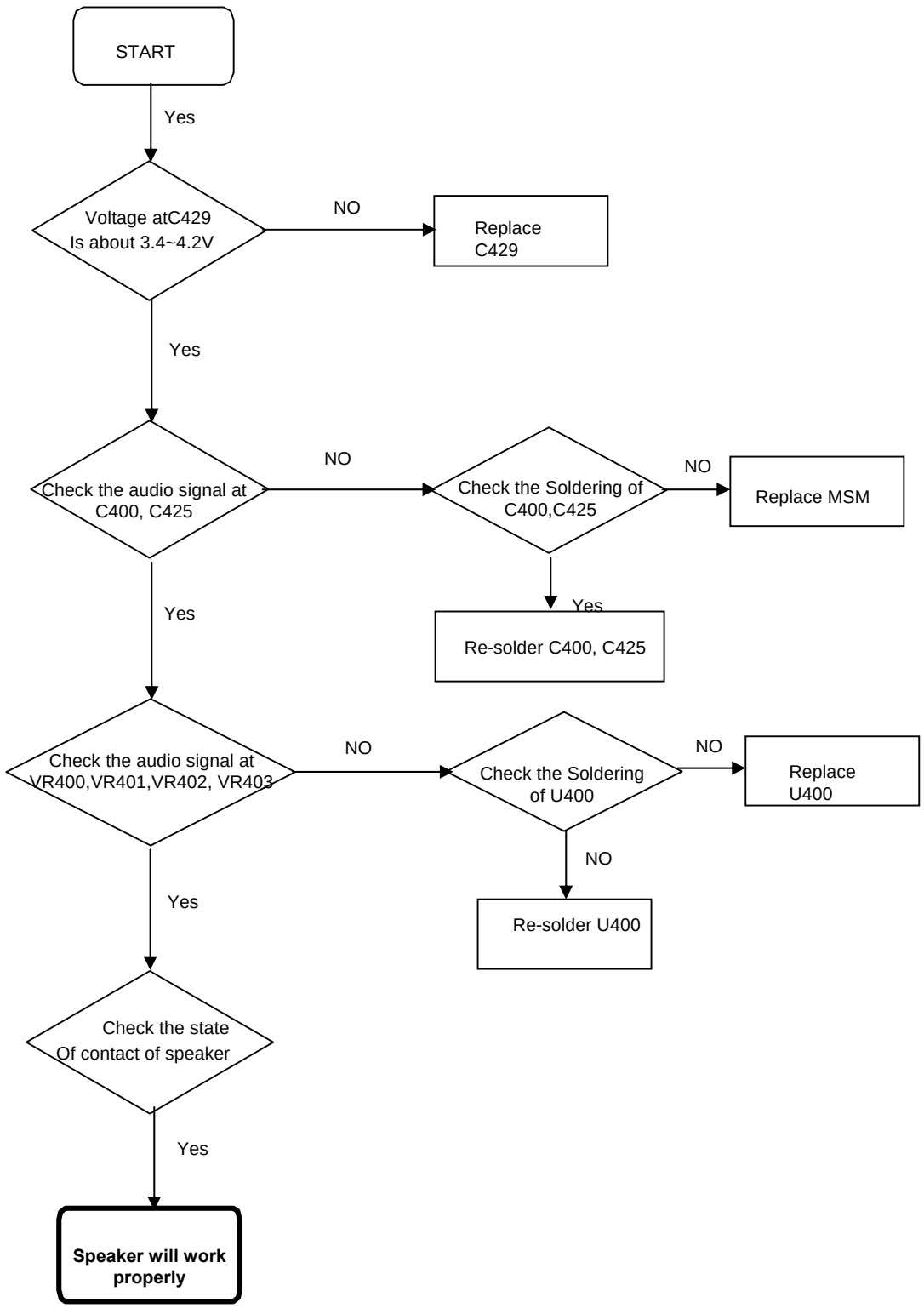


Test points



Checking Flow

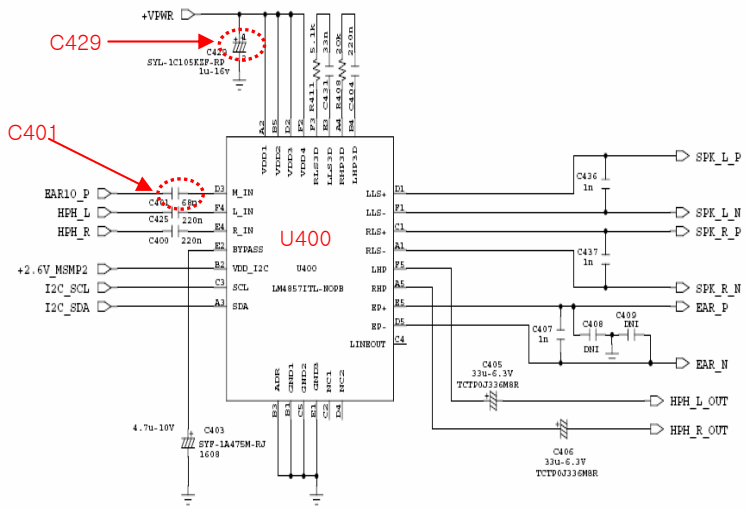
SETTING : “Melody on” at sounds of test menu.



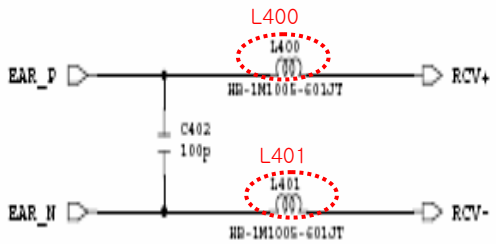
4.3.4.2 Receiver Trouble

Circuit Diagram

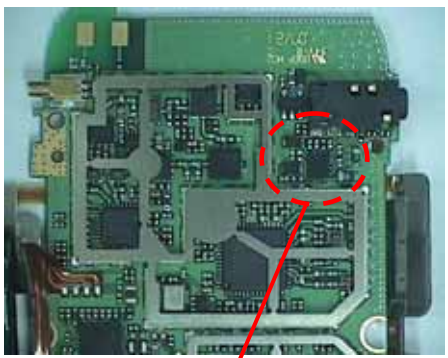
<STEREO AUDIO AMP>

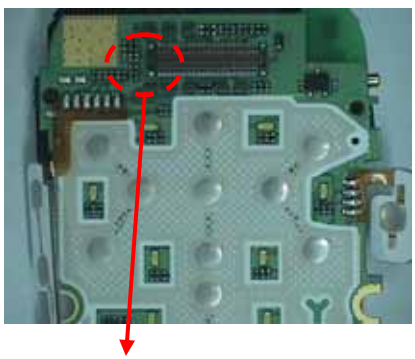


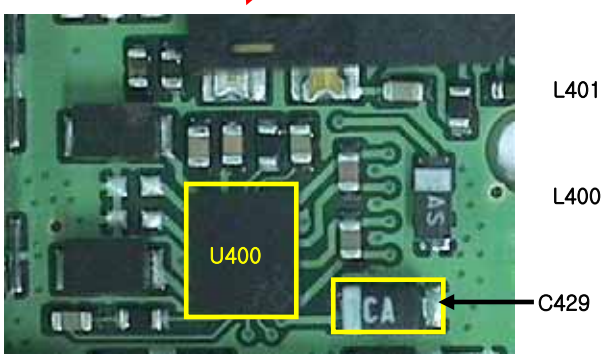
[RCV.]

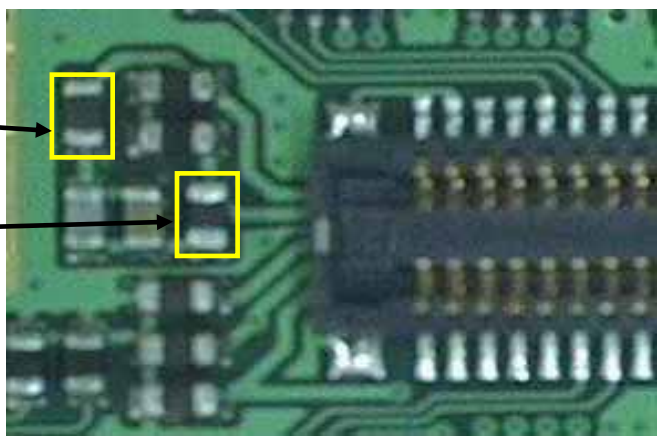


Test points

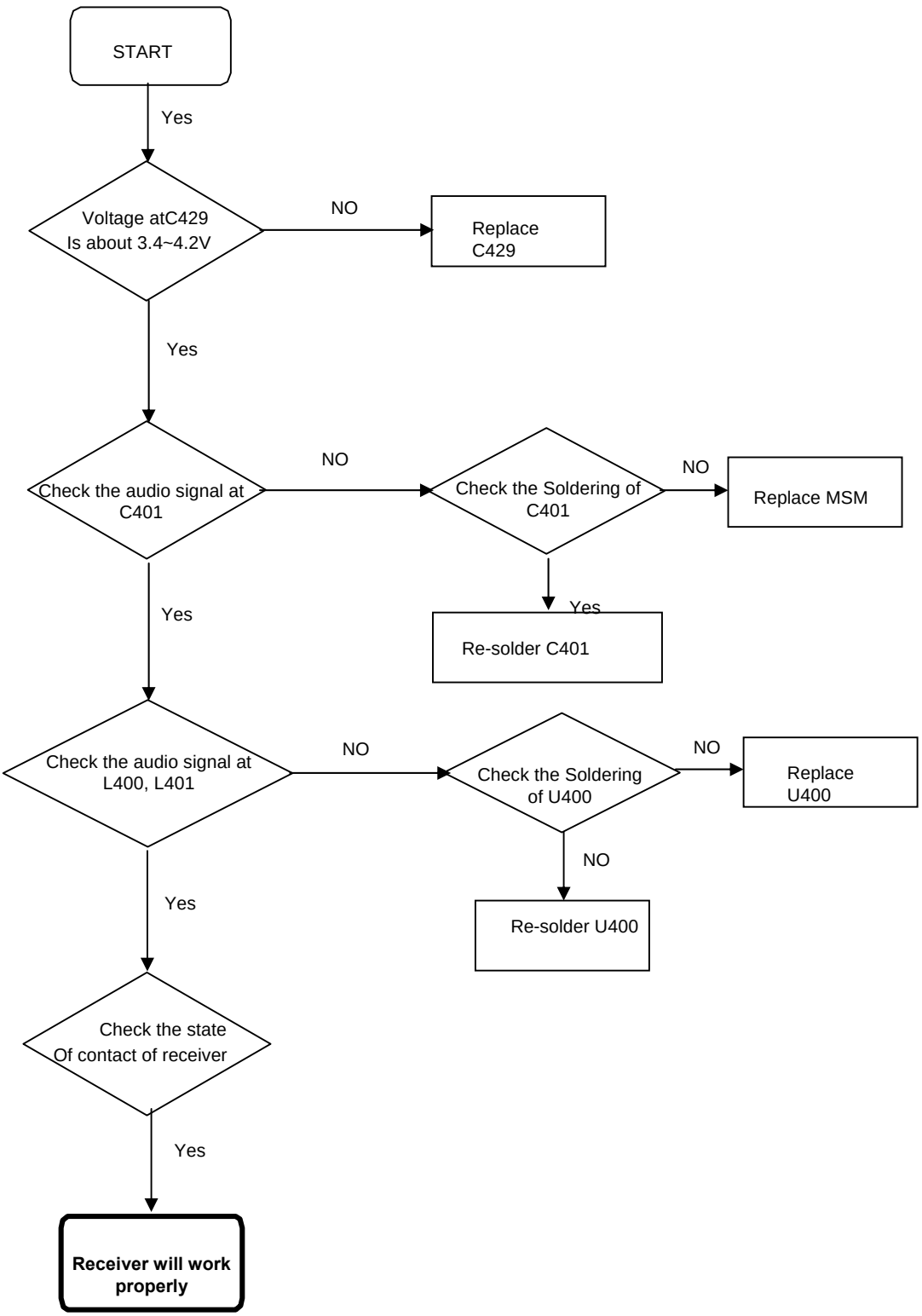






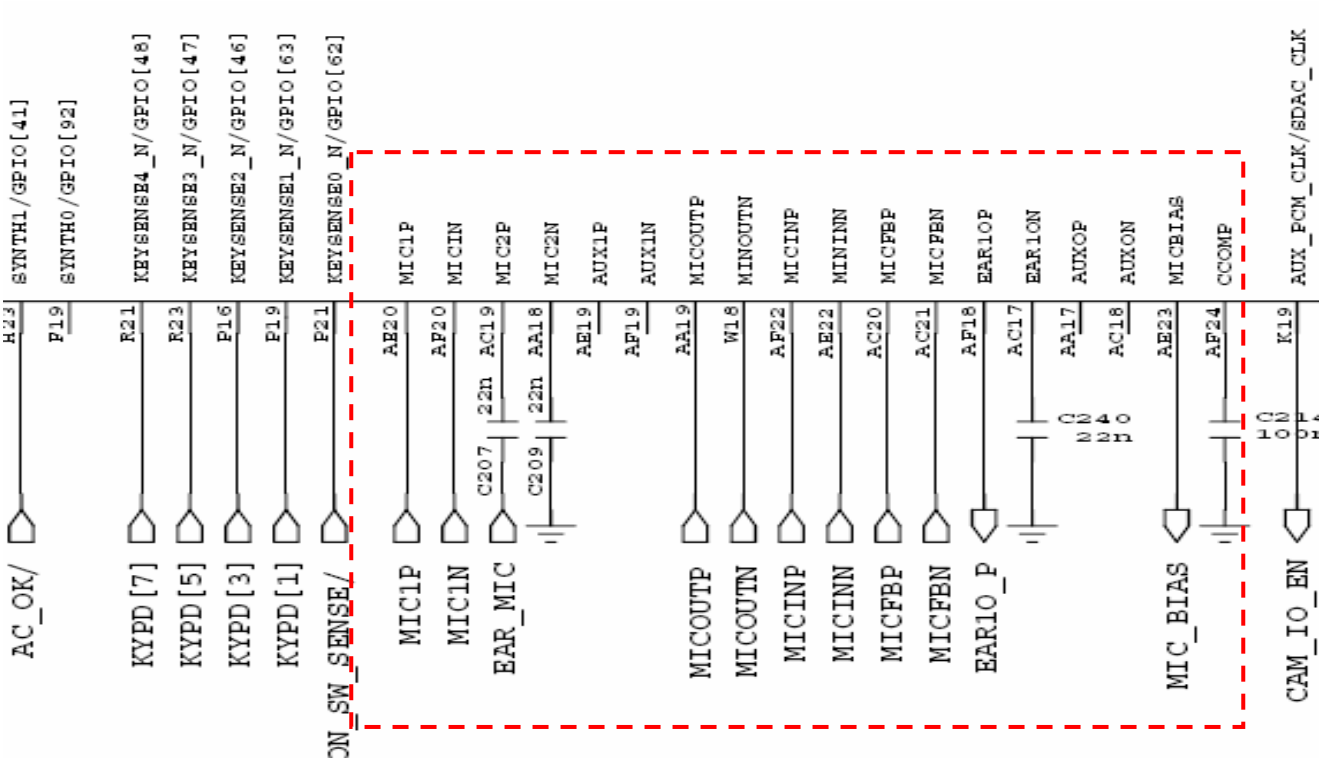


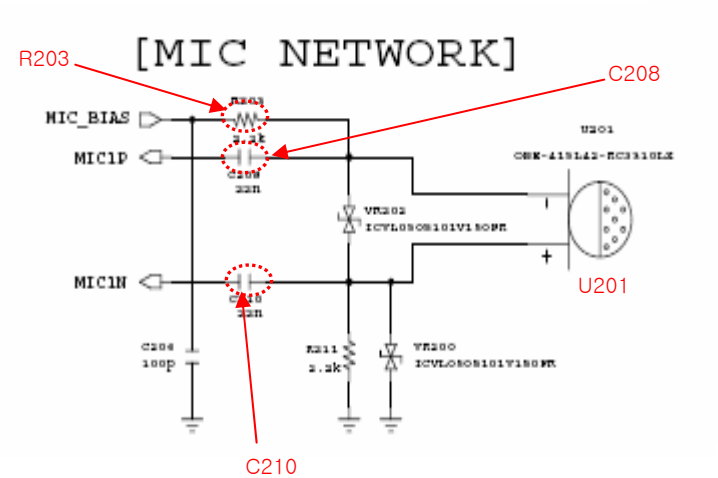
Checking Flow

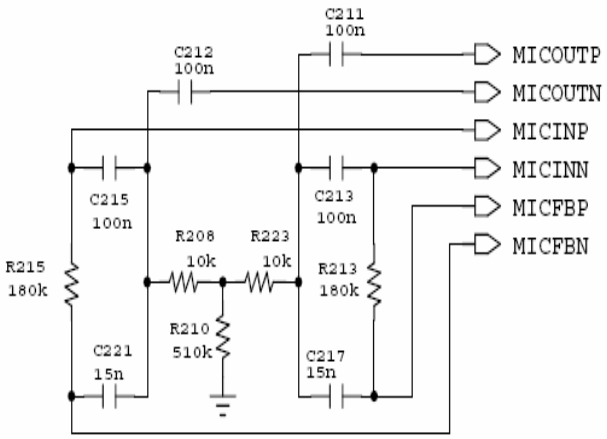


4.3.4.3 MIC Trouble

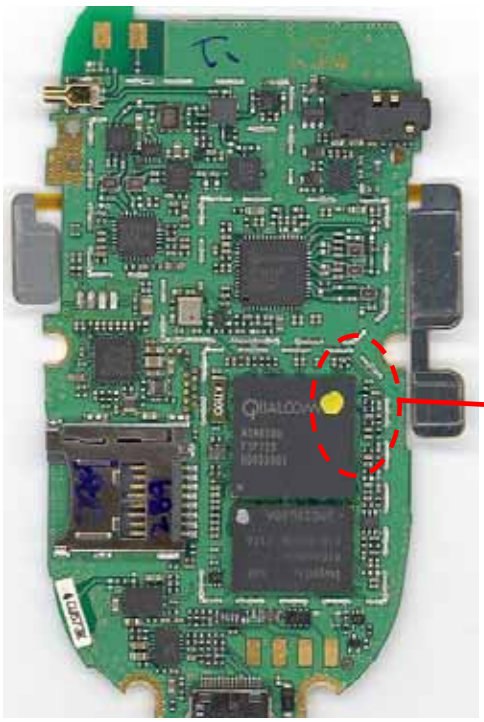
Circuit Diagram



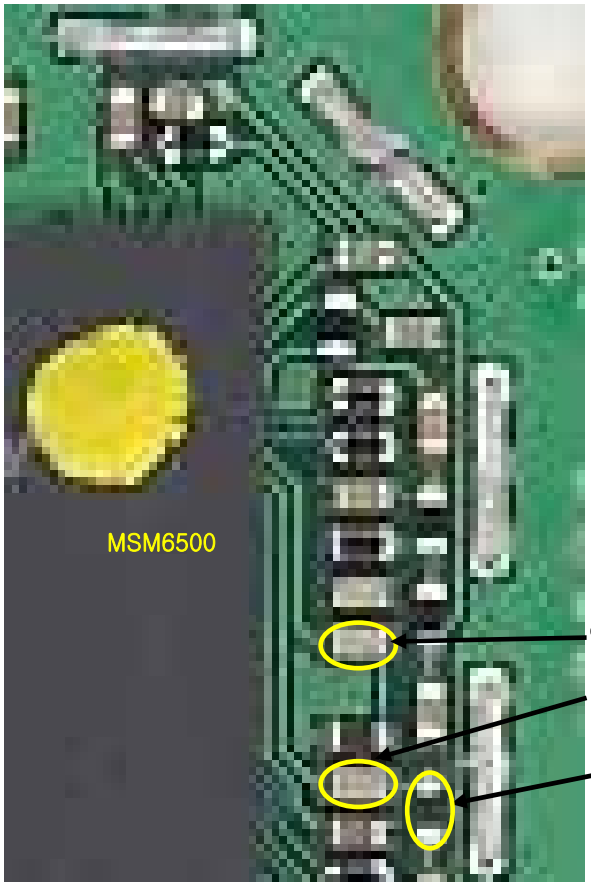


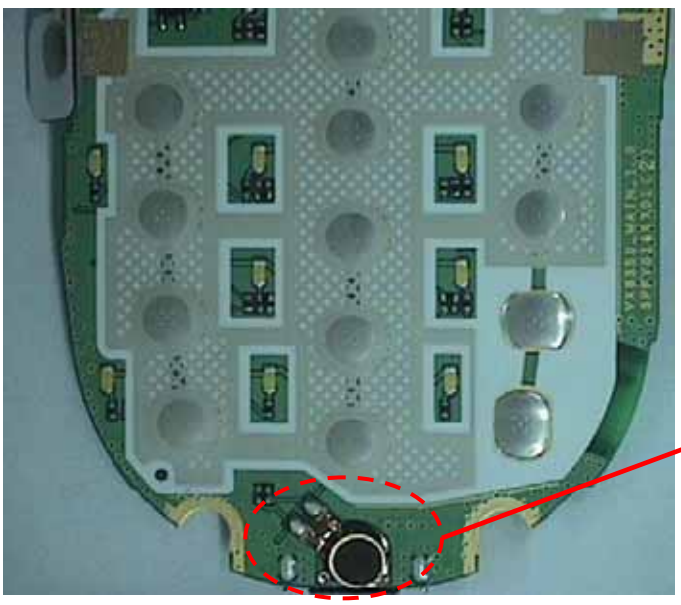


Test points



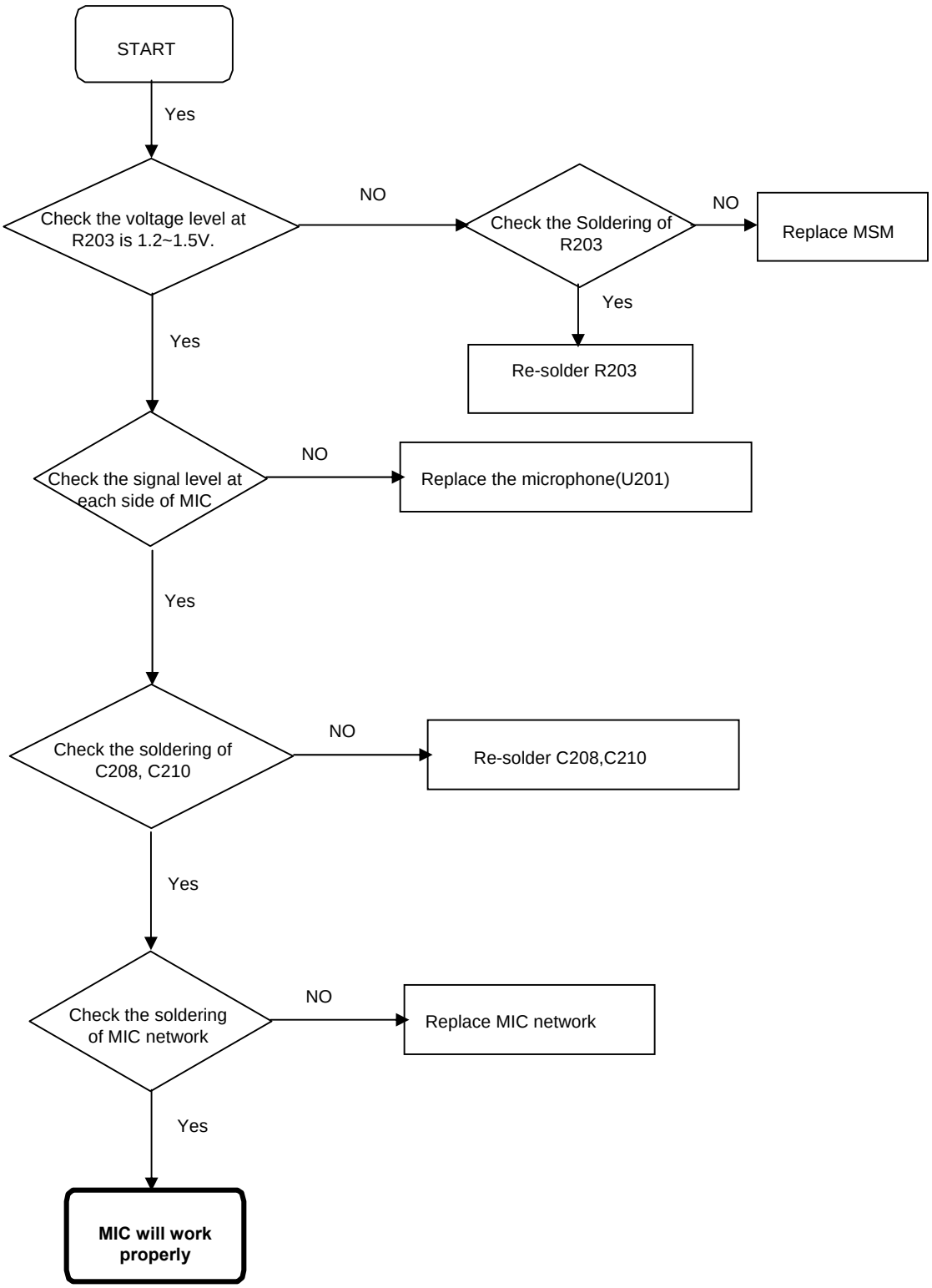
MIC network





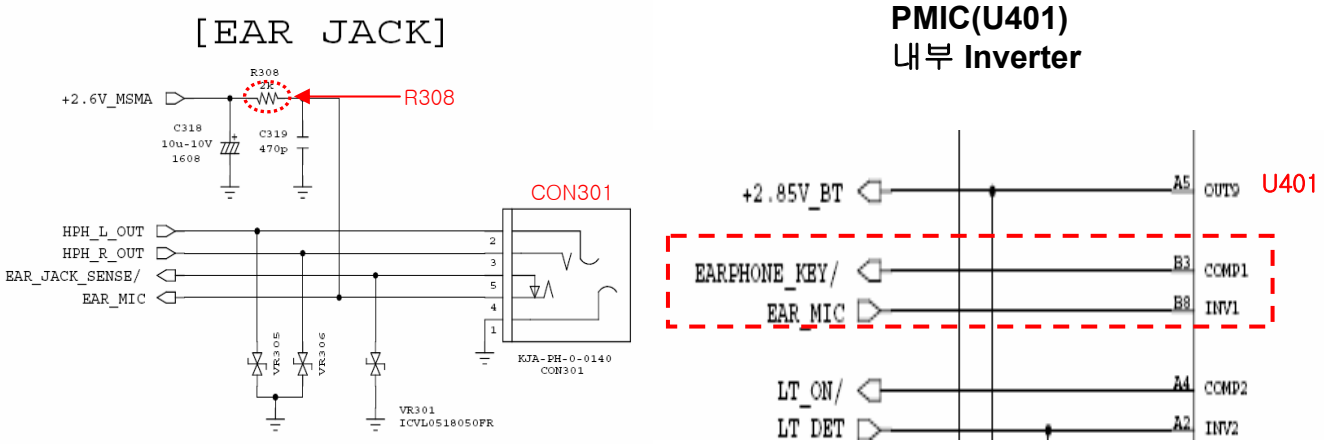
Checking Flow

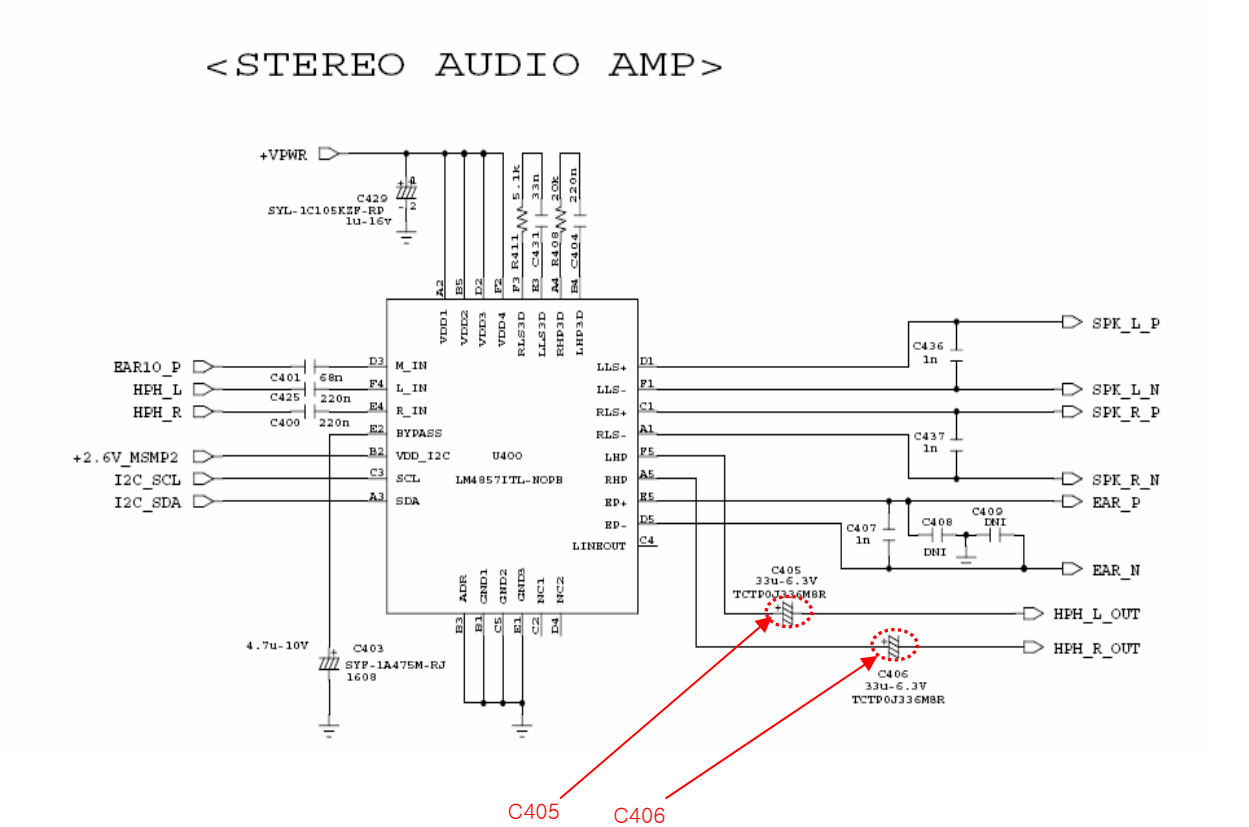
SETTING : After initialize 5515C, Test Cellular



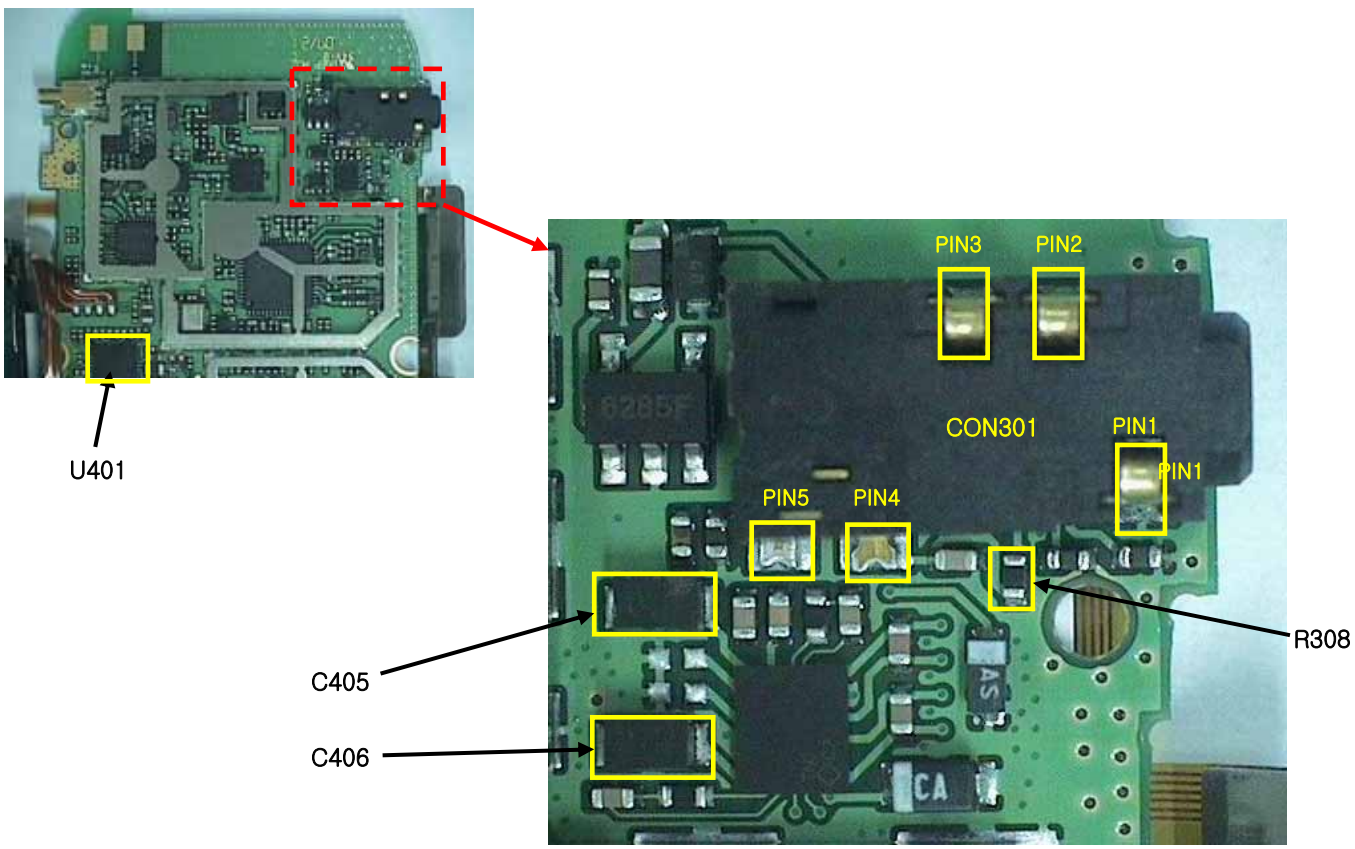
4.3.4.4 Headset Trouble

Circuit Diagram

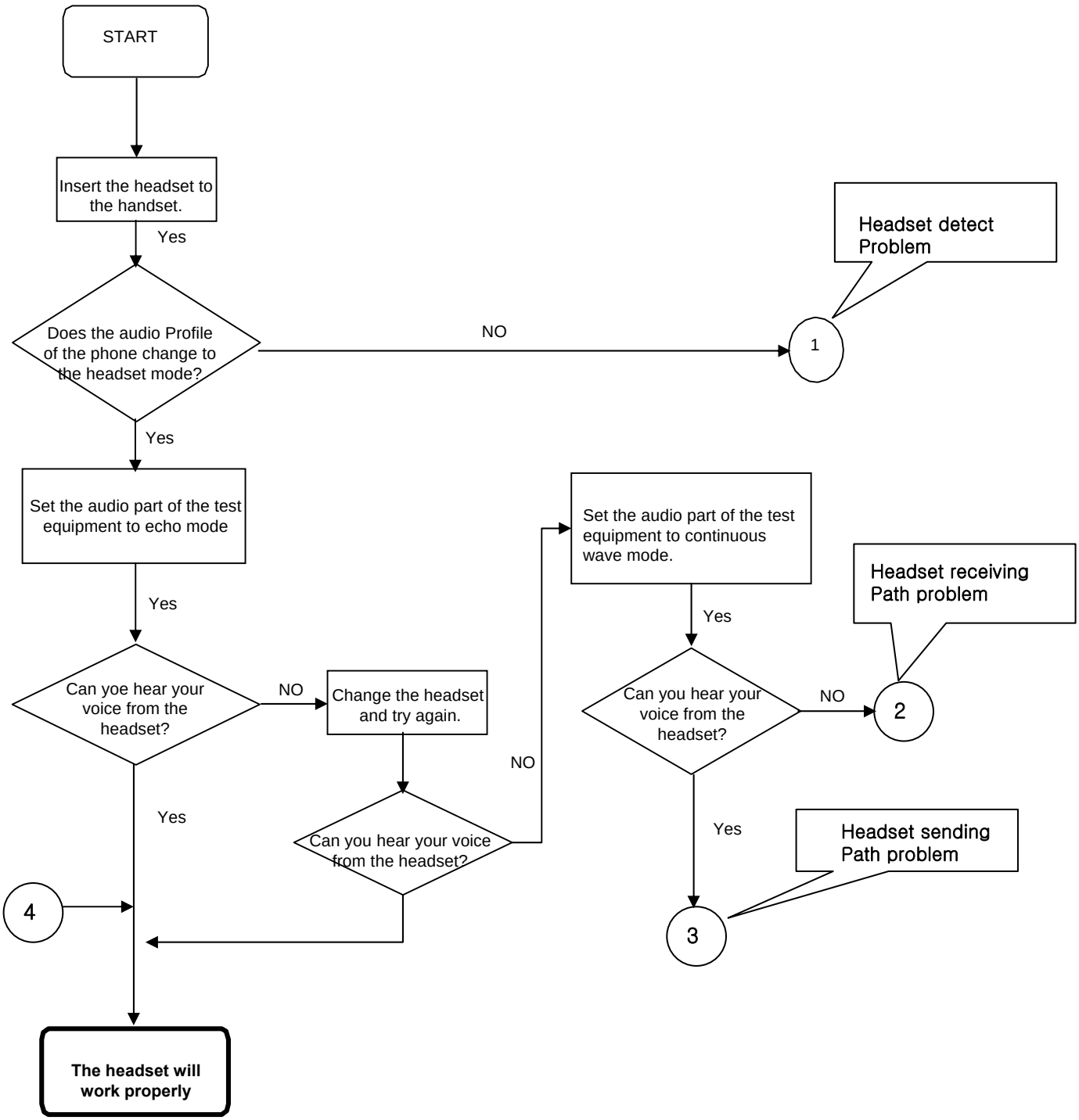




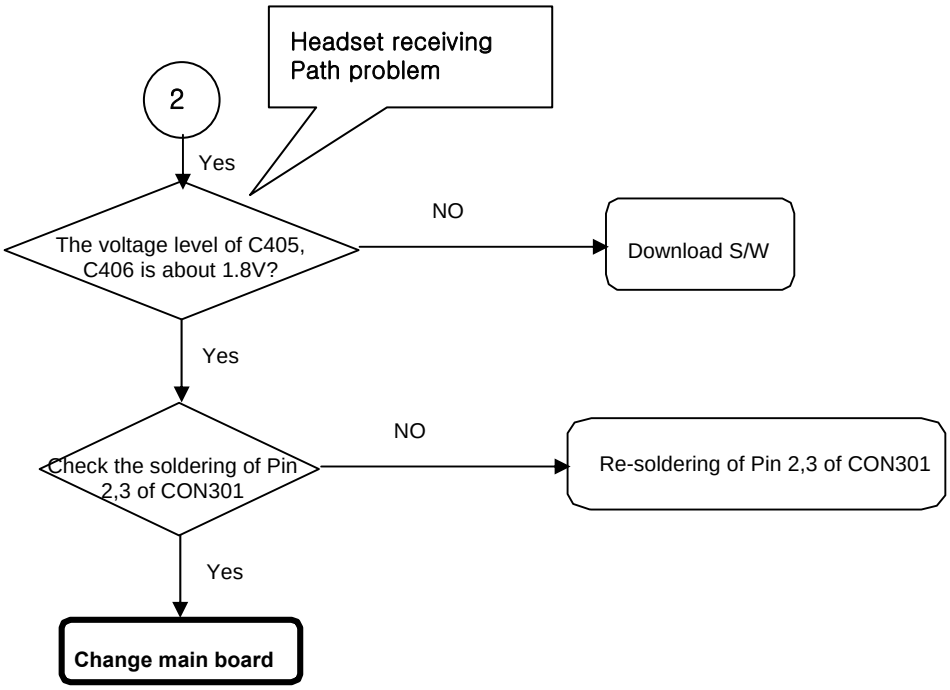
Test points



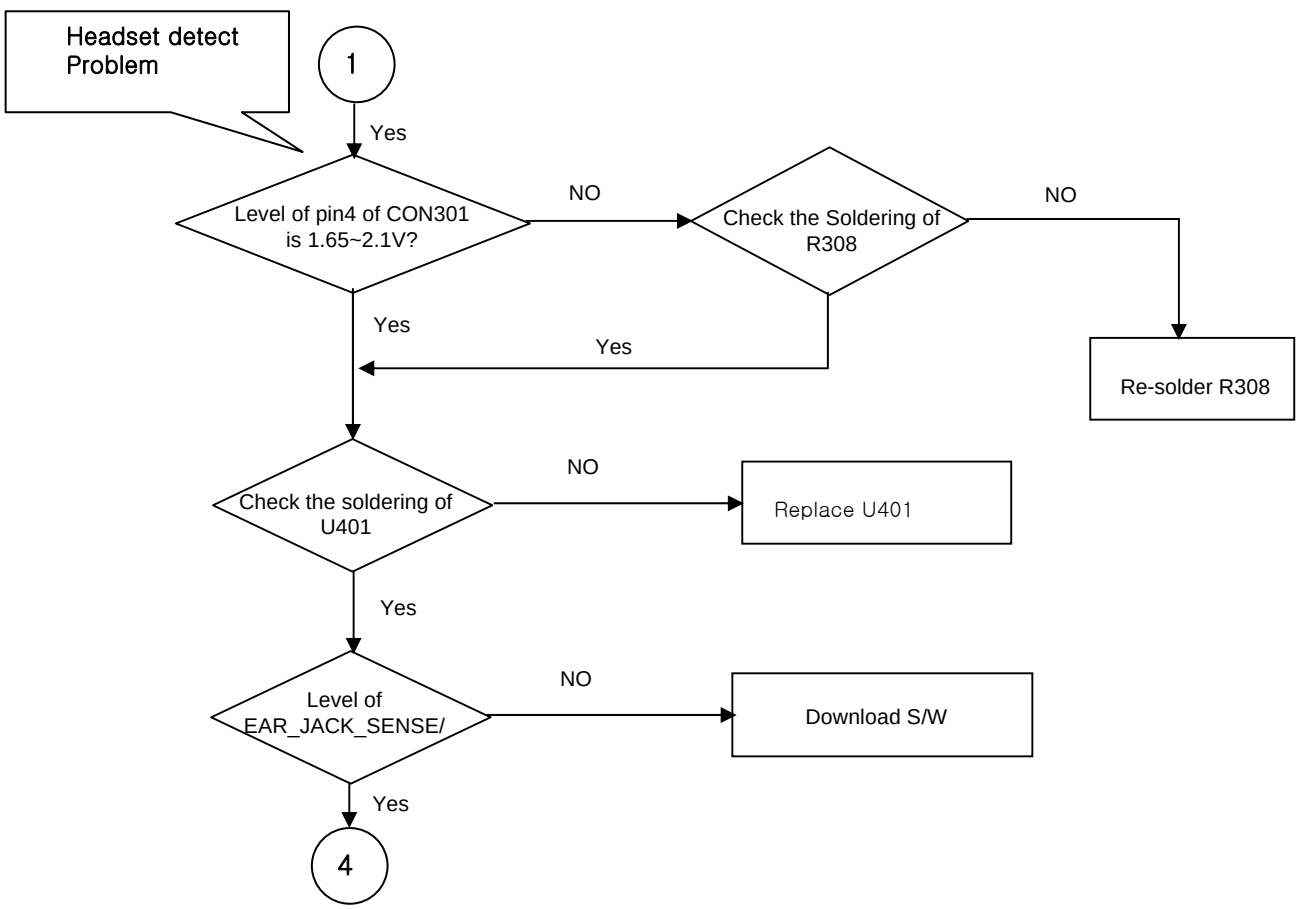
Checking Flow



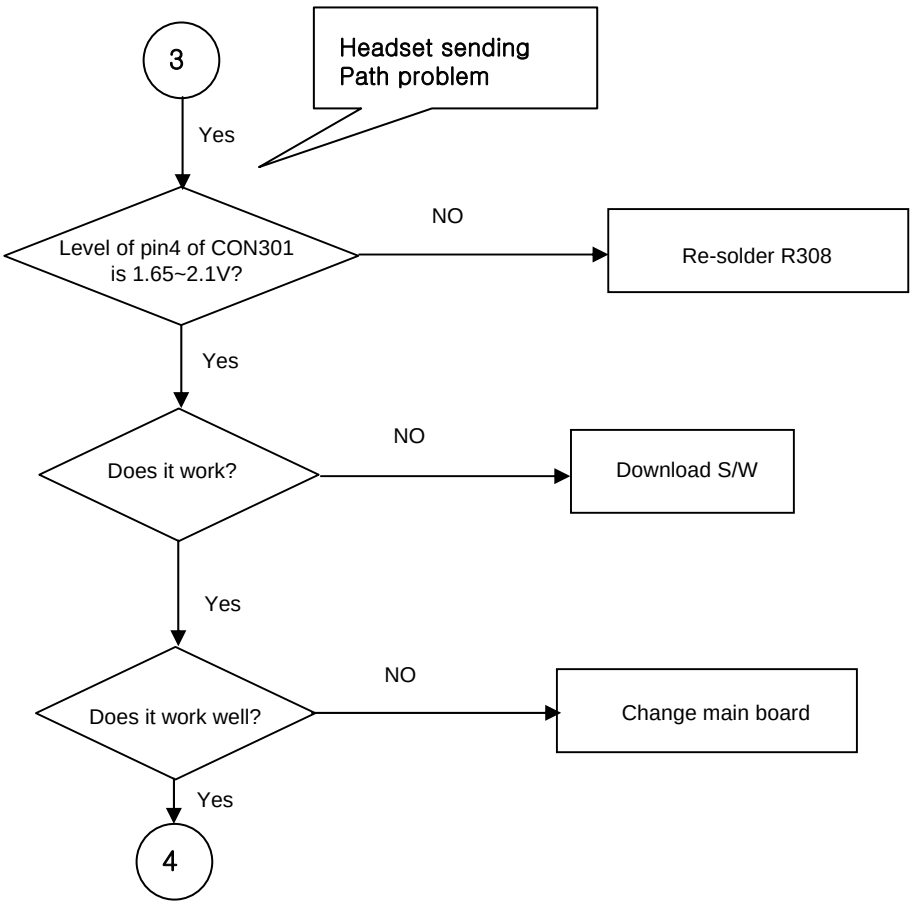
Headset receiving path problem



Headset detect problem



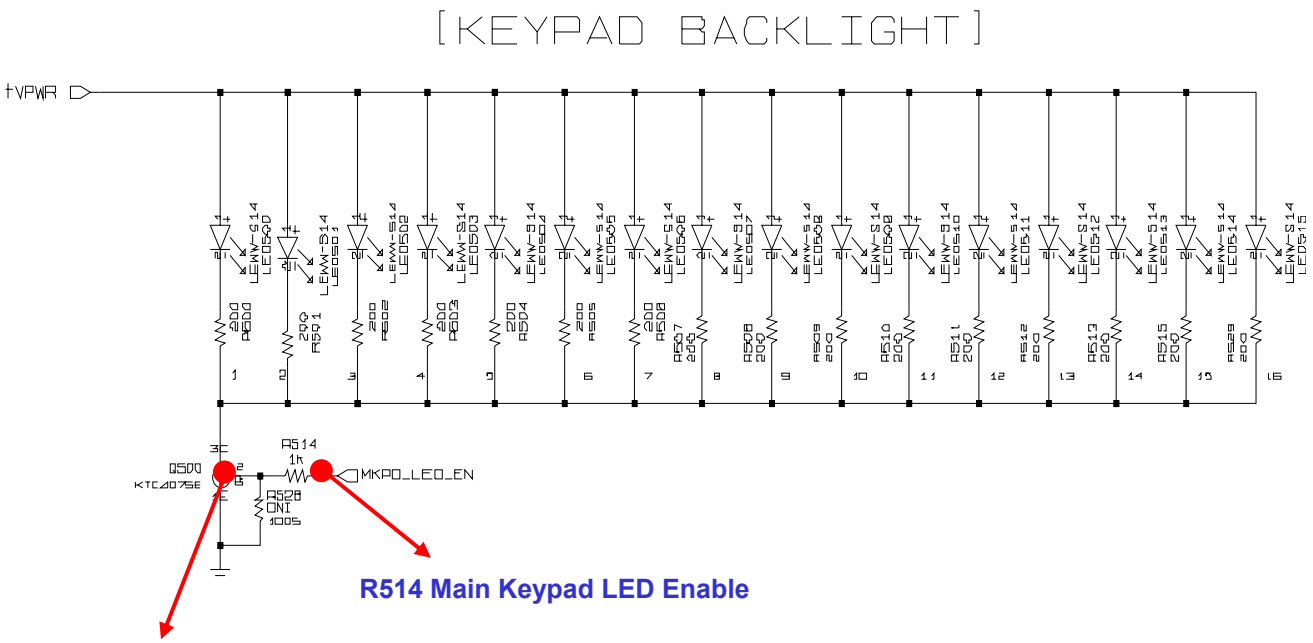
Headset Sending path problem



4.3.5 Backlight

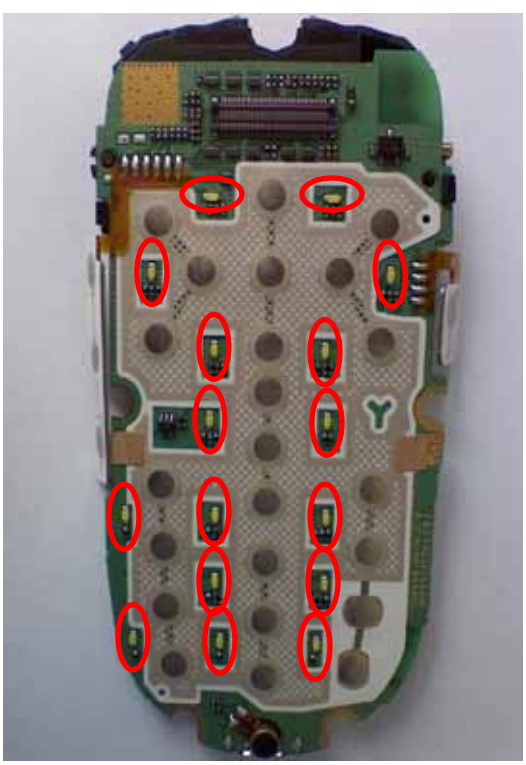
4.3.5.1 Numeric key backlight

Circuit Diagram



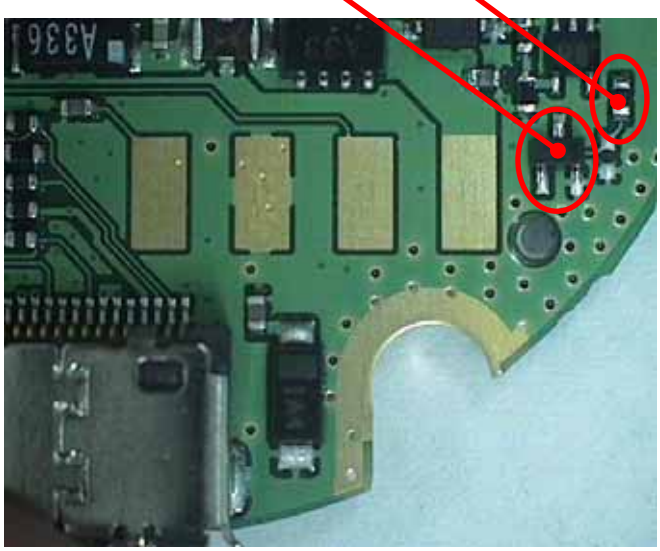
Test point

LED500 ~ LED515

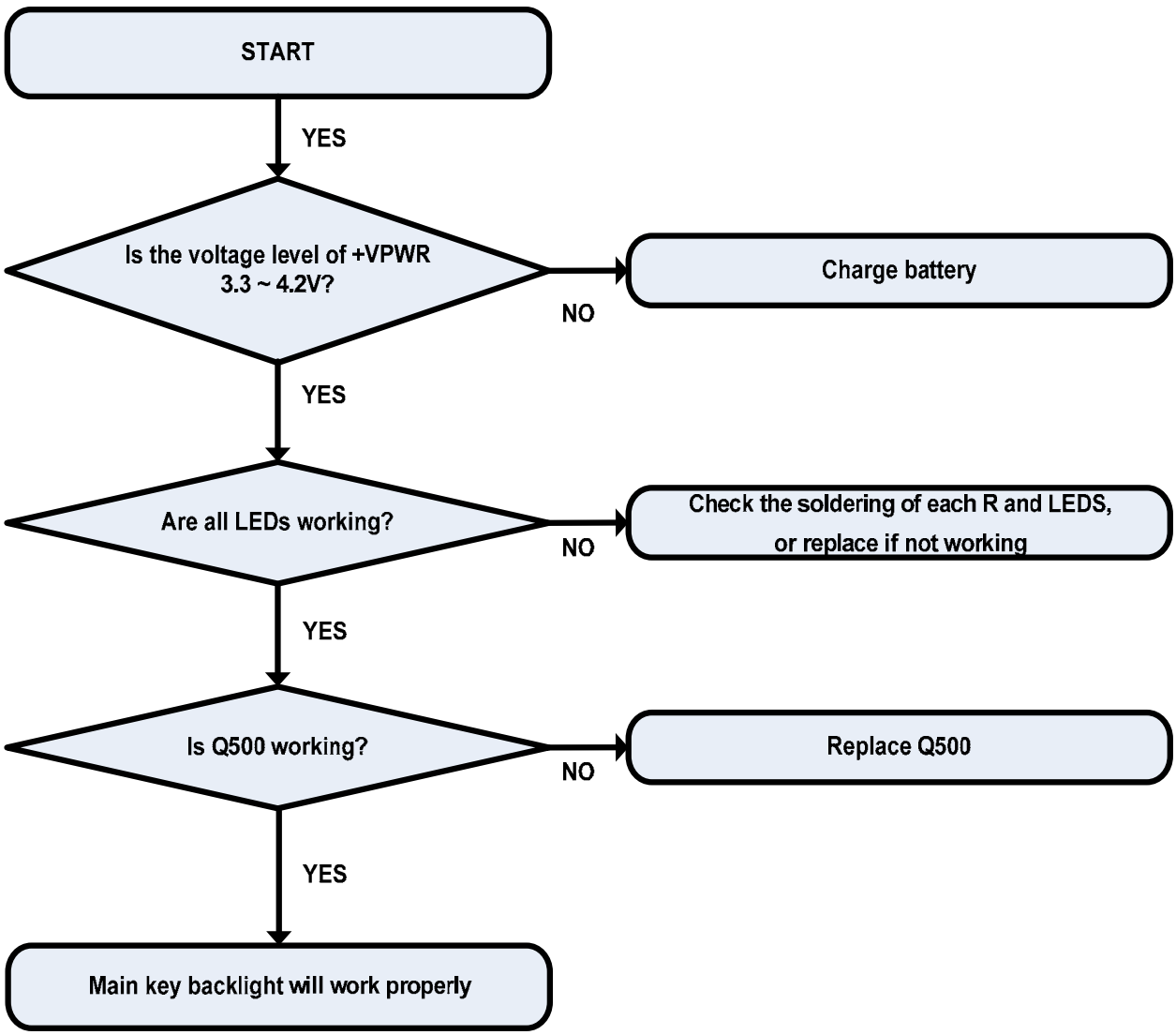


R514 Main Keypad LED Enable

Q600 LED Switching Tr.



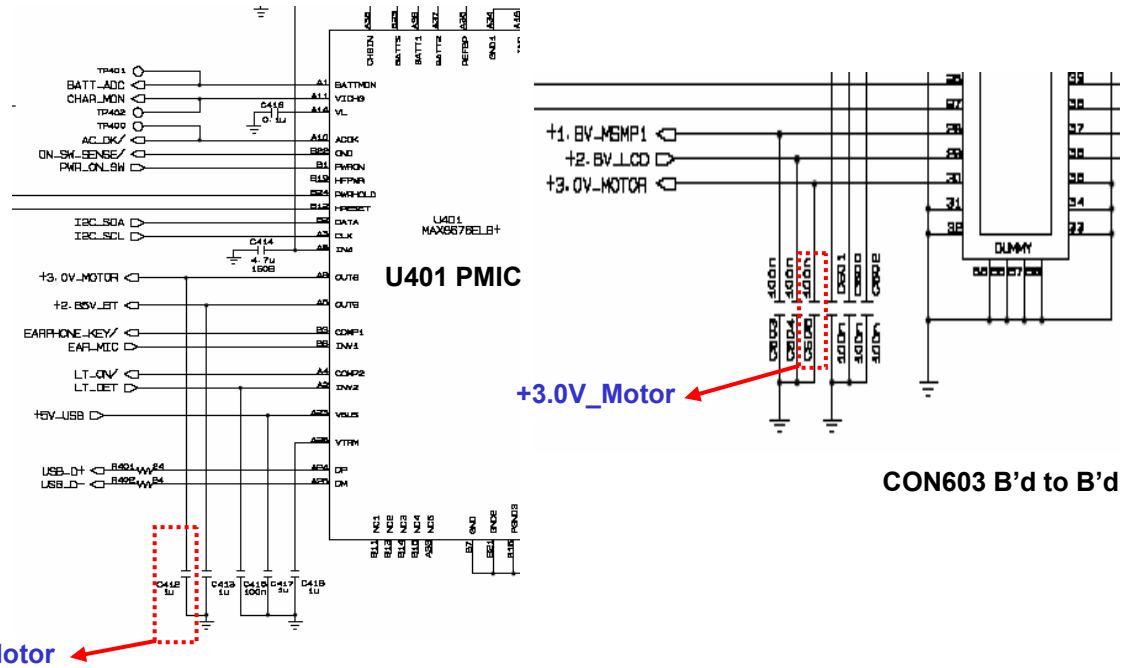
Checking Flow



4.3.6 Vibrator

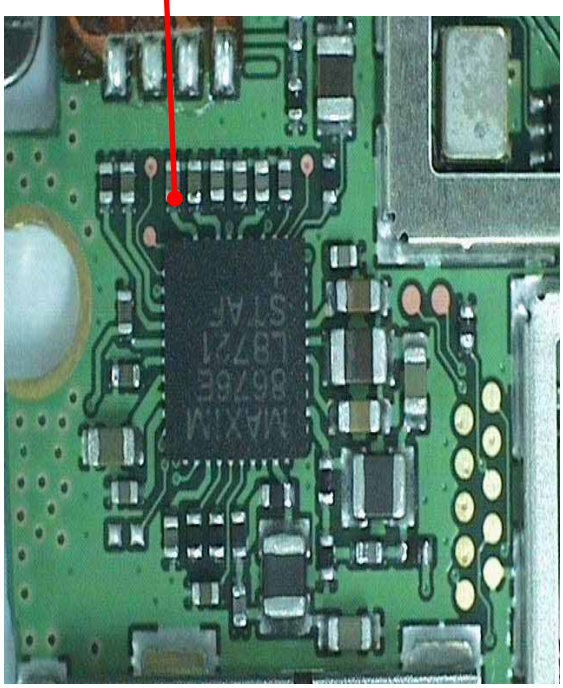
4.3.6.1 Operating Vibrator

Circuit Diagram

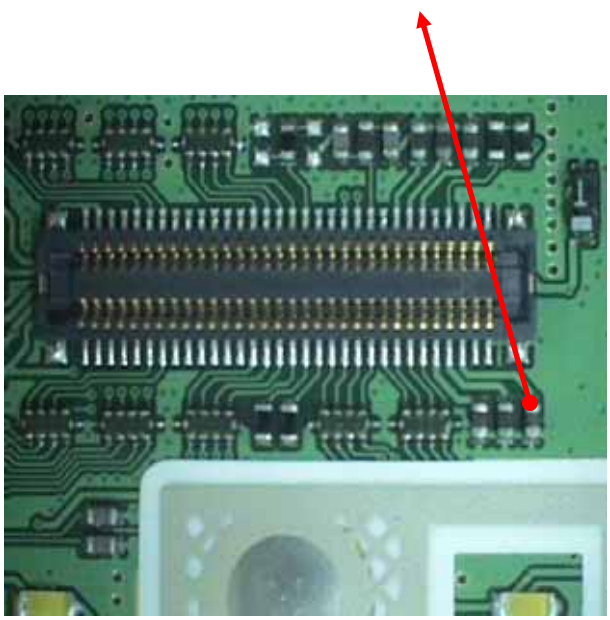


Test point

C412 +3.0V_Motor

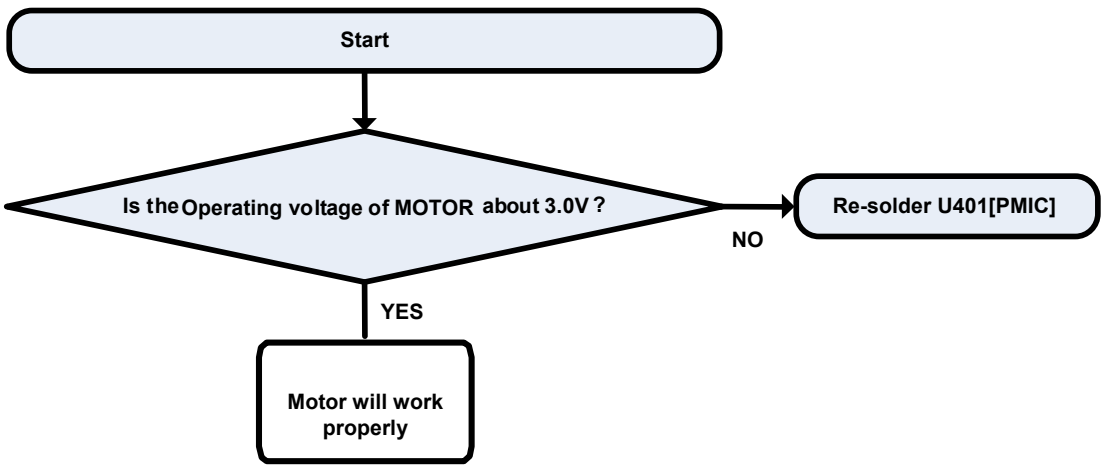


C605 +3.0V_Motor



Checking Flow

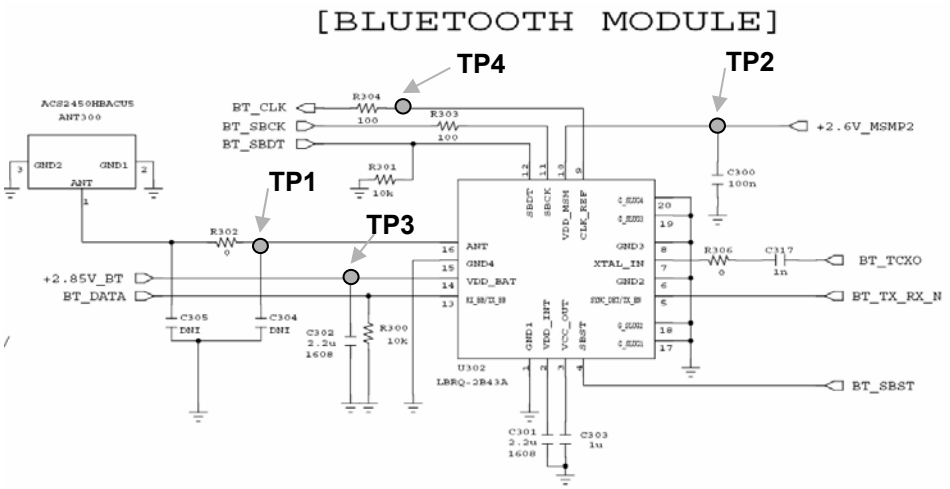
➢ Setting: “ON” at the motor test of “test mode”



4.4 Bluetooth Part Trouble

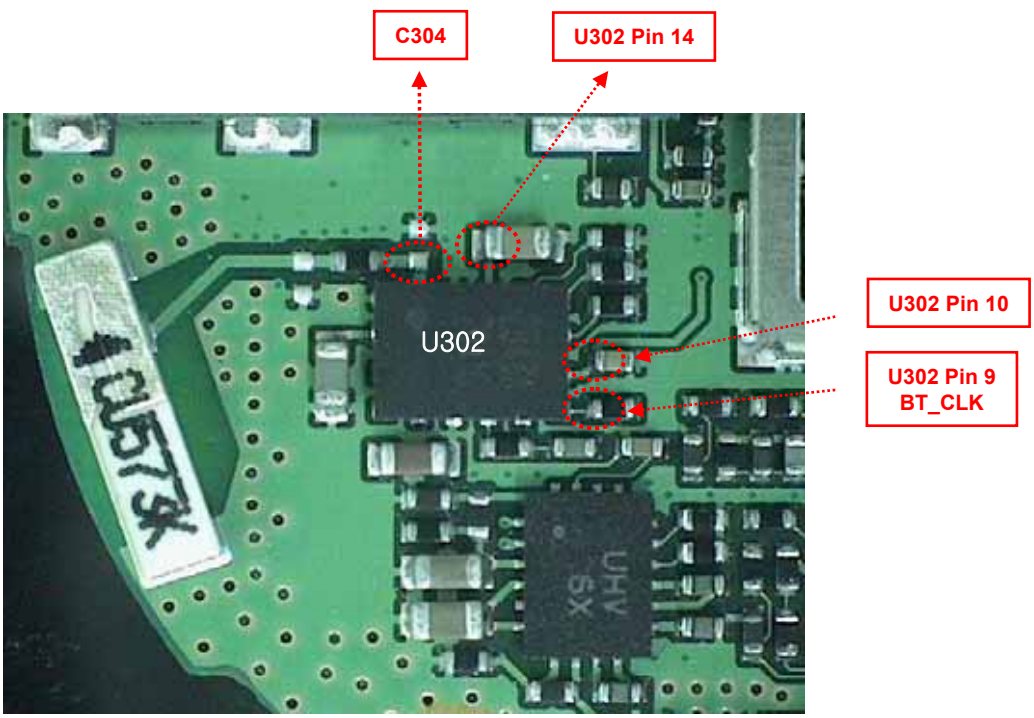
4.4.1 Bluetooth Circuit

Circuit Diagram

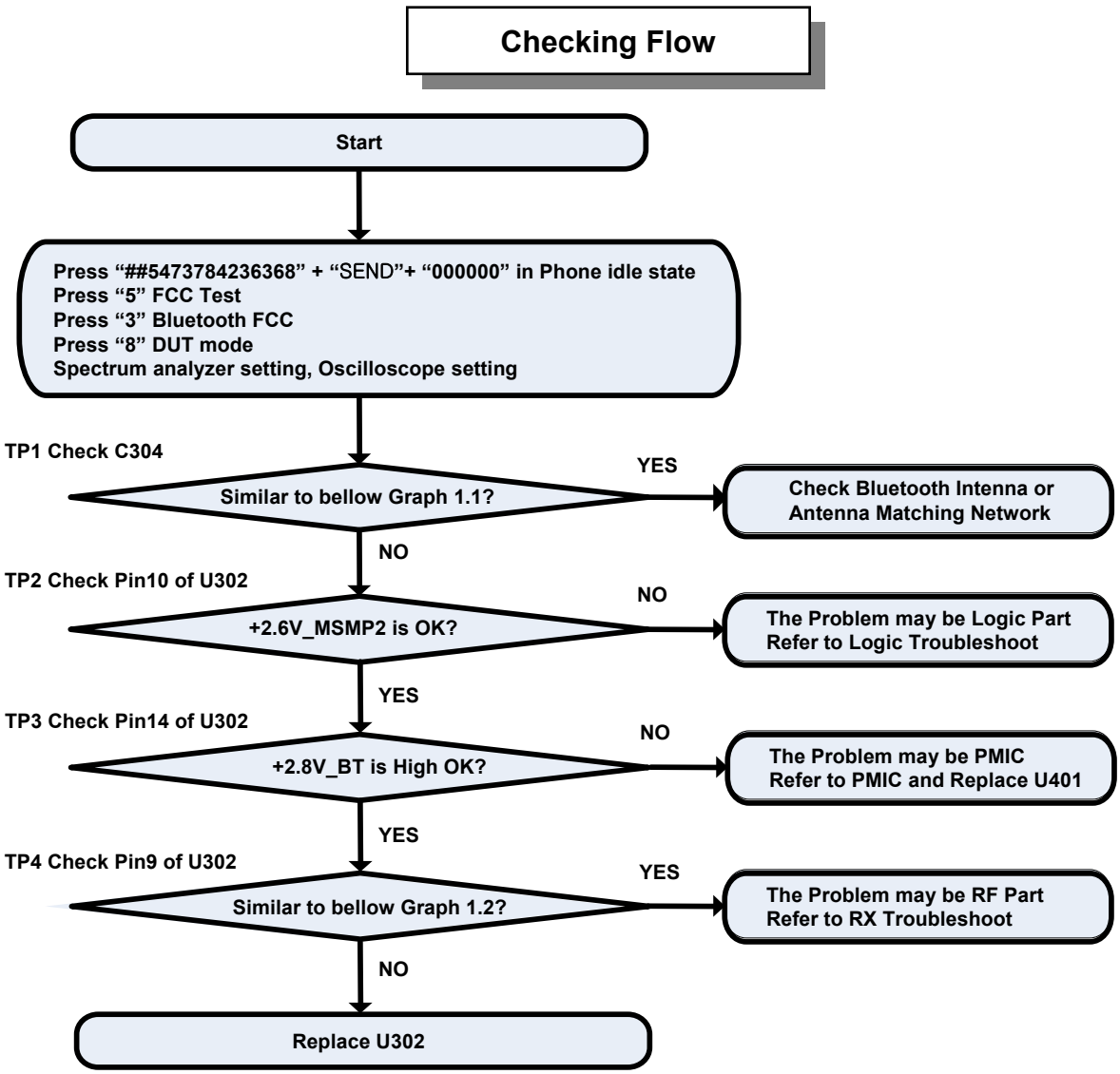


4.4.2 Bluetooth Block

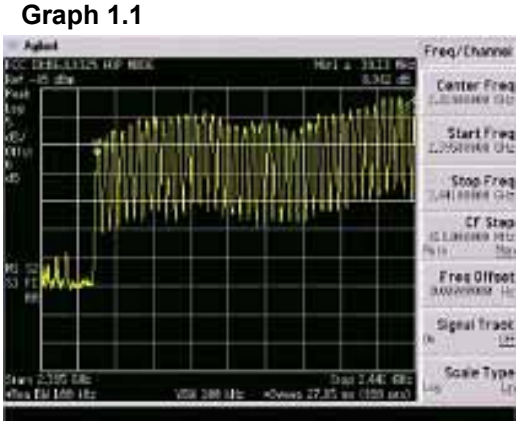
Test Point



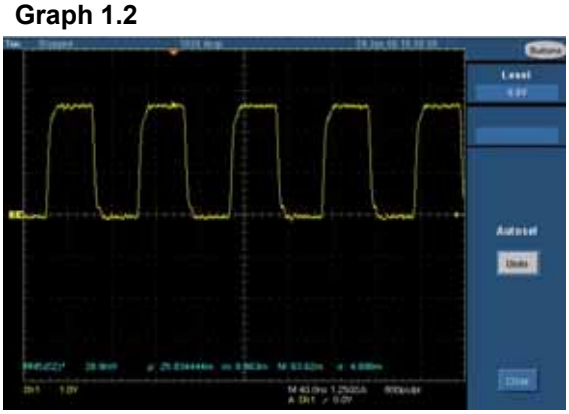
4.4.3 Checking Bluetooth In/Out and Power Supply Circuit



Graph 1.1



Graph 1.2



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…㎲.

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.

㎲. Microsecond

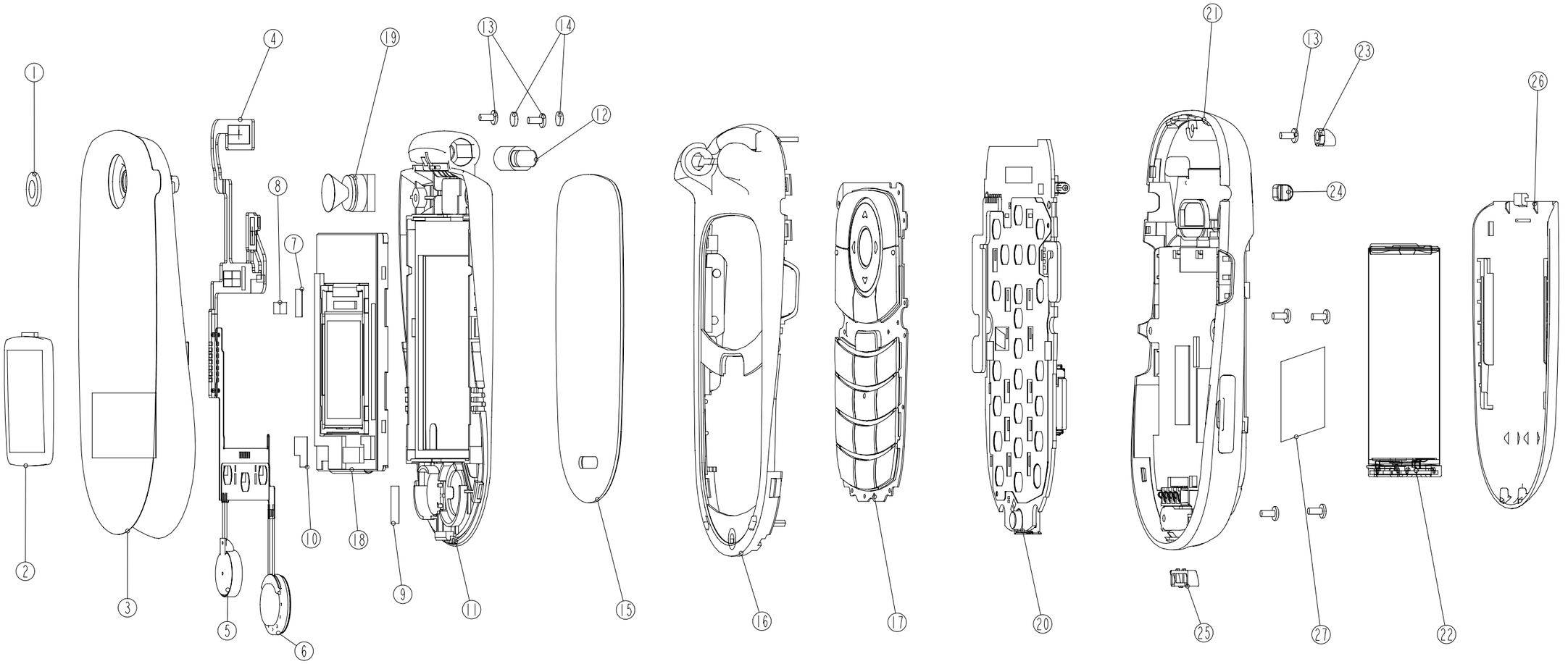
Appendix

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

Ass'y Exploded view

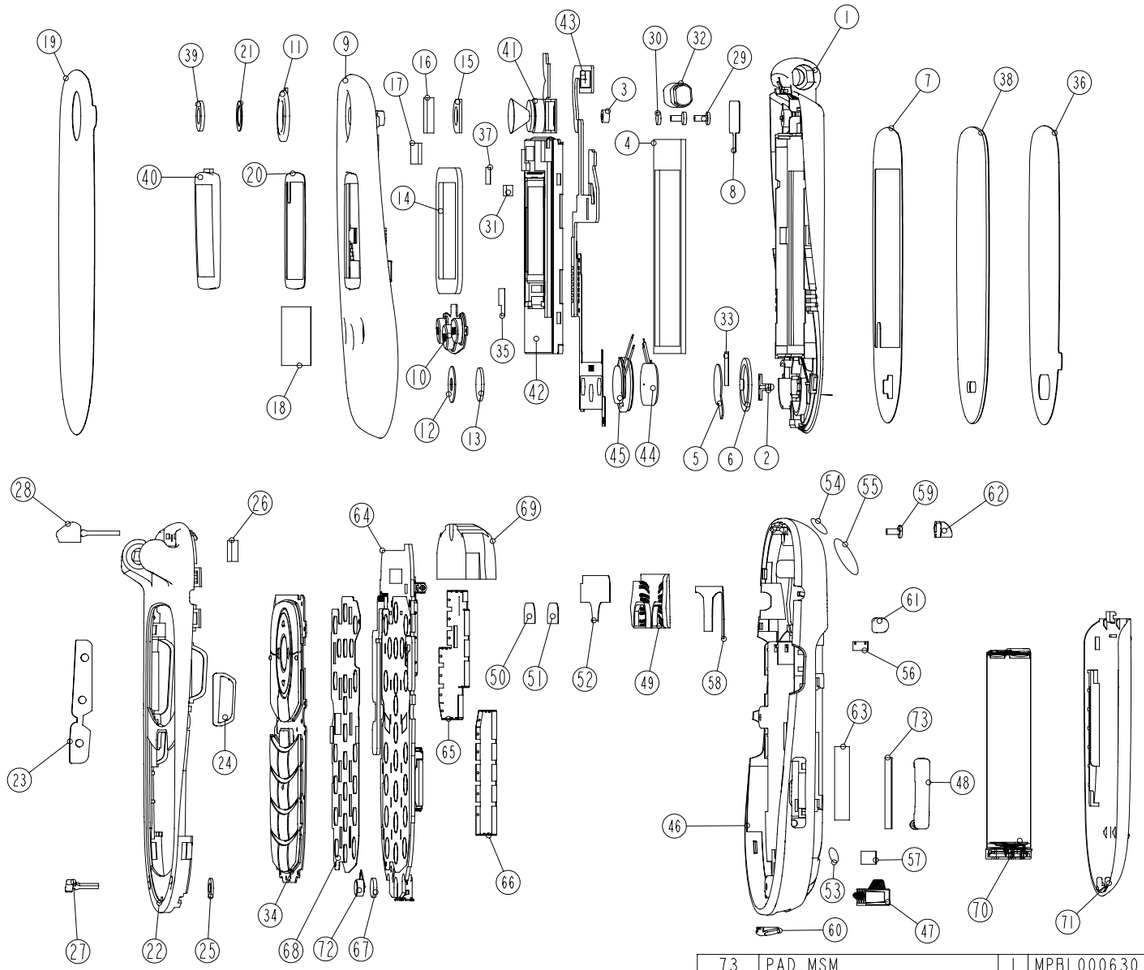
Internal Use Only



NO.	DESCRIPTION	Q'TY	DRAWING NO.	NO.	DESCRIPTION	Q'TY	DRAWING NO.
15	WINDOW,LCD	1	MWAC0077401	30			
14	CAP,SCREW	2	MCCH0102401	29			
13	SCREW MACHINE,BIND	7	GMEY0011201	28			
12	HINGE,FOLDER	1	MHFD0010501	27	LABEL,APPROVAL	1	MLAA0002504
11	COVER ASSY,FOLDER(LOWER)	1	ACGH0047101	26	COVER,BATTERY	1	MCJA0041001
10	INSULATOR	1	MIDZ0146301	25	CAP,RECEPTACLE	1	MCCE0036001
9	INSULATOR_m	1	MIDZ0138201	24	CAP,MOBILE SWITCH	1	MCCF0042701
8	GASKET,SHIELD FORM	1	MGAD0142001	23	CAP,SCREW	1	MCCH0102501
7	TAPE,SHIELD	1	MTAC0049901	22	BATTERY PACK,LI-ION	1	SBPL0086803
6	RECEIVER	1	SURY0013501	21	COVER ASSY,REAR	1	ACGM0087801
5	VIBRATOR,MOTOR	1	SJMY0008404	20	PCB ASSY,MAIN	1	SAFY0192401
4	PCB ASSY,FLEXIBLE	1	SACY0058001	19	CAMERA	1	SVCY0013201
3	COVER ASSY,FOLDER(UPPER)	1	ACGJ0061101	18	LCD MODULE	1	SVLM0023102
2	WINDOW,LCD(SUB)	1	MWAF0038401	17	KEYPAD	1	MKAZ0036101
1	WINDOW,CAMERA	1	MWAE0024701	16	COVER ASSY,FRONT	1	ACGK0085801

Full Exploded view

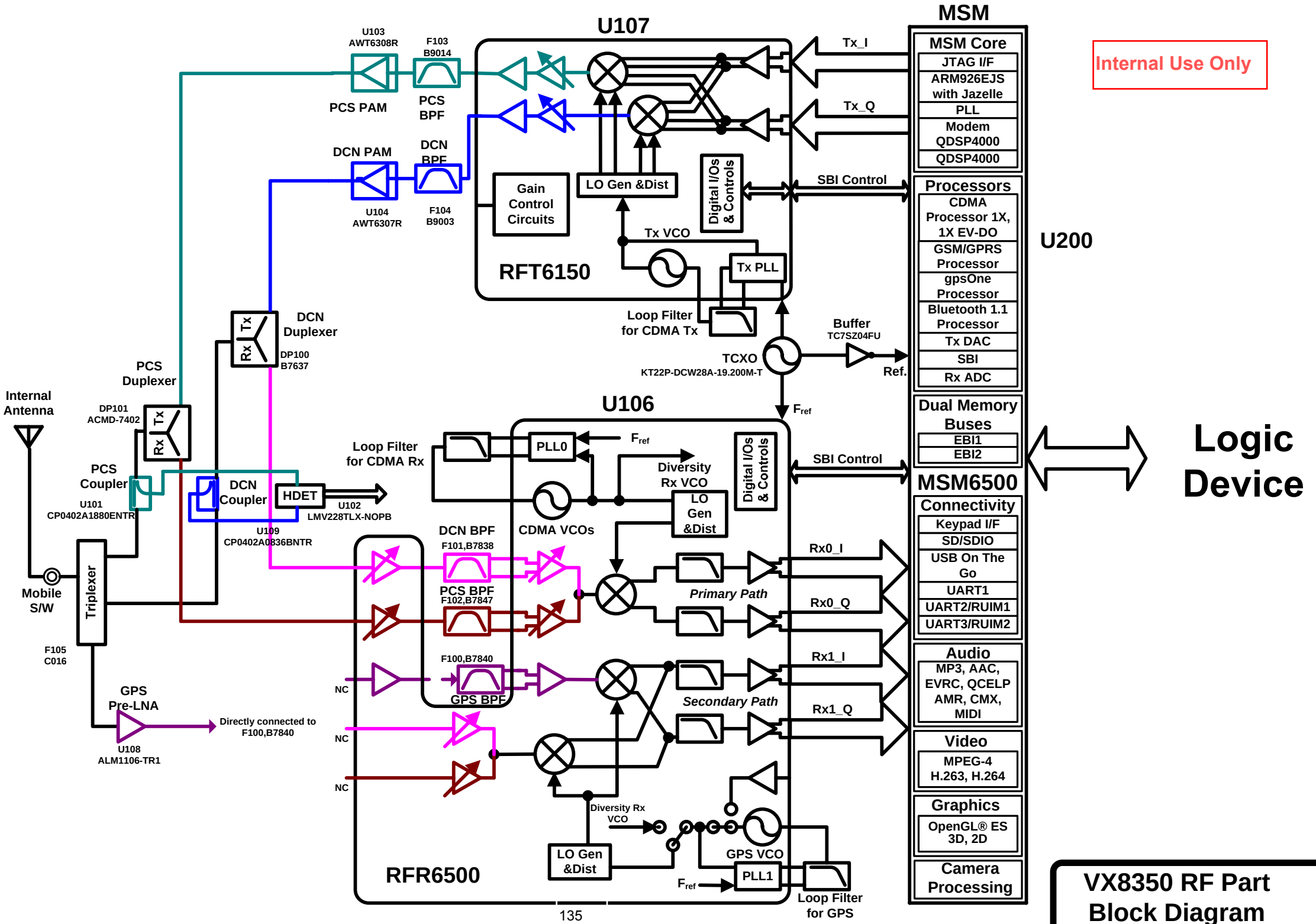
Internal Use Only



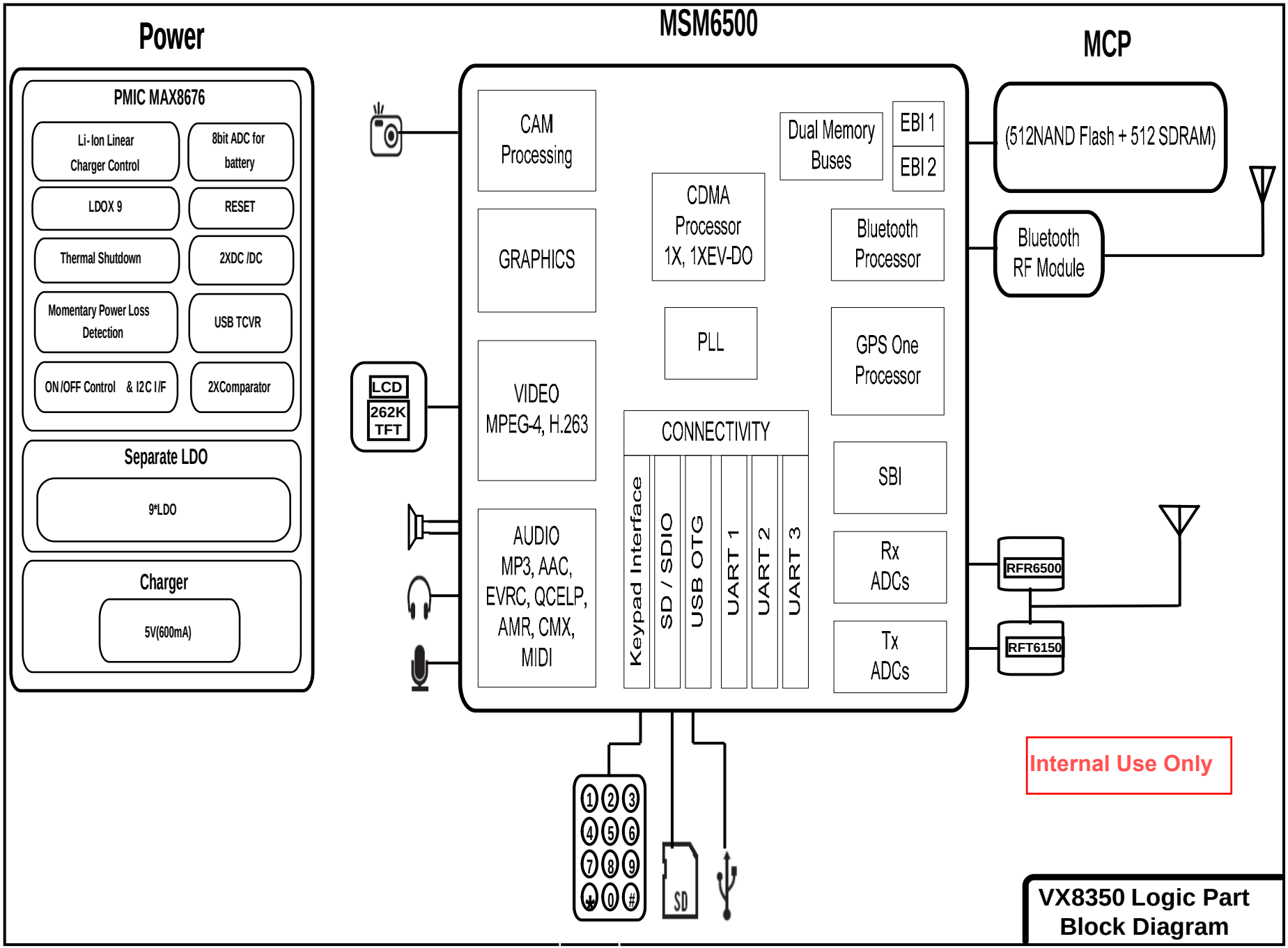
43	PCB ASSY,FLEXIBLE	1	SACY0058001	
42	LCD MODULE	1	SVLM0023102	
41	CAMERA	1	SVCY0013201	
40	WINDOW,LCD(SUB)	1	MWAF0038401	
39	WINDOW,CAMERA	1	MWAE0024701	
38	WINDOW,LCD	1	MWAC0077401	
37	TAPE,SHIELD	1	MTAC0049901	
36	TAPE,PROTECTION	1	MTAB0161001	
35	INSULATOR	1	MIDZ0146301	LCD
34	KEYPAD	1	MKAZ0036101	
33	INSULATOR	1	MIDZ0138201	MOT(ESD)
32	HINGE,FOLDER	1	MHFD0010501	
31	GASKET,SHIELD FORM	1	MGAD0142001	
30	CAP,SCREW	2	MCCH0102401	LOWER
29	SCREW MACHINE,BIND	2	GMEY0011201	
28	STOPPER,HINGE	1	MSGB0018501	
27	PAD,FOLDER	2	MPBS0005801	BUMPER
26	PAD,FLEXIBLE PCB	1	MPBF0021201	FRONT
25	FILTER,MIKE	1	MFBD0021501	
24	BUTTON,SHUTTER	1	MBJP0006501	
23	BUTTON,VOLUME	1	MBJN0012201	
22	COVER,FRONT	1	MCJK0069601	
21	TAPE	1	MTAZ0187201	CAMERA
20	TAPE,WINDOW(SUB)	1	MTAE0030301	
19	TAPE,PROTECTION	1	MTAB0174801	UPPER
18	TAPE,PROTECTION	1	MTAB0160901	MOD
17	PAD	1	MPBZ0183201	CON_LCD
16	PAD	1	MPBZ0178101	CON_CAMERA
15	PAD,CAMERA	1	MPBT0039301	
14	PAD,LCD(SUB)	1	MPBQ0031101	
13	PAD,RECEIVER	1	MPBM0016501	
12	PAD,MOTOR	1	MPBJ0042401	
11	DECO,CAMERA	1	MDAD0032401	
10	BUTTON	1	MBJZ0010601	MOD
9	COVER,FOLDER(UPPER)	1	MCJJ0047201	
8	TAPE	1	MTAZ0187301	CAMERA
7	TAPE,WINDOW	1	MTAD0066001	
6	PAD,RECEIVER	1	MPBM0016601	
5	PAD,MOTOR	1	MPBJ0045601	
4	PAD,LCD	1	MPBG0058401	
3	MAGNET,SWITCH	1	MMAA0000301	
2	DECO,RECEIVER	1	MDAH0021301	
1	COVER,FOLDER(LOWER)	1	MCJH0037901	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

73	PAD,MSM	1	MPBL0006301	
72	MICROPHONE	1	SUMY0007101	
71	COVER,BATTERY	1	MCJA0041001	
70	BATTERY PACK,LI-ION	1	SBPL0086803	
69	ANTENNA,MOBILE,FIXED	1	SNMF0030101	
68	DOME ASSY,METAL	1	ADCA0064501	
67	PAD,MIKE	1	MPBH0030901	
66	CAN,SHIELD	1	MCBA0016901	
65	CAN,SHIELD	1	MCBA0016801	
64	PCB ASSY,MAIN,SMT	1	SAFF0113801	
63	LABEL,APPROVAL	1	MLAA0002502	---2504(중국)
62	CAP,SCREW	1	MCCH0102501	REAR
61	CAP,MOBILE SWITCH	1	MCCF0042701	
60	CAP,RECEPTACLE	1	MCCE0036001	
59	SCREW MACHINE,BIND	5	GMEY0011201	
58	TAPE,DECO	1	MTAA0134501	SPK
57	SHEET	1	MSAZ0051001	BAT_ETC
56	SHEET	1	MSAZ0049501	
55	LABEL	1	MLAZ0034702	OTA(BK)
54	LABEL,QUALCOMM	1	MLAN0000601	BK
53	LABEL,A/S	1	MLAB0000601	
52	INSULATOR	1	MIDZ0133801	
51	FILTER,SPEAKER	1	MFBC0032401	R
50	FILTER,SPEAKER	1	MFBC0029601	L
49	DECO,SPEAKER	1	MDAN0012301	
48	CAP,MULTIMEDIA CARD	1	MCCG0007701	
47	CONNECTOR,ETC	1	ENZY0019701	
46	COVER,REAR	1	MCJN0065901	
45	RECEIVER	1	SURY0013501	
44	VIBRATOR,MOTOR	1	SJMY0008404	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

2. Block and Circuit Diagram

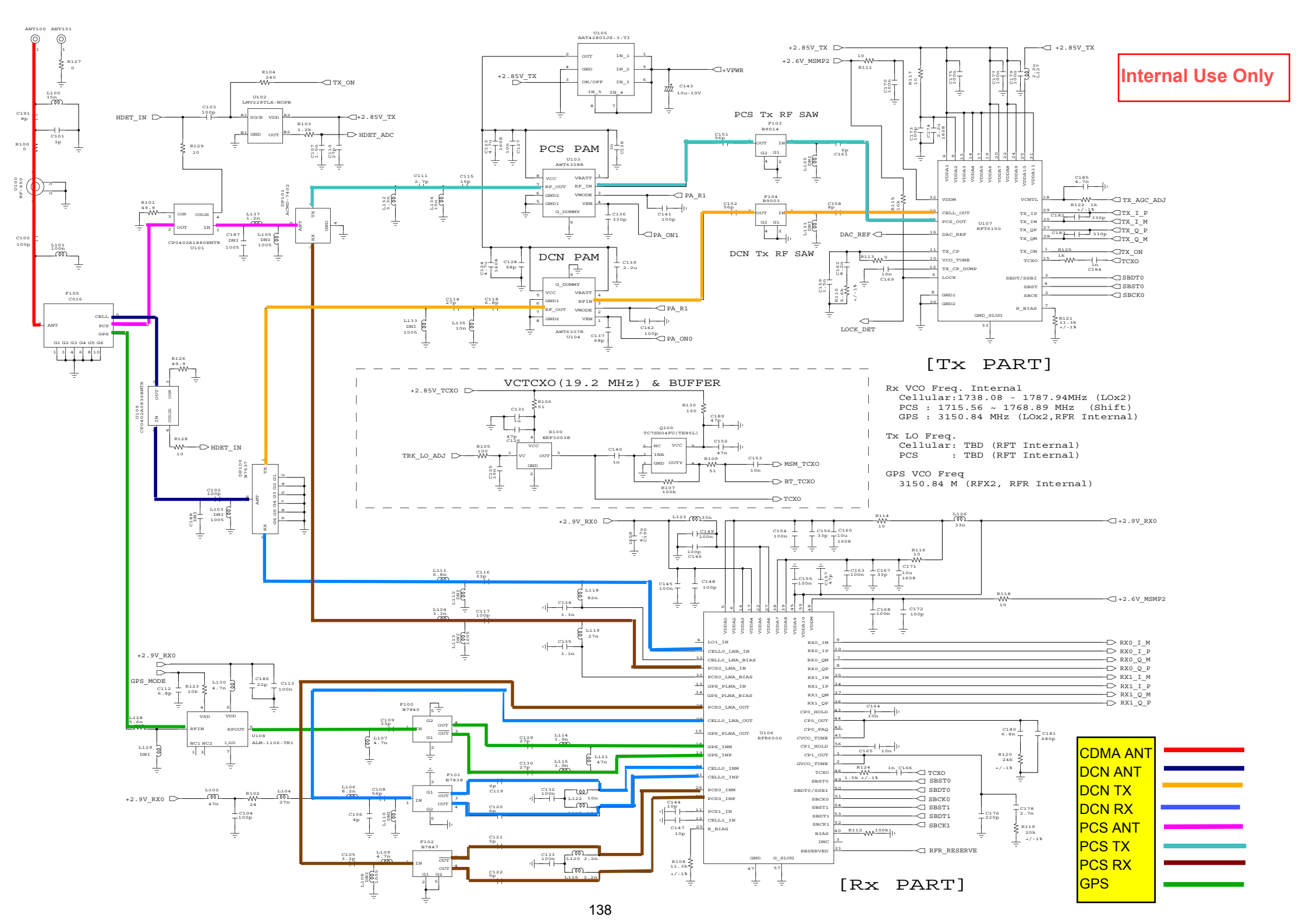


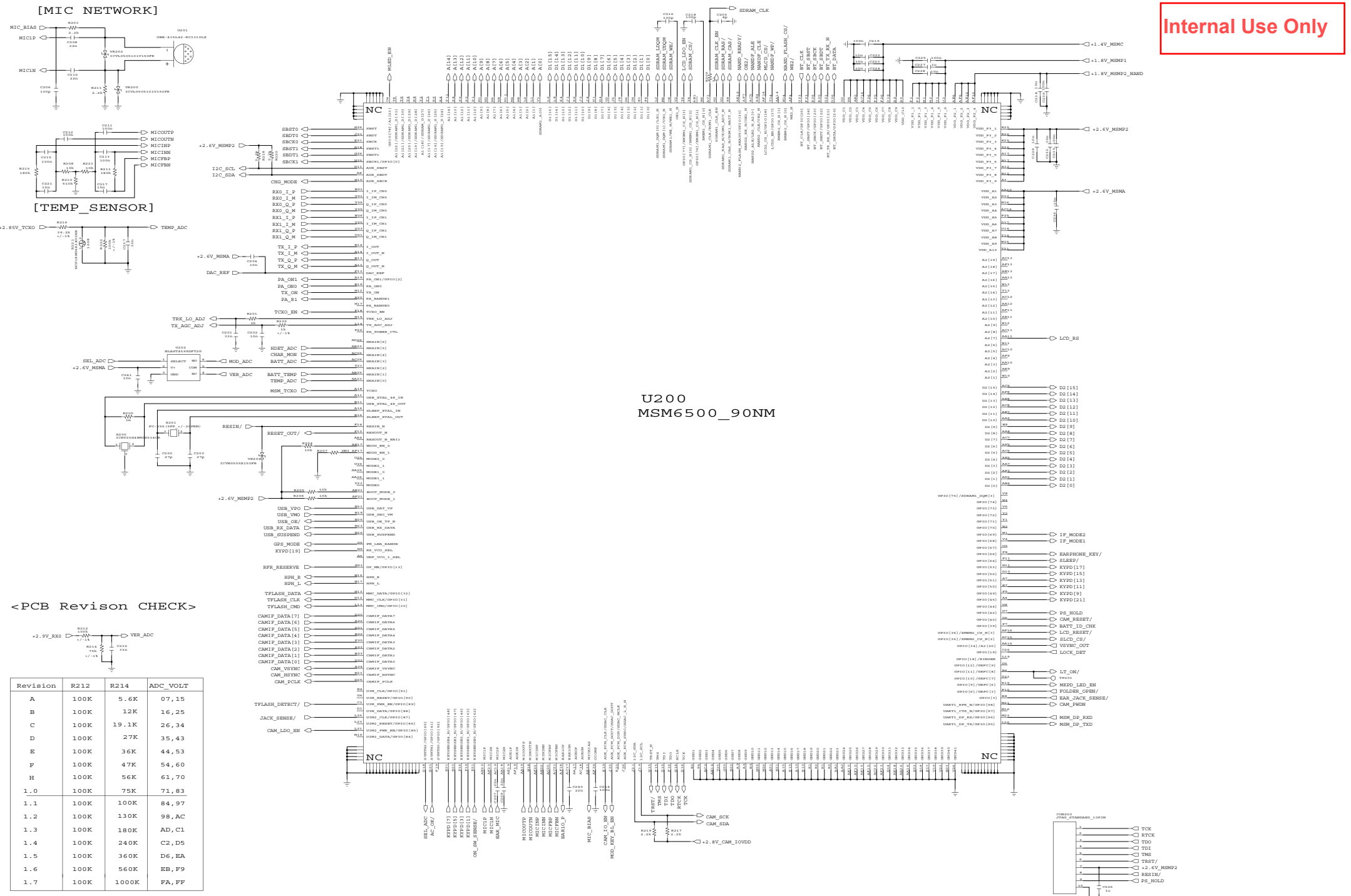
VX8350 RF Part Block Diagram


Power
PMIC MAX8676
Li-Ion Linear Charger Control
8bit ADC for battery
LDOX 9
RESET
Thermal Shutdown
2XDC /DC
Momentary Power Loss Detection
USB TCVR
ON/OFF Control & I2C I/F
2XComparator
Separate LDO
9*LDO
Charger
5V(600mA)
MSM6500
CAM Processing
GRAPHICS
VIDEO MPEG-4, H.263
AUDIO MP3, AAC, EVRC, QCELP, AMR, CMX, MIDI
CDMA Processor 1X, 1XEV-DO
PLL
CONNECTIVITY
Keypad Interface
SD / SDIO
USB OTG
UART 1
UART 2
UART 3
Dual Memory Buses
EBI 1
EBI 2
Bluetooth Processor
GPS One Processor
SBI
Rx ADCs
Tx ADCs
MCP
(512NAND Flash + 512 SDRAM)
Bluetooth RF Module
RFR6500
RFT6150
LCD
262K TFT
SD
Internal Use Only
VX8350 Logic Part Block Diagram

VX8350 Circuit Diagram (Main/fpcb)

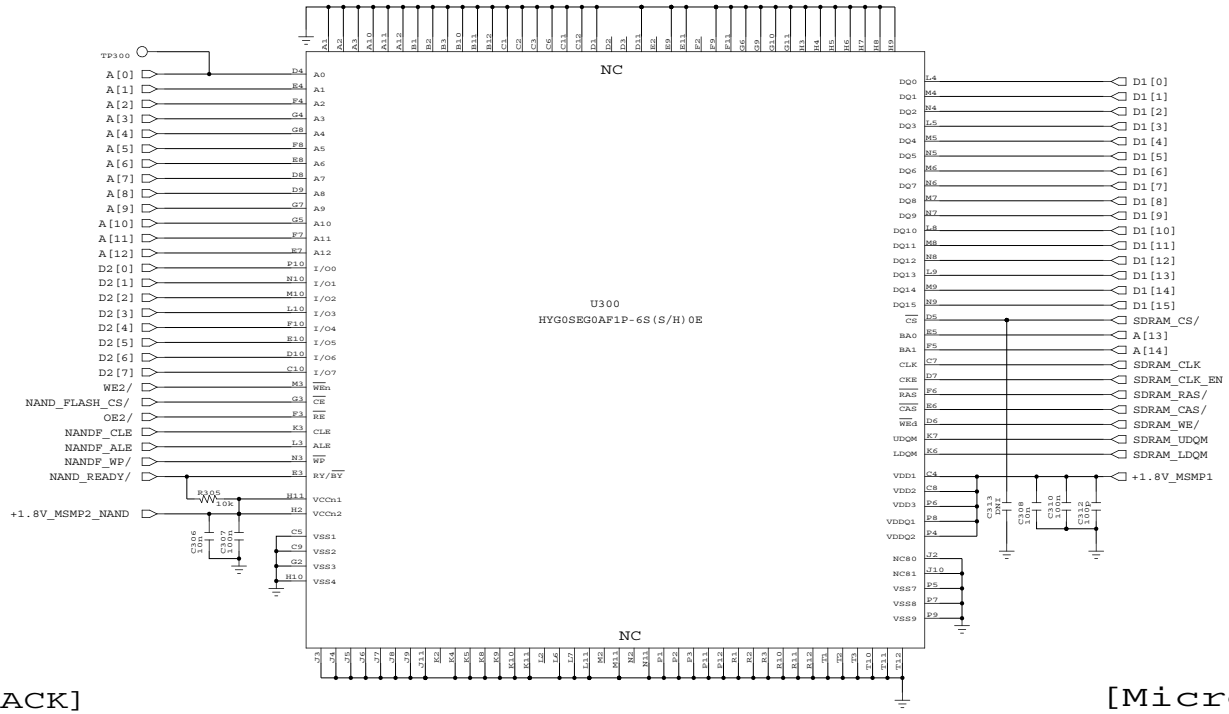
1.VX8350 Main PCB (Rev1.0)
2.VX8350 sub_fpcb (Rev1.0)
3.VX8350 mod_fpcb (Rev1.2)
4.VX8350 cam_key (Rev1.0)
5.VX8350 vol_key (Rev1.0)


Internal Use Only
[Tx PART]
Rx VCO Freq. Internal
Cellular:1738.08 - 1787.94MHz (LOx2)
PCS : 1715.56 ~ 1768.89 MHz (Shift)
GPS : 3150.84 MHz (LOx2,RFR Internal)
Tx LO Freq.
Cellular: TBD (RFT Internal)
PCS : TBD (RFT Internal)
GPS VCO Freq
3150.84 M (RFX2, RFR Internal)
VCTCXO(19.2 MHz) & BUFFER
PCS Tx RF SAW
DCN Tx RF SAW
PCS PAM
DCN PAM
[Rx PART]
CDMA ANT
DCN ANT
DCN TX
DCN RX
PCS ANT
PCS TX
PCS RX
GPS

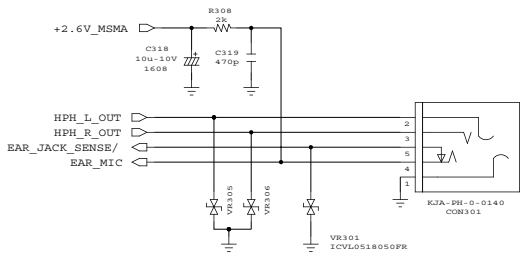


Revision	R212	R214	ADC_VOLT
A	100K	5.6K	07,15
B	100K	12K	16,25
C	100K	19.1K	26,34
D	100K	27K	35,43
E	100K	36K	44,53
F	100K	47K	54,60
H	100K	56K	61,70
1.0	100K	75K	71,83
1.1	100K	100K	84,97
1.2	100K	130K	98,AC
1.3	100K	180K	AD,C1
1.4	100K	240K	C2,D5
1.5	100K	360K	D6,EA
1.6	100K	560K	EB,F9
1.7	100K	1000K	FA,FF

[HYNIX MCP]
(512Mbit NAND FLASH + 512Mbit SDRAM)



[EAR JACK]



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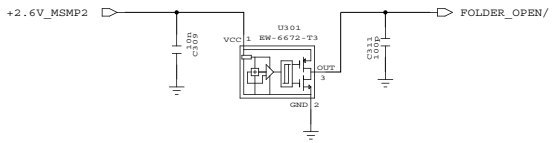

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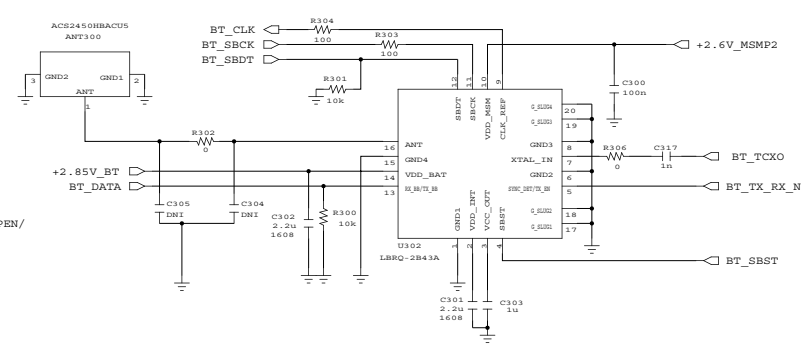
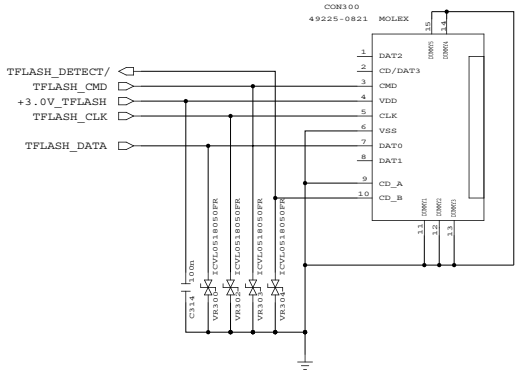


[Micro SD SOCKET]
(T-Flash)



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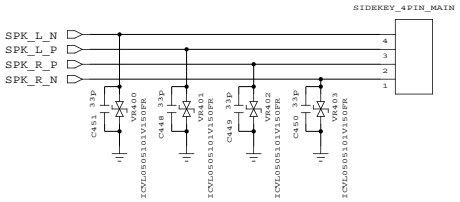
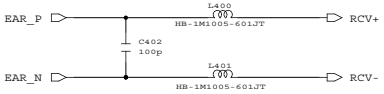


[RCV.]



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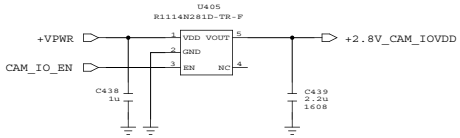
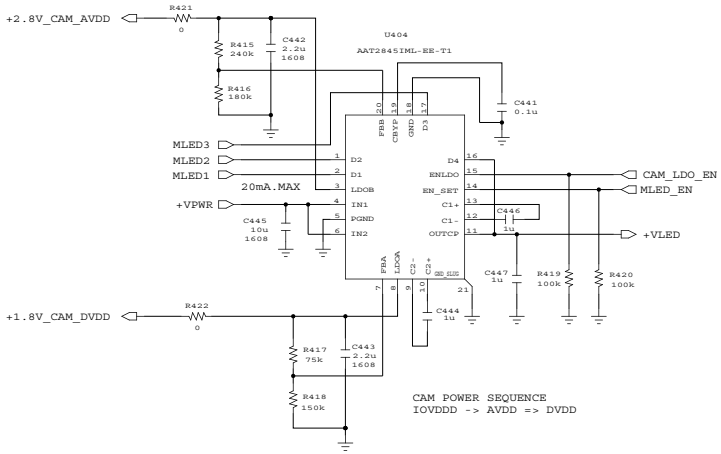


[LCD B/L CHARGE PUMP]



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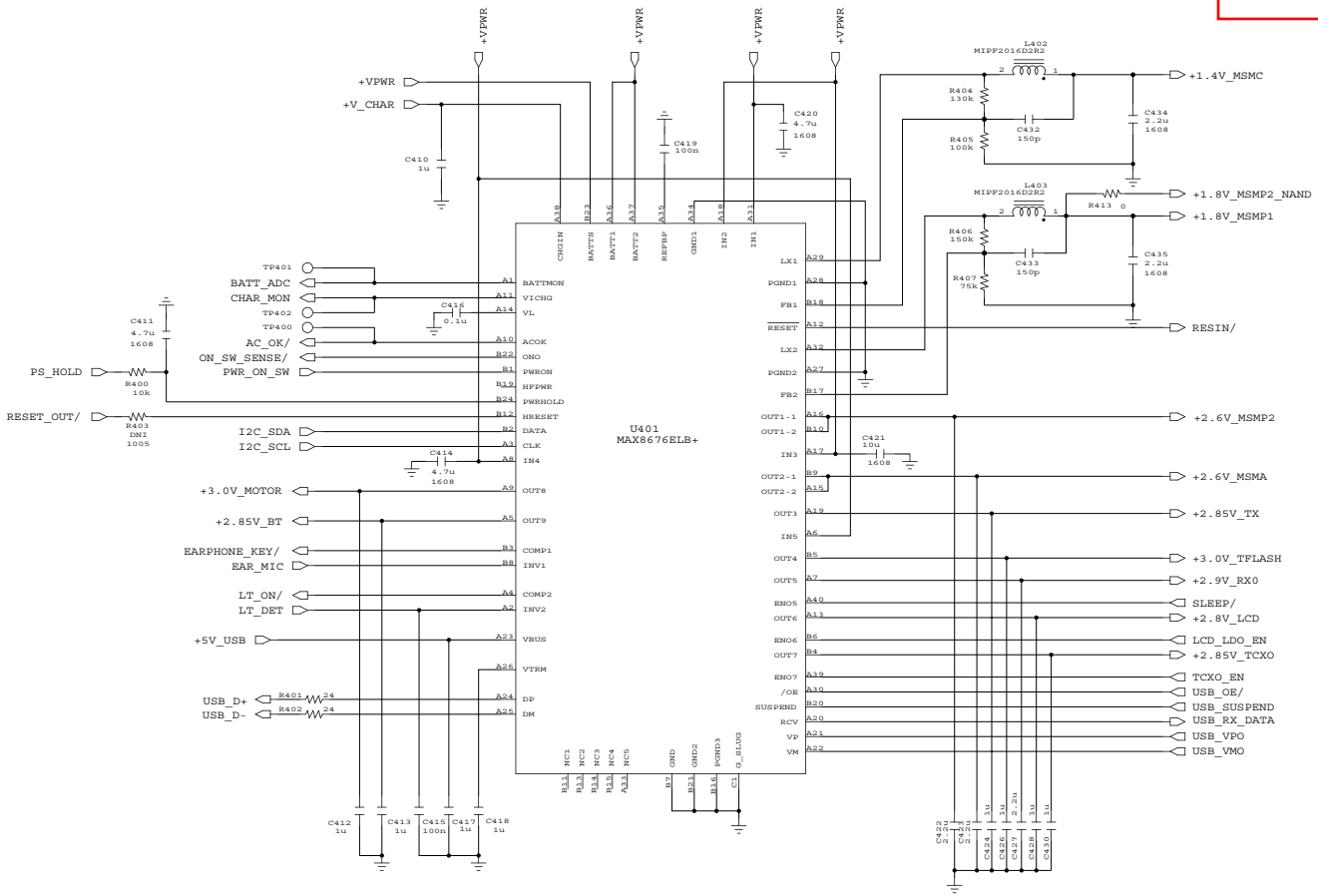

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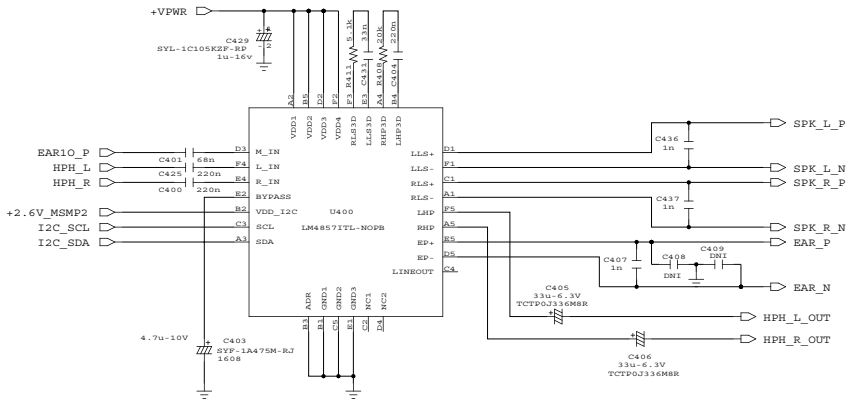
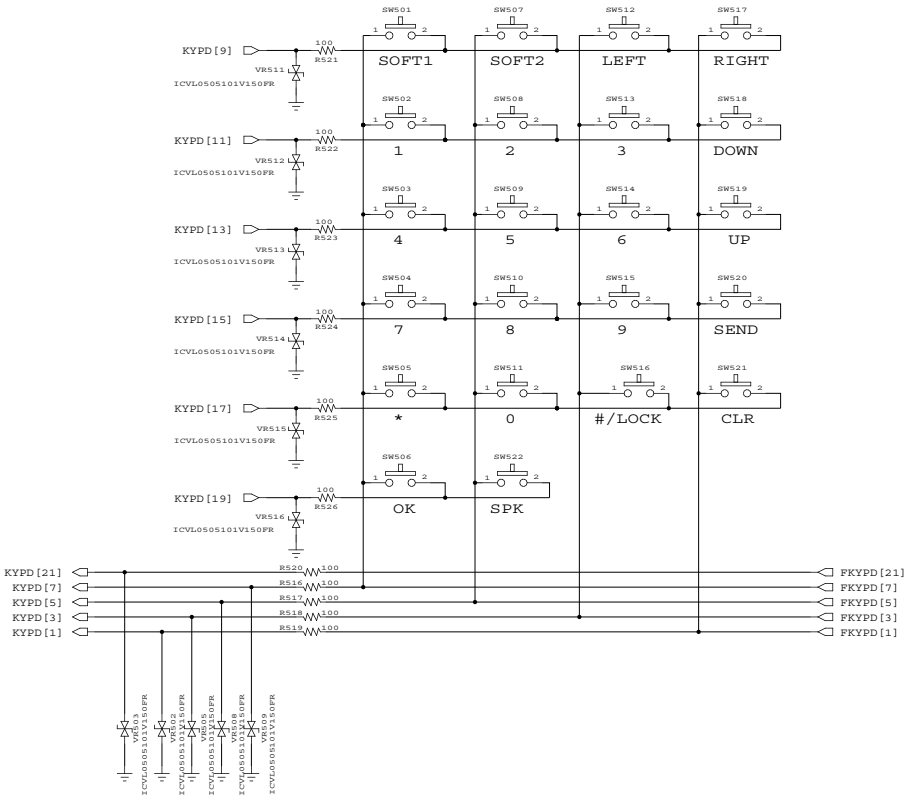


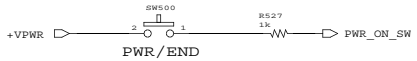
[MAIN KEY]



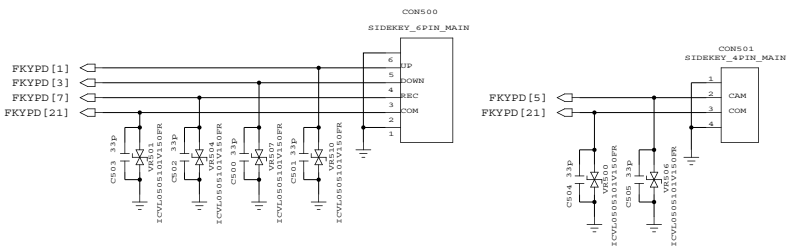
<KEY MATRIX>

	KEY07	KEY05	KEY03	KEY01
KEY09	SOFT1	SOFT2	LEFT	RIGHT
KEY11	1	2	3	DOWN
KEY13	4	5	6	UP
KEY15	7	8	9	SEND
KEY17	*	0	#	CLEAR
KEY19	OK	SPK		MOD
KEY21	REC(S)	CAM(S)	DOWN(S)	UP(S)

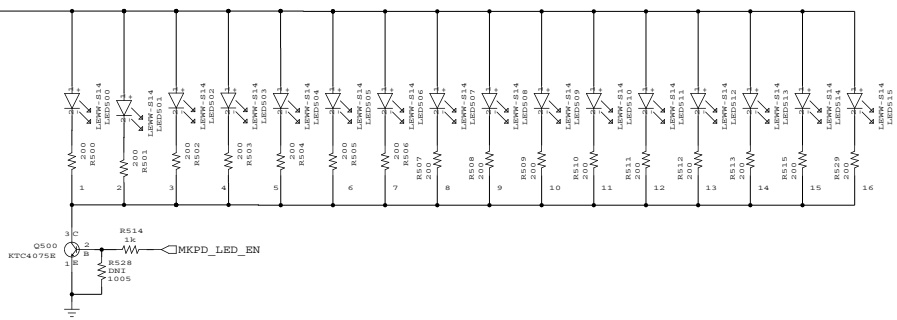
[POWER ON SWITCH]



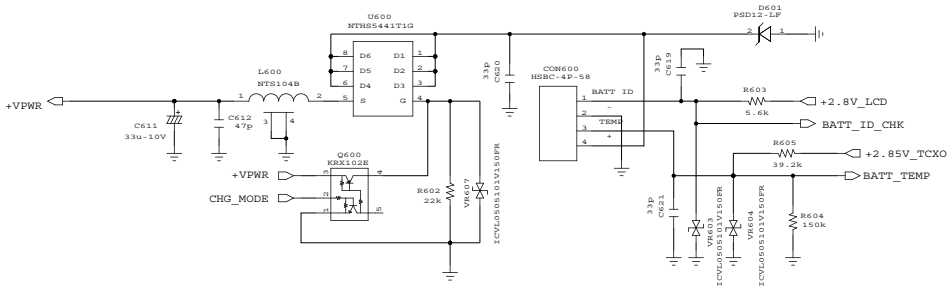
[SIDE KEY]



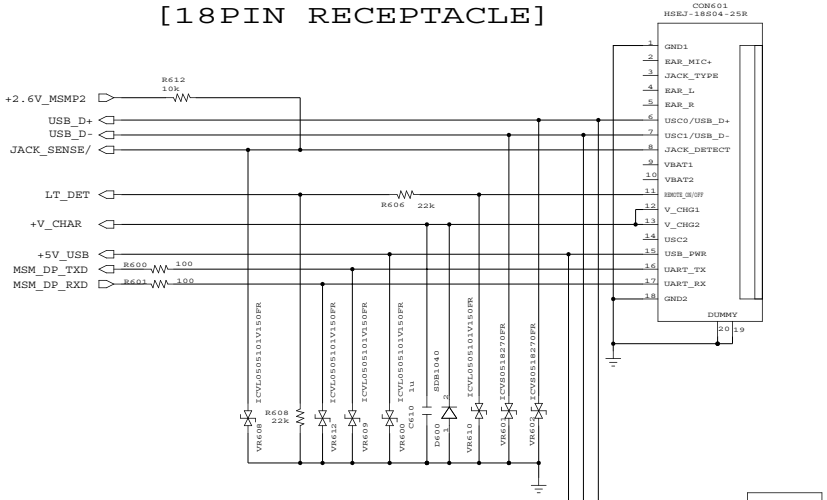
[KEYPAD BACKLIGHT]



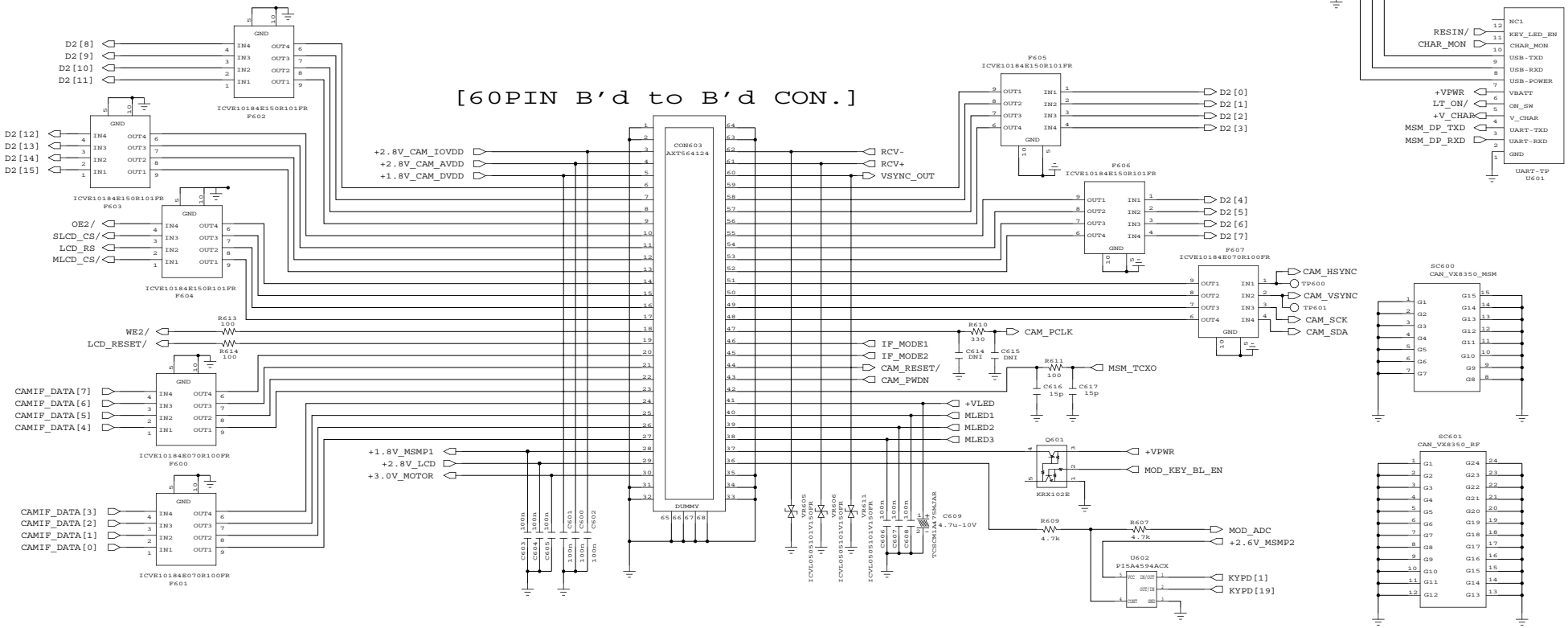
[BATTERY CONTACT]



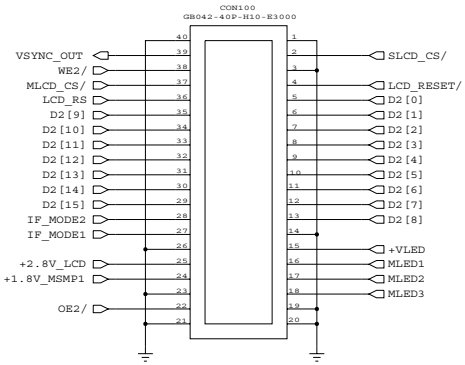
[18PIN RECEPTACLE]



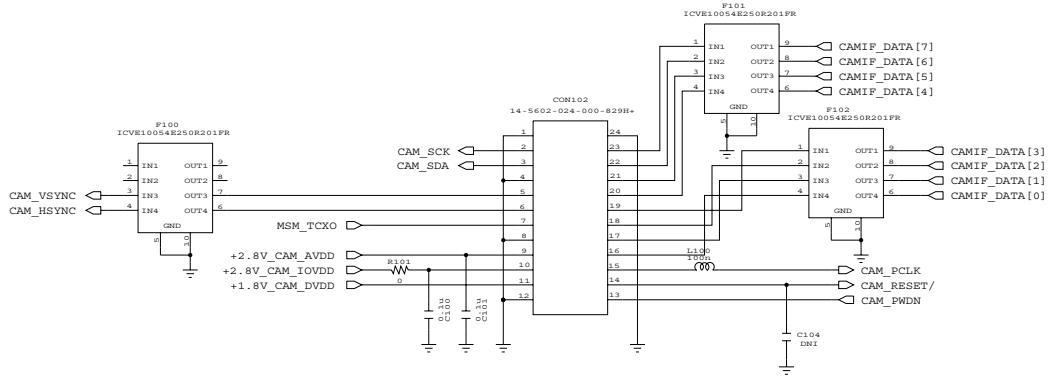
[60PIN B'd to B'd CON.]



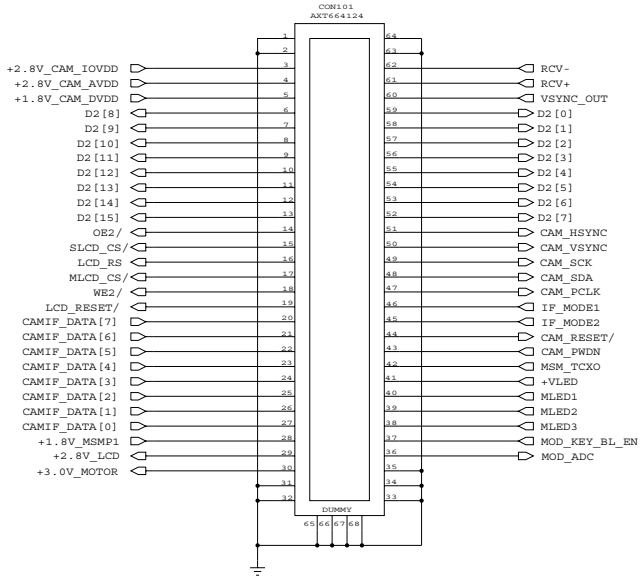
[LCD MODULE CON.]



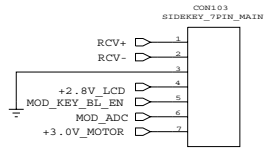
[CAM MODULE 24PIN CON.]



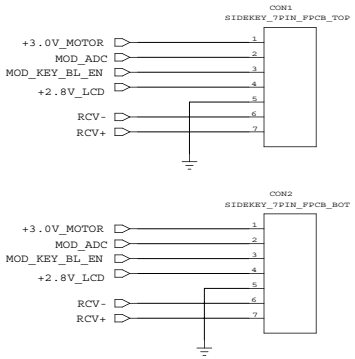
[MAIN B'd CON.]



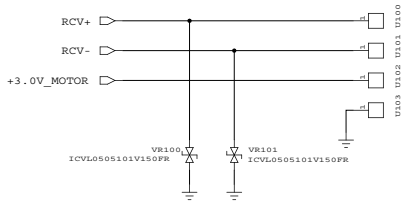
[MOD Conn.]



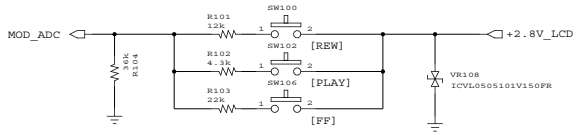
[MOD Conn.]

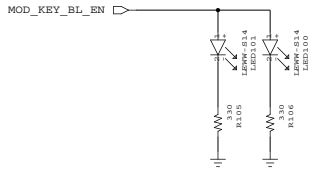


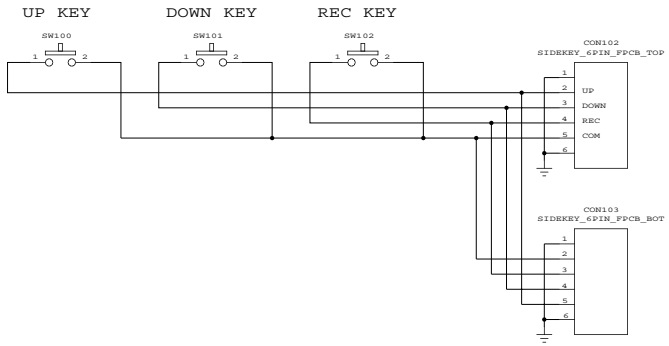
[RCV & MOTOR PAD]

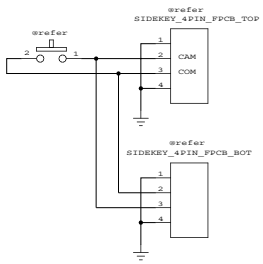


[MOD KEY & B/L]









3. Part List

Main PCB Component List

Ref No.	Part Decription	Part No.	Value	Part Name
MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	LG-VX6000
SAFC00	PCB ASSY, MAIN, SMT BOTTOM	SAFC0087001		
ANT300	ANTENNA,GSM,FIXED	SNGF0016101	, dBd, ,bluetooth chip antenna	ACS2450HBACU5
C100	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C101	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H010CT
C102	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C103	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C104	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C105	CAP,CERAMIC,CHIP	ECCH0000180	3.3 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	GRM36C0G3R3C50PT
C106	CAP,CERAMIC,CHIP	ECCH0000105	4 pF,50V,C,NP0,TC,1005,R/TP	MCH155A040C
C107	CAP,CERAMIC,CHIP	ECCH0000145	1.5 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN152KK
C108	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H560JT
C109	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C110	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C111	CAP,CERAMIC,CHIP	ECCH0000184	2.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	GRM36C0G2R7C50PT
C112	CAP,CERAMIC,CHIP	ECCH0001001	6.8 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	C1005COG1H6R8DT
C113	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C114	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C115	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J
C116	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C117	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C118	CAP,CERAMIC,CHIP	ECCH0001001	6.8 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	C1005COG1H6R8DT
C119	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP	MCH155A060DK
C120	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP	MCH155A060DK
C121	CAP,CHIP,MAKER	ECZH0000806	5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H050CT
C122	CAP,CHIP,MAKER	ECZH0000806	5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H050CT
C123	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP	C1608Y5V0J475ZT
C124	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP	C1608Y5V0J475ZT
C125	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C126	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C127	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C128	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H680JT
C129	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C130	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C131	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C132	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C133	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C134	CAP,CERAMIC,CHIP	ECCH0000149	3.3 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN332KK
C135	CAP,CERAMIC,CHIP	ECCH0000149	3.3 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN332KK
C136	CAP,CERAMIC,CHIP	ECCH0000137	330 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H331KT
C137	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H680JT
C138	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C139	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP	CL05A225MQ5NNNC
C140	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C141	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C142	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C143	CAP,TANTAL,CHIP	ECTH0004807	10 uF,10V ,M ,STD ,1608 ,R/TP ,; , ,[empty] ,[empty] , , -55TO+125C , ,[empty] ,[empty] ,[empty] ,[empty]	TCM1A106M8R
C144	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	MCH155A100D
C145	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C146	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C147	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP	MCH155A100D
C148	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C149	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C150	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP	C1005JB1A473KT
C151	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H560JT
C152	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H560JT

Ref No.	Part Decription	Part No.	Value	Part Name
C153	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C154	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C155	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C156	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C157	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C158	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP	MCH155A080DK
C159	CAP,CERAMIC,CHIP	ECCH0000145	1.5 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN152KK
C160	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP	GRM188R60J106ME47D
C161	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP	MCH155A060DK
C162	CAP,CHIP,MAKER	ECZH0001105	8200 pF,16V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1C822KT
C163	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C164	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C165	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C166	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C167	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C168	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C169	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C170	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C171	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP	GRM188R60J106ME47D
C172	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C173	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C174	CAP,CHIP,MAKER	ECZH0001511	2.2 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP	C1608Y5V1A225ZT
C175	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C176	CAP,CERAMIC,CHIP	ECCH0000133	220 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H221KT
C177	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C178	CAP,CHIP,MAKER	ECZH0001117	2700 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H272KT
C179	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C180	CAP,CHIP,MAKER	ECZH0001108	6800 pF,25V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1E682KT
C181	CAP,CHIP,MAKER	ECZH0001122	680 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H681KT
C182	CAP,CERAMIC,CHIP	ECCH0000137	330 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H331KT
C183	CAP,CERAMIC,CHIP	ECCH0000137	330 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H331KT
C184	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C185	CAP,CHIP,MAKER	ECZH0001106	4700 pF,25V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1E472KT
C186	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP	MCH155A220JK
C189	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C190	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP	C1608Y5V0J475ZT
C191	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP	MCH155A080DK
C200	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C201	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN333KK
C202	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C203	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H270JT
C204	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C205	CAP,CERAMIC,CHIP	ECCH0000105	4 pF,50V,C,NP0,TC,1005,R/TP	MCH155A040C
C206	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C207	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R223K16PT
C208	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R223K16PT
C209	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R223K16PT
C210	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R223K16PT
C211	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C212	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C213	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C214	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C215	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C216	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C217	CAP,CERAMIC,CHIP	ECCH0000157	15 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN153KK
C218	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C219	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP	MCH153C104ZK
C221	CAP,CERAMIC,CHIP	ECCH0000157	15 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN153KK
C222	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C223	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C224	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C225	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C226	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT

Ref No.	Part Decription	Part No.	Value	Part Name
C227	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C228	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C229	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C232	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN333KK
C233	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C235	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP	MCH153C104ZK
C236	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C237	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN333KK
C238	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C239	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP	MCH153C104ZK
C240	CAP,CHIP,MAKER	ECZH0001202	0.022 uF,16V ,Z ,Y5V ,HD ,1005 ,R/TP	C1005Y5V1C223ZT
C241	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C300	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C301	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10
C302	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10
C303	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP	GRM39X5R105K25PT
C306	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C307	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C308	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C310	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C312	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C314	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C317	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C318	CAP,TANTAL,CHIP	ECTH0004807	10 uF,10V ,M ,STD ,1608 ,R/TP ,; , ,[empty] ,[empty] , ,-55TO+125C , ,[empty] ,[empty] ,[empty] ,[empty]	TCM1A106M8R
C319	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP	C1005X7R1H471KT
C400	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A224KT
C401	CAP,CHIP,MAKER	ECZH0001206	0.068 uF,16V ,Z ,Y5V ,HD ,1005 ,R/TP	C1005Y5V1C683ZT
C403	CAP,TANTAL,CHIP	ECTH0002202	4.7 uF,10V ,M ,STD ,1608 ,R/TP	SYF-1A475M-RJ
C404	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A224KT
C405	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
C406	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
C410	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C411	CAP,CERAMIC,CHIP	ECCH0005704	4700000 pF,10V ,K ,X5R ,HD ,2012 ,R/TP	GRM40-052X5R475K10
C412	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C413	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C414	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP	C1608Y5V0J475ZT
C415	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C416	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R104K10PT
C417	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C418	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C419	CAP,CHIP,MAKER	ECZH0001403	0.1 uF,16V ,K ,X7R ,HD ,1608 ,R/TP	C1608X7R1C104KT
C420	CAP,CERAMIC,CHIP	ECCH0005704	4700000 pF,10V ,K ,X5R ,HD ,2012 ,R/TP	GRM40-052X5R475K10
C421	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP	GRM188R60J106ME47D
C422	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP	CL05A225MQ5NNNC
C423	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP	CL05A225MQ5NNNC
C424	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C425	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A224KT
C426	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C427	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP	CL05A225MQ5NNNC
C428	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C429	CAP,TANTAL,CHIP, MAKER	ECTZ0000714	1 uF,16V ,K ,L_ESR ,2012 ,R/TP	SYL-1C105KZF-RP
C430	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C431	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN333KK
C432	CAP,CERAMIC,CHIP	ECCH0000187	150 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	GRM36C0G151J50PT
C433	CAP,CERAMIC,CHIP	ECCH0000187	150 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	GRM36C0G151J50PT
C434	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10
C435	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP	GRM39X5R225K10

Ref No.	Part Decription	Part No.	Value	Part Name
C436	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C437	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C438	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP	GRM36Y5V105Z6.3PT
C439	CAP,CHIP,MAKER	ECZH0001511	2.2 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP	C1608Y5V1A225ZT
C441	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R104K10PT
C442	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP	GRM39X5R225K16
C443	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP	GRM39X5R225K16
C444	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C445	CAP,CERAMIC,CHIP	ECCH0005604	10 uF,6.3V ,M ,X5R ,TC ,1608 ,R/TP	GRM188R60J106ME47D
C446	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C447	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C448	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C449	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C450	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C451	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C504	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C505	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C610	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP	C1005X5R1A105KT
C611	CAP,TANTAL,CHIP	ECTH0005103	33 uF,10V ,M ,L_ESR ,3216 ,R/TP	TCSHS1A336MAAR
C612	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP	MCH155A470JK
C619	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C620	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C621	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
CON300	CONN,SOCKET	ENSY0014701	8 PIN,ETC , ,1.1 mm,H=1.95, Reverse	49225-0821
CON301	CONN,JACK/PLUG, EARPHONE	ENJE0006101	3 ,4 PIN, ,; ,[empty] ,[empty] ,STRAIGHT ,P/TR , ,[empty] ,	KJA-PH-0-0140
CON601	CONNECTOR,I/O	ENRY0006401	18 PIN,0.4 mm,ANGLE , ,H=2.5, Reverse Type	HSEJ-18S04-25R
D600	DIODE,SWITCHING	EDSY0017701	SOD-123 ,40 V,1 A,R/TP , ,; , , , , , , ,[empty] ,[empty] ,2P ,1	SDB1040
D601	DIODE,TVS	EDTY0008602	SOD-323 ,13.3 V,400 W,R/TP ,PB-FREE	PSD12-LF
DP100	DUPLEXER,DCN	SDDY0004101	836.5 MHz,881.5 MHz,2.0 dB,2.7 dB,49 dB,61 dB, 3.0*2.5*1.25 ,SMD ,	B7637
DP101	DUPLEXER,PCS	SDPY0002902	1880 MHz,1960 MHz,3.8 dB,3.5 dB,43 dB,52 dB, 3.8*3.8*1.4 ,SMD ,FBAR	ACMD-7402-TR1G
F100	FILTER,SAW	SFSY0018301	1575.42 MHz,2.0*1.4*0.78 ,SMD ,	B7840
F101	FILTER,SAW	SFSY0018201	881.5 MHz,2.0*1.4*0.78 ,SMD ,	B7838
F102	FILTER,SAW	SFSY0024901	1960 MHz,2.0*1.4*0.68 ,SMD ,5pin, Unbal-Bal, 50/100, B7834 Low Loss ver.	B7847
F103	FILTER,SAW	SFSY0020101	1880 MHz,2.0*1.6*0.8 ,SMD ,	B9014
F104	FILTER,SAW	SFSY0018101	836.5 MHz,2.0*1.6*0.68 ,SMD ,	B9003
F105	FILTER,SEPERATOR, SP3T	SFAD0000502	859 MHz,70 MHz,0.8 dB,20 dB,20 dB,42 dB,15 dB, 1575.42 MHz,2 MHz,1.8 dB,42 dB,42 dB,12 dB,12 dB,1920 MHz,140 MHz,0.85 dB,15 dB,20 dB,20 dB,42 dB,SMD ,ETC ,3.2*3.2, D1034 mirror type, LTCC	D1043
L100	INDUCTOR,CHIP	ELCH0004710	15 nH,J ,1005 ,R/TP ,	1005GC2T15NJ00
L101	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,	1005GC2TR10J00
L102	INDUCTOR,CHIP	ELCH0004722	47 nH,J ,1005 ,R/TP ,	1005GC2T47NJ00
L104	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,	1005GC2T27NJ00
L106	INDUCTOR,CHIP	ELCH0004705	8.2 nH,J ,1005 ,R/TP ,	1005GC2T8N2J00
L107	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,	1005GC2T4N7S00
L109	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,	1005GC2T4N7S00
L111	INDUCTOR,CHIP	ELCH0004713	6.8 nH,J ,1005 ,R/TP ,	1005GC2T6N8J00
L114	INDUCTOR,CHIP	ELCH0004712	3.9 nH,S ,1005 ,R/TP ,	1005GC2T3N9S00
L115	INDUCTOR,CHIP	ELCH0004712	3.9 nH,S ,1005 ,R/TP ,	1005GC2T3N9S00
L116	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,	1005GC2T2N2S00
L117	INDUCTOR,CHIP	ELCH0004706	10 nH,J ,1005 ,R/TP ,	1005GC2T10NJ00
L118	INDUCTOR,CHIP	ELCH0004717	82 nH,J ,1005 ,R/TP ,	1005GC2T82NJ00
L119	INDUCTOR,CHIP	ELCH0004715	27 nH,J ,1005 ,R/TP ,	1005GC2T27NJ00
L120	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,	1005GC2T2N2S00
L121	INDUCTOR,CHIP	ELCH0004722	47 nH,J ,1005 ,R/TP ,	1005GC2T47NJ00
L122	INDUCTOR,CHIP	ELCH0004706	10 nH,J ,1005 ,R/TP ,	1005GC2T10NJ00
L123	INDUCTOR,CHIP	ELCH0004730	33 nH,J ,1005 ,R/TP ,	1005GC2T33NJ00
L124	INDUCTOR,CHIP	ELCH0004709	3.3 nH,S ,1005 ,R/TP ,	1005GC2T3N3S00
L126	INDUCTOR,CHIP	ELCH0004730	33 nH,J ,1005 ,R/TP ,	1005GC2T33NJ00

Ref No.	Part Decription	Part No.	Value	Part Name
L127	INDUCTOR,CHIP	ELCH0010401	2.2 uH,M ,1005 ,R/TP ,	LK10052R2K-T
L128	INDUCTOR,CHIP	ELCH0004718	5.6 nH,S ,1005 ,R/TP ,	1005GC2T5N6S00
L130	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,	1005GC2T4N7S00
L132	INDUCTOR,CHIP	ELCH0004709	3.3 nH,S ,1005 ,R/TP ,	1005GC2T3N3S00
L135	INDUCTOR,CHIP	ELCH0001048	10 nH,J ,1005 ,R/TP ,PBFREE	1005GC2T10NJLF
L136	INDUCTOR,CHIP	ELCH0004710	15 nH,J ,1005 ,R/TP ,	1005GC2T15NJ00
L137	INDUCTOR,CHIP	ELCH0004720	1.2 nH,S ,1005 ,R/TP ,	1005GC2T1N2S00
L402	INDUCTOR,SMD, POWER	ELCP0010001	2.2 uH,M ,2.5x2.0x1.0 ,R/TP ,chip MLCI ,; , ,20% , , , , , , NON SHIELD ,2.5X2X1MM ,[empty] ,R/TP	MIP2016D2R2M
L403	INDUCTOR,SMD, POWER	ELCP0010001	2.2 uH,M ,2.5x2.0x1.0 ,R/TP ,chip MLCI ,; , ,20% , , , , , , NON SHIELD ,2.5X2X1MM ,[empty] ,R/TP	MIP2016D2R2M
L600	FILTER,EMI/POWER	SFEY0006001	SMD ,	NTS104B
Q100	IC	EUSY0073401	SSOP5-P-0.65A ,5 PIN,R/TP ,INVERTER, Pb Free	TC7SH04FU
Q500	TR,BJT,NPN	EQBN0007601	SOT-23 ,0.15 W,R/TP ,EMT3	KTC4075E
Q600	TR,BJT,ARRAY	EQBA0000602	TESV ,200 mW,R/TP ,EPITAXIAL PLANAR NPN/PNP TRANSISTOR	KRX102E
Q601	TR,BJT,ARRAY	EQBA0000602	TESV ,200 mW,R/TP ,EPITAXIAL PLANAR NPN/PNP TRANSISTOR	KRX102E
R100	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R101	RES,CHIP,MAKER	ERHZ0000291	49.9 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF49R9
R102	RES,CHIP,MAKER	ERHZ0000522	24 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJX240
R103	RES,CHIP,MAKER	ERHZ0000412	1200 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZP5J122
R104	RES,CHIP,MAKER	ERHZ0000447	240 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ241
R105	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R106	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ510
R107	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ104
R108	RES,CHIP,MAKER	ERHZ0003203	11.3 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1132
R109	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ510
R110	RES,CHIP,MAKER	ERHZ0000299	5600 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF5601
R111	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF10R0
R112	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1003
R113	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R114	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ100
R115	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1002
R116	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ100
R117	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF10R0
R118	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ100
R119	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2002
R120	RES,CHIP,MAKER	ERHZ0000328	24000 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2402
R121	RES,CHIP,MAKER	ERHZ0003203	11.3 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1132
R122	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1001
R123	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R124	RES,CHIP,MAKER	ERHZ0000220	1500 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1501
R125	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1001
R126	RES,CHIP,MAKER	ERHZ0000291	49.9 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF49R9
R127	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R128	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF10R0
R129	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF10R0
R130	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R200	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ105
R201	RES,CHIP,MAKER	ERHZ0000236	2000 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2001
R202	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1001
R203	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R204	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R205	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R206	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R208	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R209	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ510
R210	RES,CHIP,MAKER	ERHZ0000494	510 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ514
R211	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R212	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1003
R213	RES,CHIP,MAKER	ERHZ0000433	180 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ184
R214	RES,CHIP,MAKER	ERHZ0000315	75 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF7502

Ref No.	Part Decription	Part No.	Value	Part Name
R215	RES,CHIP,MAKER	ERHZ0000433	180 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ184
R216	RES,CHIP,MAKER	ERHZ0000281	39.2 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF3922
R217	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R218	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R219	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R220	RES,CHIP,MAKER	ERHZ0000243	2200 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2201
R221	THERMISTOR	SETY0001401	NTC ,68 Kohm,SMD ,	NCP18WD683E03RB
R222	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1503
R223	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R300	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R301	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R302	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R303	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R304	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R305	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R306	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R308	RES,CHIP,MAKER	ERHZ0000437	2 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ202
R400	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
R401	RES,CHIP,MAKER	ERHZ0000325	24 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF24R0
R402	RES,CHIP,MAKER	ERHZ0000325	24 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF24R0
R404	RES,CHIP,MAKER	ERHZ0000217	130 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1303
R405	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1003
R406	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1503
R407	RES,CHIP,MAKER	ERHZ0000315	75 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF7502
R408	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2002
R411	RES,CHIP,MAKER	ERHZ0000294	5100 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF5101
R413	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R415	RES,CHIP,MAKER	ERHZ0000252	240 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2403
R416	RES,CHIP,MAKER	ERHZ0000231	180 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1803
R417	RES,CHIP,MAKER	ERHZ0000315	75 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF7502
R418	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1503
R419	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ104
R420	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ104
R421	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R422	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
R514	RES,CHIP	ERHY0003201	1000 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1001
R600	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R601	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R602	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ223
R603	RES,CHIP,MAKER	ERHZ0000499	5600 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ562
R604	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1503
R605	RES,CHIP,MAKER	ERHZ0000281	39.2 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF3922
R606	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2202
R608	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2202
R612	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ103
SC600	FRAME,SHIELD	MFEA0014901	PRESS, NS, , , , ,	MFEA0014901
SC601	FRAME,SHIELD	MFEA0014801	PRESS, NS, 0.2, , , ,	MFEA0014801
U100	CONN,RF SWITCH	ENWY0004601	,SMD , dB,H=2.8, Angle type	RF-650
U101	COUPLER,RF DIRECTIONAL	SCDY0003402	-20 dB,-0.25 dB,-35 dB,1.0*0.58*0.35 ,SMD , 1850M ~ 1910M, 4pin, Pb Free	CP0402A1880ENTR
U102	IC	EUSY0186102	4-bump Micro SMD ,4 PIN,R/TP ,RF Power Detector for CDMA and WCDMA , -15 to +15dBm	LMV228TLX-NOPB
U103	PAM	SMPY0013901	28 dBm,39 %,16 mA,-50 dBc,27 dB,3x3x1 ,SMD ,	AWT6308R
U104	PAM	SMPY0014601	28 dBm,20 %, A,-47 dBc,17 dB,3x3x1 ,SMD , High Eff ,; ,8 , , , , , , ,SMT ,P/TP ,	AWT6307R
U105	TR,FET,P-CHANNEL	EQFP0003501	SC70JW-8 ,714 mW,6 V,2.3 A,R/TP , Slew Rate Controlled Load Switch	AAT4280IJS-3-TI
U106	IC	EUSY0257701	QFN ,56 PIN,R/TP ,No-lead, Dual RF Receiver IC	RFR6500
U107	IC	EUSY0257801	QFN ,32 PIN,R/TP ,No-lead, RF transmitter IC	RFT6150
U108	IC	EUSY0265501	2.0*2.0*1.1 ,6 PIN,R/TP ,LNA with Shutdown function	ALM-1106-TR1
U109	COUPLER,RF DIRECTIONAL	SCDY0003401	-22 dB,-0.2 dB,-37 dB,1.0*0.58*0.35 ,SMD ,824M ~ 849M, 4pin, Pb Free	CP0402A0836BNTR

Ref No.	Part Decription	Part No.	Value	Part Name
U200	IC	EUSY0170903	BGACSP ,409 PIN,R/TP ,MSM6500 90nm process, CDMA EVDO	MSM6500 90NM
U202	IC	EUSY0077301	SC70-6 ,6 PIN,R/TP ,SPDT Analog switch	NLAST4599DFT2G
U300	IC	EUSY0331001	FBGA ,149 PIN,ETC ,FULLY 1.8V 512M(64Mx8) NAND+512M(32Mx16) SDRAM , ,IC,MCP	HYG0SEG0AF1P-6SH0E
U302	MODULE,ETC	SMZY0012601	4.5x3.2x1.2 Bluetooth RF Module	LBRQ-2B43A
U400	IC	EUSY0194501	Micro SMD ,30 BUMP,R/TP ,Stereo 1.2W Audio Subsystem w/ 3D Enhancement	LM4857ITL NOPB
U401	IC	EUSY0317701	Dual Row LGA ,64 PIN,R/TP ,PMIC, 2buck, 9LDO, 2comp.,28V OVP	MAX8676
U404	IC	EUSY0238305	QFN ,20 PIN,R/TP ,4Ch+2LDO,3X4	AAT2845IML-EE-T1
U405	IC	EUSY0232802	sot 23-5 ,5 PIN,R/TP ,2.8V,150mA LDO	R1114N281D-TR-F
U600	TR,FET,P-CHANNEL	EQFP0006301	chipFET ,1.3 W,-20 V,3.9 A,R/TP ,8 PIN (Pb-free)	NTHS5441T1G
VR201	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005	ICVN0505X150FR
VR300	VARISTOR	SEVY0005101	18 V, ,SMD ,5pF, 1005	ICVL0518050FR
VR301	VARISTOR	SEVY0005101	18 V, ,SMD ,5pF, 1005	ICVL0518050FR
VR302	VARISTOR	SEVY0005101	18 V, ,SMD ,5pF, 1005	ICVL0518050FR
VR303	VARISTOR	SEVY0005101	18 V, ,SMD ,5pF, 1005	ICVL0518050FR
VR304	VARISTOR	SEVY0005101	18 V, ,SMD ,5pF, 1005	ICVL0518050FR
VR305	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR306	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR400	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR401	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR402	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR403	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR600	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR601	VARISTOR	SEVY0005403	18 V,30% ,SMD ,27pF,1005	ICVS0518270FR
VR602	VARISTOR	SEVY0005403	18 V,30% ,SMD ,27pF,1005	ICVS0518270FR
VR603	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR604	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR607	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR608	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR609	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR610	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR612	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
X100	VCTCXO	EXSK0004802	19.2 MHz,1.5 PPM,10 pF,SMD ,3.2*2.5*1.2 , ,; ,19.2 Mhz , 1.5PPM ,2.8V ,3.2 ,2.5 ,1.2 , ,SMD ,P/TP	ERF3003E
X200	RESONATOR	EXRY0002401	48 MHz,.5 %,14 pF,SMD ,2.0*1.2*0.65 ,Outgoing Tolerance 0.2%, 0.05% at -40'C ~ +85C, Built-In Cap	ICRT20S48M0X514CR
X201	X-TAL	EXXY0016601	32.768 KHz,20 PPM,9 pF,65 Kohm,SMD ,4.9*1.8*0.9 ,	FC-255(9PF,±20PPM)
SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0086101		
C309	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP	MCH153CN103KK
C311	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C402	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H101JT
C407	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP	MCH155CN102KK
C500	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C501	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C502	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C503	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP	C1005C0G1H330JT
C600	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C601	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C602	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C603	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C604	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C605	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C606	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C607	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C608	CAP,CERAMIC,CHIP	ECCH0002001	100000 pF,6.3V ,K ,B ,HD ,1005 ,R/TP	C1005JB0J104KT
C609	CAP,TANTAL,CHIP	ECTH0003704	4.7 uF,10V ,M ,STD ,1608 ,R/TP	TCSCM1A475MJAR
C616	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J
C617	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP	MCH155C150J

Ref No.	Part Decription	Part No.	Value	Part Name
CON603	CONNECTOR, BOARD TO BOARD	ENBY0042101	64 PIN, mm,STRAIGHT , , ,; , ,0.40MM ,STRAIGHT , FEMALE ,SMD ,P/TR , ,	AXT564124
F600	FILTER,EMI/POWER	SFEY0011701	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (10 Ohm,7.5pF)	ICVE10184E070R100FR
F601	FILTER,EMI/POWER	SFEY0011701	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (10 Ohm,7.5pF)	ICVE10184E070R100FR
F602	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free	ICVE10184E150R101FR
F603	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free	ICVE10184E150R101FR
F604	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free	ICVE10184E150R101FR
F605	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free	ICVE10184E150R101FR
F606	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free	ICVE10184E150R101FR
F607	FILTER,EMI/POWER	SFEY0011701	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (10 Ohm,7.5pF)	ICVE10184E070R100FR
L400	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,	HB-1M1005-601JT
L401	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,	HB-1M1005-601JT
LED500	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED501	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED502	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED503	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED504	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED505	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED506	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED507	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED508	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED509	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED510	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED511	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED512	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED513	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED514	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
LED515	DIODE,LED,CHIP	EDLH0005901	White ,1608 ,R/TP ,White LED	LEWW-S14
R500	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R501	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R502	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R503	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R504	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R505	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R506	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R507	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R508	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R509	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R510	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R511	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R512	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R513	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R515	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R516	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R517	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R518	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R519	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R520	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R521	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R522	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R523	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R524	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R525	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R526	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R527	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ102
R529	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP	MCR01MZSJ201
R607	RES,CHIP,MAKER	ERHZ0000286	4700 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF4701
R609	RES,CHIP,MAKER	ERHZ0000286	4700 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF4701

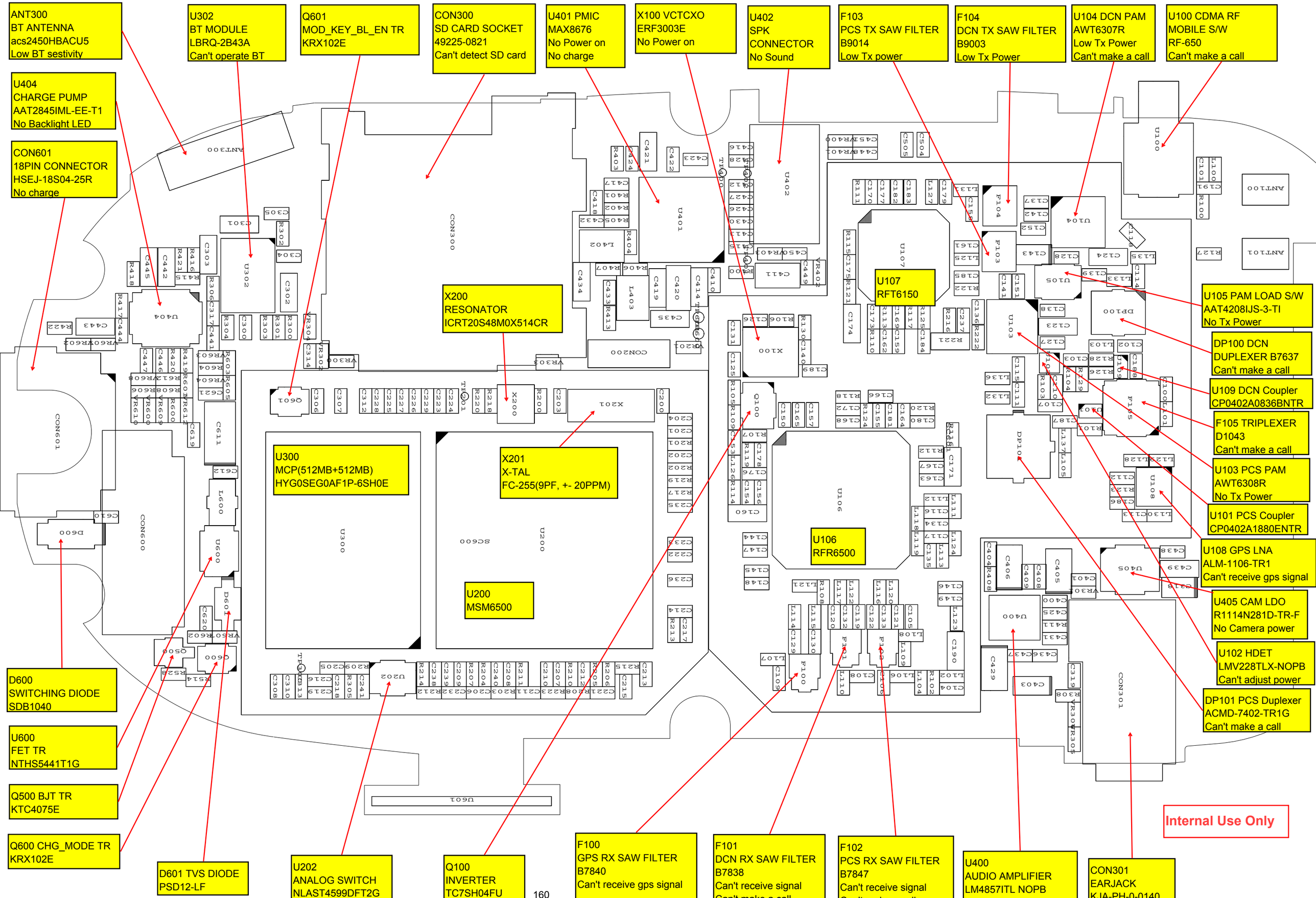
Ref No.	Part Decription	Part No.	Value	Part Name
R610	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ331
R611	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1000
R613	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
R614	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ101
SPFY00	PCB,MAIN	SPFY0145701	FR-4 ,0.8 mm,STAGGERED-8 , Via Type:12-23-27-56-78-18 ,; , , , , , , , , ,	SPFY0145701
U301	IC	EUSY0194002	3.1x3.0x1.0 ,3 PIN,R/TP ,Ultra-Sensitive Hall Switch, Pb Free	EW-6672-T3
U602	IC	EUSY0140101	SC70-5 ,5 PIN,R/TP ,8-Ohm SPST CMOS Analog Switches, Pb Free	PI5A4594ACEX
VR200	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR202	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR500	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR501	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR502	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR503	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR504	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR505	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR506	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR507	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR508	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR509	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR510	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR511	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR512	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR513	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR514	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR515	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR516	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR605	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR606	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR611	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
WSYY00	SOFTWARE	WSYY0496501	VX835V02, 01, 2007/07/04-10:28:00:000	

Internal Use Only

FPCB Component List

Ref No.	Part Decription	Part No.	Value	Part Name
SACE00	PCB ASSY,FLEXIBLE, SMT	SACE0052601		SACE0052601
SACD00	PCB ASSY,FLEXIBLE, SMT TOP	SACD0042901		
LED100	DIODE,LED,CHIP	EDLH0012902	SNOWWHITE ,1608 ,R/TP , ,; ,[empty] ,2.85~3.25 , 5mA , , ,65mW ,[empty] ,[empty] ,2P	LESWS14IG
LED101	DIODE,LED,CHIP	EDLH0012902	SNOWWHITE ,1608 ,R/TP , ,; ,[empty] ,2.85~3.25 , 5mA , , ,65mW ,[empty] ,[empty] ,2P	LESWS14IG
R101	RES,CHIP,MAKER	ERHZ0000212	12 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF1202
R102	RES,CHIP,MAKER	ERHZ0000282	4300 ohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF4301
R103	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF2202
R104	RES,CHIP,MAKER	ERHZ0000274	36 Kohm,1/16W ,F ,1005 ,R/TP	MCR01MZSF3602
R105	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ331
R106	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ331
VR100	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR101	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
VR108	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005	ICVL0505101V150FR
SPCY00	PCB,FLEXIBLE	SPCY0102003	POLYI ,0.18 mm,DOUBLE ,F-MOD KEY ,; , , , , , , , , ,	SPCY0102003
SACE01	PCB ASSY,FLEXIBLE, SMT	SACE0053401		SACE0053401
SACC00	PCB ASSY,FLEXIBLE, SMT BOTTOM	SACC0032701		
CON100	CONNECTOR, BOARD TO BOARD	ENBY0035901	40 PIN,0.4 mm,ETC , ,H=1.0, Plug	GB042-40P-H10-E3000
CON102	CONNECTOR, BOARD TO BOARD	ENBY0019101	24 PIN,0.4 mm,STRAIGHT , ,H1.5, MALE	14-5602-024-000-829H+
F100	FILTER,EMI/POWER	SFEY0012501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (200 Ohm,25pF)	ICVE10054E250R201FR
F101	FILTER,EMI/POWER	SFEY0012501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (200 Ohm,25pF)	ICVE10054E250R201FR
F102	FILTER,EMI/POWER	SFEY0012501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (200 Ohm,25pF)	ICVE10054E250R201FR
SACD00	PCB ASSY,FLEXIBLE, SMT TOP	SACD0043601		
C100	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R104K10PT
C101	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP	GRM36X5R104K10PT
CON101	CONNECTOR, BOARD TO BOARD	ENBY0042201	64 PIN, mm,STRAIGHT , , ,; , ,0.40MM ,STRAIGHT , MALE ,SMD ,P/TR , ,	AXT664124
L100	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,	1005GC2TR10J00
R101	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP	MCR01MZSJ000
SPCY00	PCB,FLEXIBLE	SPCY0098801	POLYI ,0.4 mm,MULTI-4 ,SUB FPCB ,; , , , , , , , , ,	

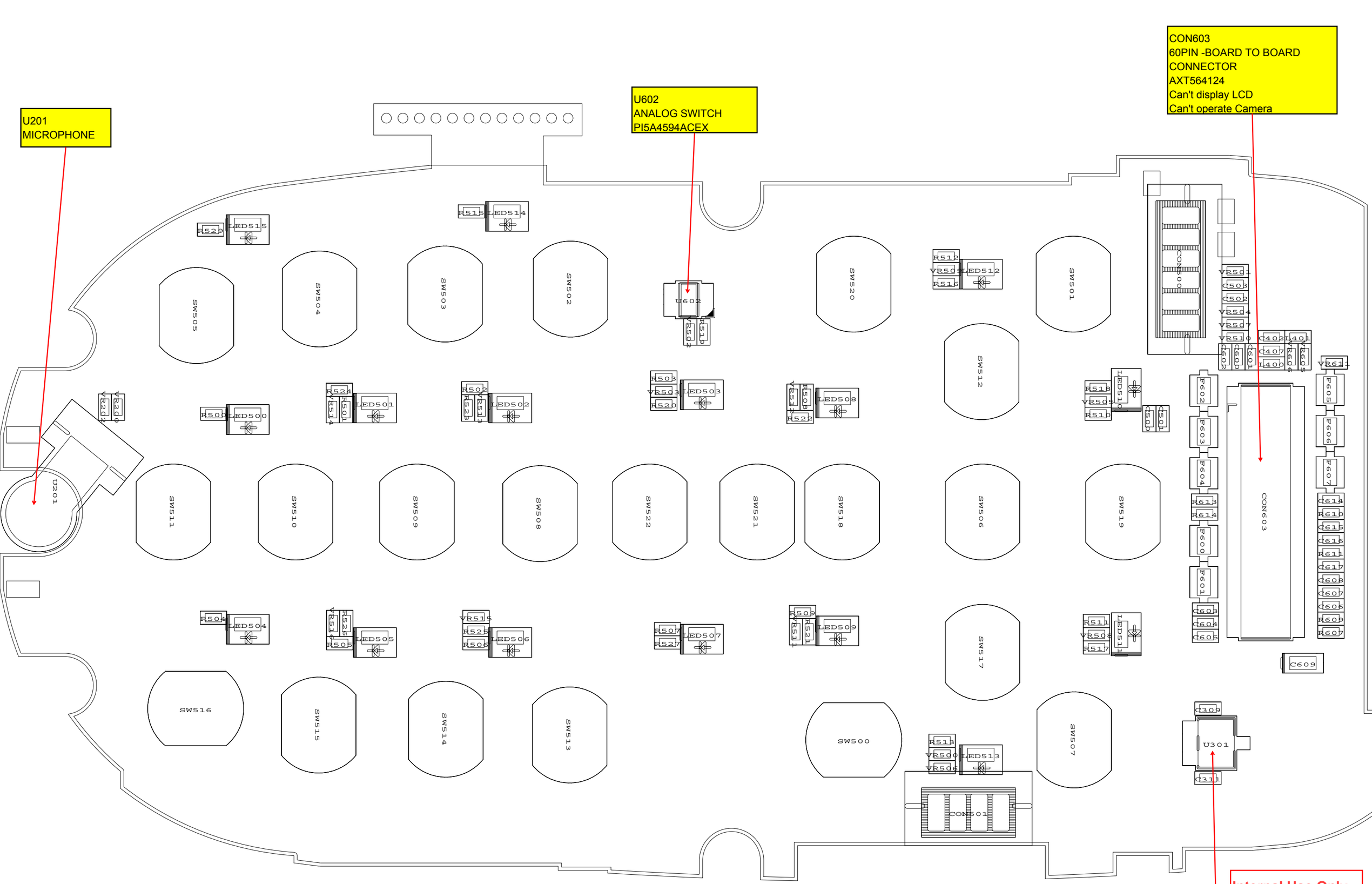
4. Components Layout


ANT300
BT ANTENNA
acs2450HBACU5
Low BT sestivity
U302
BT MODULE
LBRQ-2B43A
Can't operate BT
Q601
MOD_KEY_BL_EN TR
KRX102E
CON300
SD CARD SOCKET
49225-0821
Can't detect SD card
U401 PMIC
MAX8676
No Power on
No charge
X100 VCTCXO
ERF3003E
No Power on
U402
SPK
CONNECTOR
No Sound
F103
PCS TX SAW FILTER
B9014
Low Tx power
F104
DCN TX SAW FILTER
B9003
Low Tx Power
U104 DCN PAM
AWT6307R
Low Tx Power
Can't make a call
U100 CDMA RF
MOBILE S/W
RF-650
Can't make a call
U404
CHARGE PUMP
AAT2845IML-EE-T1
No Backlight LED
CON601
18PIN CONNECTOR
HSEJ-18S04-25R
No charge
U107
RFT6150
U105 PAM LOAD S/W
AAT4208IJS-3-TI
No Tx Power
DP100 DCN
DUPLEXER B7637
Can't make a call
U109 DCN Coupler
CP0402A0836BNTR
F105 TRIPLEXER
D1043
Can't make a call
U103 PCS PAM
AWT6308R
No Tx Power
U101 PCS Coupler
CP0402A1880ENTR
X200
RESONATOR
ICRT20S48M0X514CR
U108 GPS LNA
ALM-1106-TR1
Can't receive gps signal
U405 CAM LDO
R1114N281D-TR-F
No Camera power
U102 HDET
LMV228TLX-NOPB
Can't adjust power
DP101 PCS Duplexer
ACMD-7402-TR1G
Can't make a call
U300
MCP(512MB+512MB)
HYG0SEG0AF1P-6SH0E
X201
X-TAL
FC-255(9PF, +- 20PPM)
U200
MSM6500
U106
RFR6500
D600
SWITCHING DIODE
SDB1040
U600
FET TR
NTHS5441T1G
Q500 BJT TR
KTC4075E
Q600 CHG_MODE TR
KRX102E
D601 TVS DIODE
PSD12-LF
U202
ANALOG SWITCH
NLAST4599DFT2G
Q100
INVERTER
TC7SH04FU
F100
GPS RX SAW FILTER
B7840
Can't receive gps signal
F101
DCN RX SAW FILTER
B7838
Can't receive signal
Can't make a call
F102
PCS RX SAW FILTER
B7847
Can't receive signal
Can't make a call
U400
AUDIO AMPLIFIER
LM4857ITL NOPB
No Sound
CON301
EARJACK
KJA-PH-0-0140
Internal Use Only

U201
MICROPHONE

U602
ANALOG SWITCH
PI5A4594ACEX

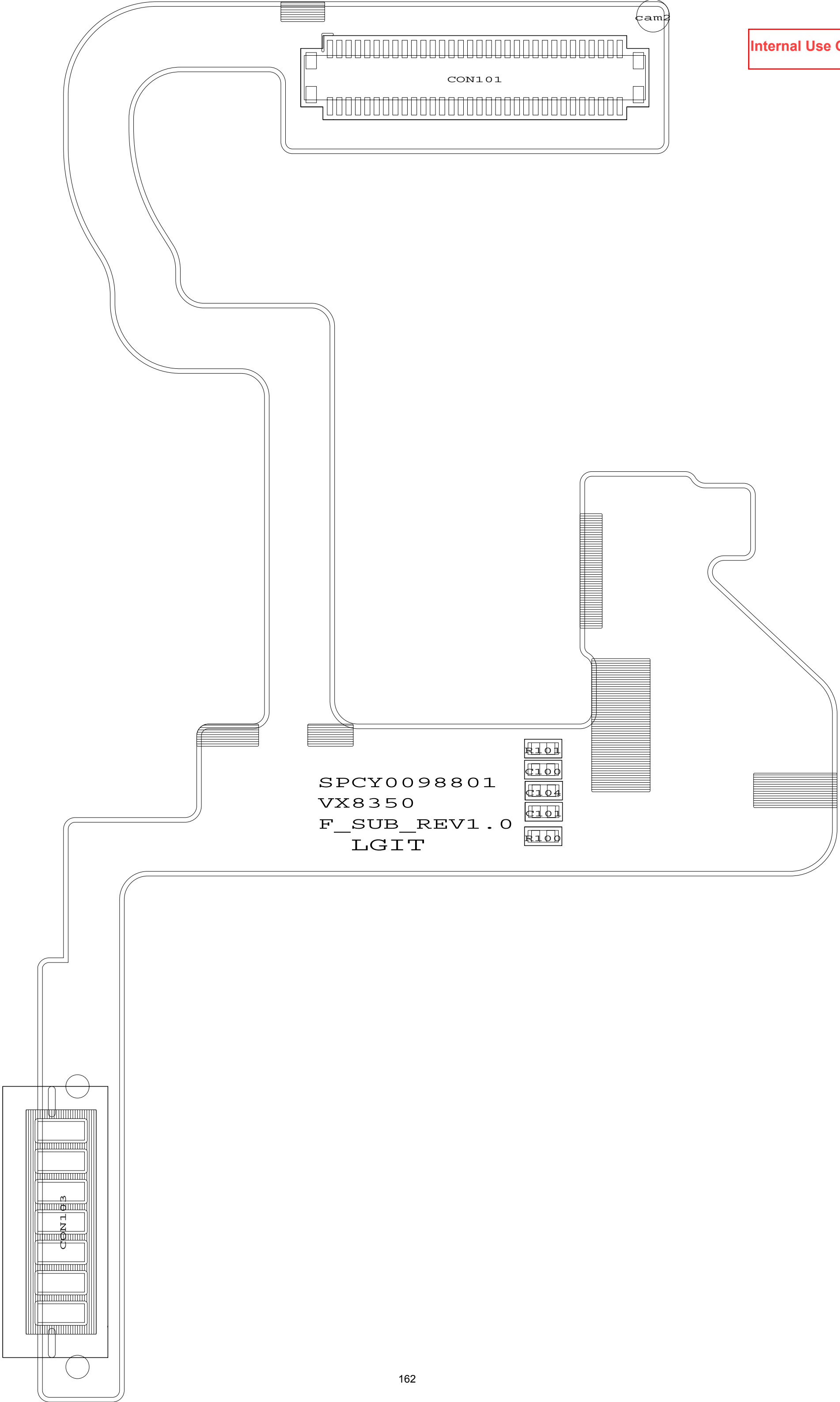
CON603
60PIN -BOARD TO BOARD
CONNECTOR
AXT564124
Can't display LCD
Can't operate Camera

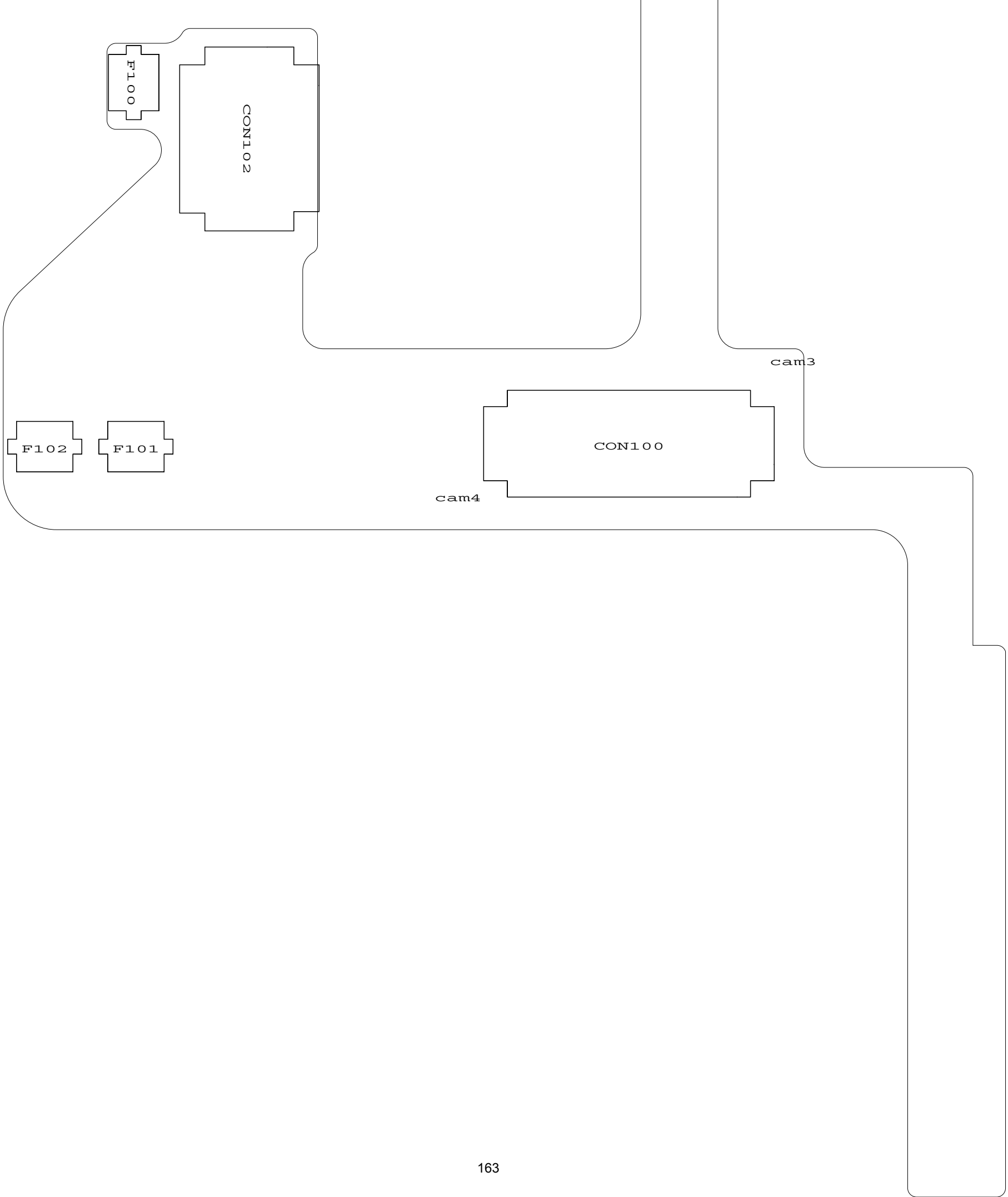


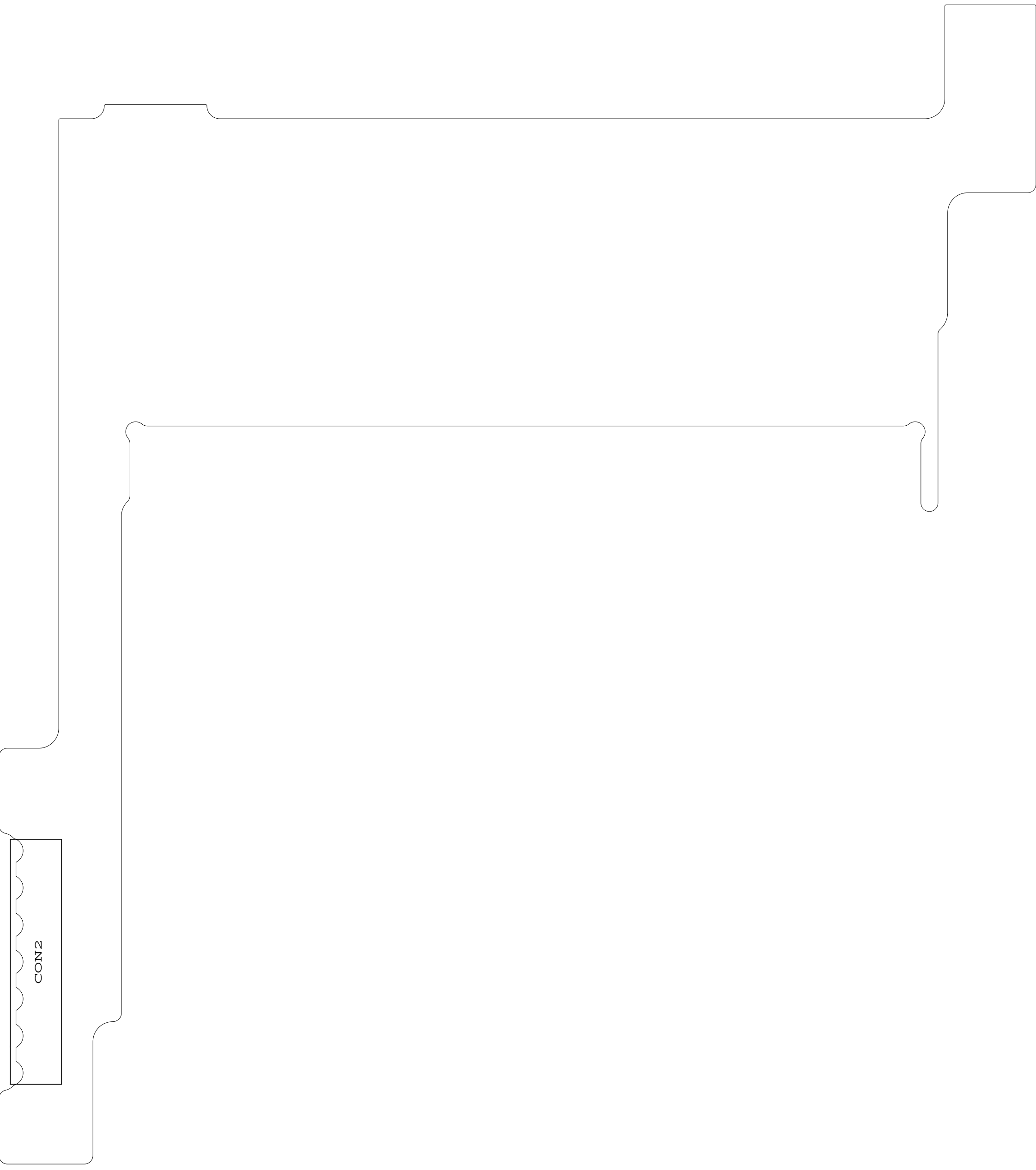
Internal Use Only

U301
HALL IC
EW-6672-T3
Can't detect Folder open

Internal Use Only







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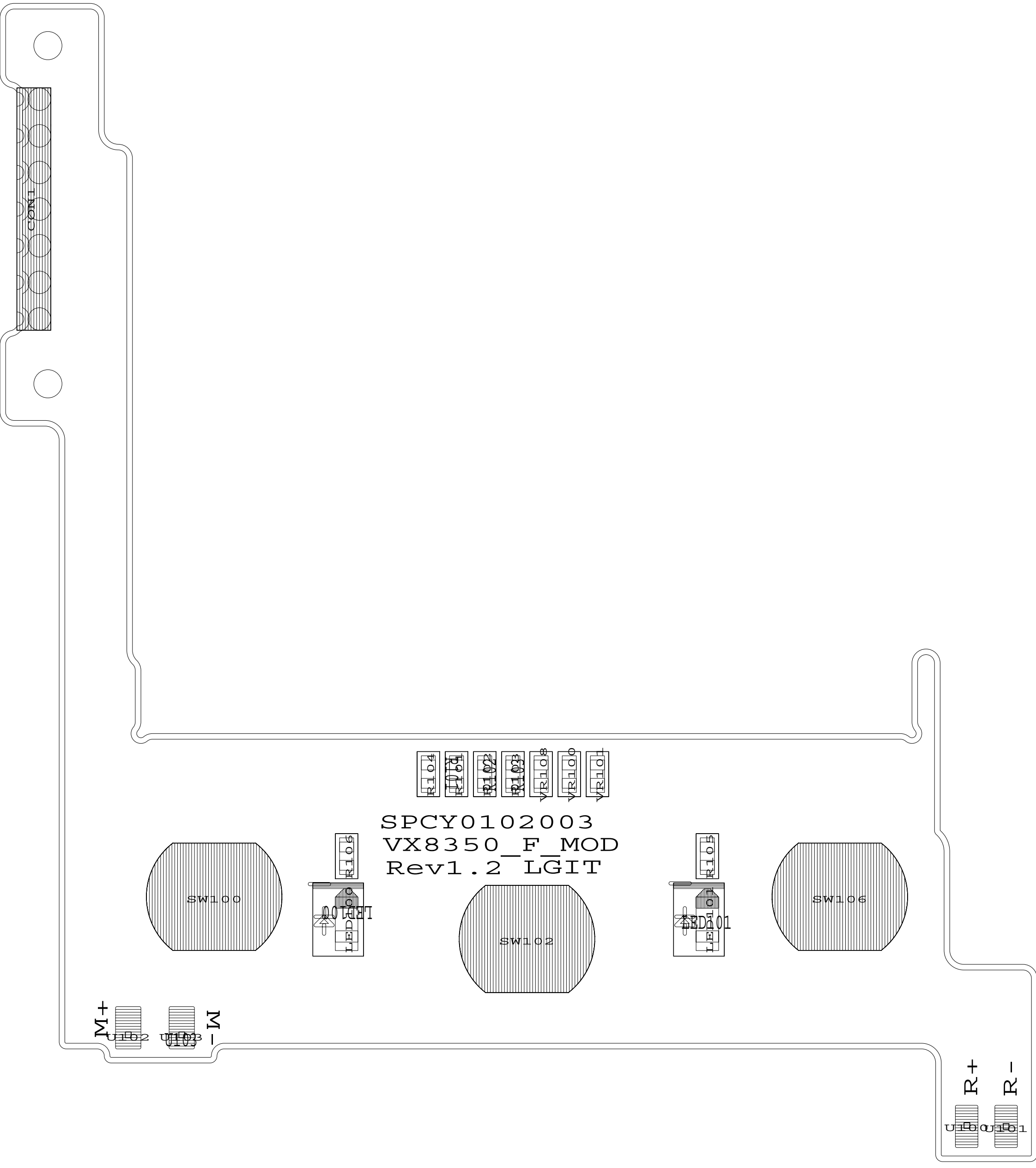
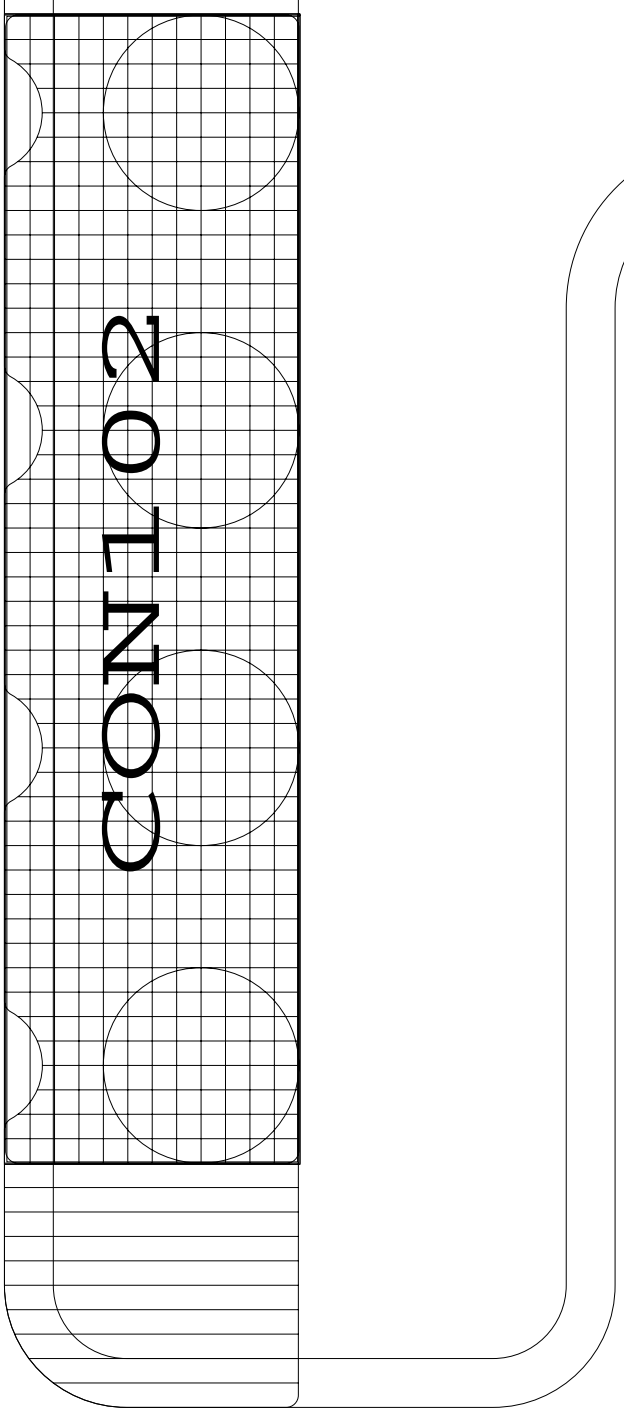
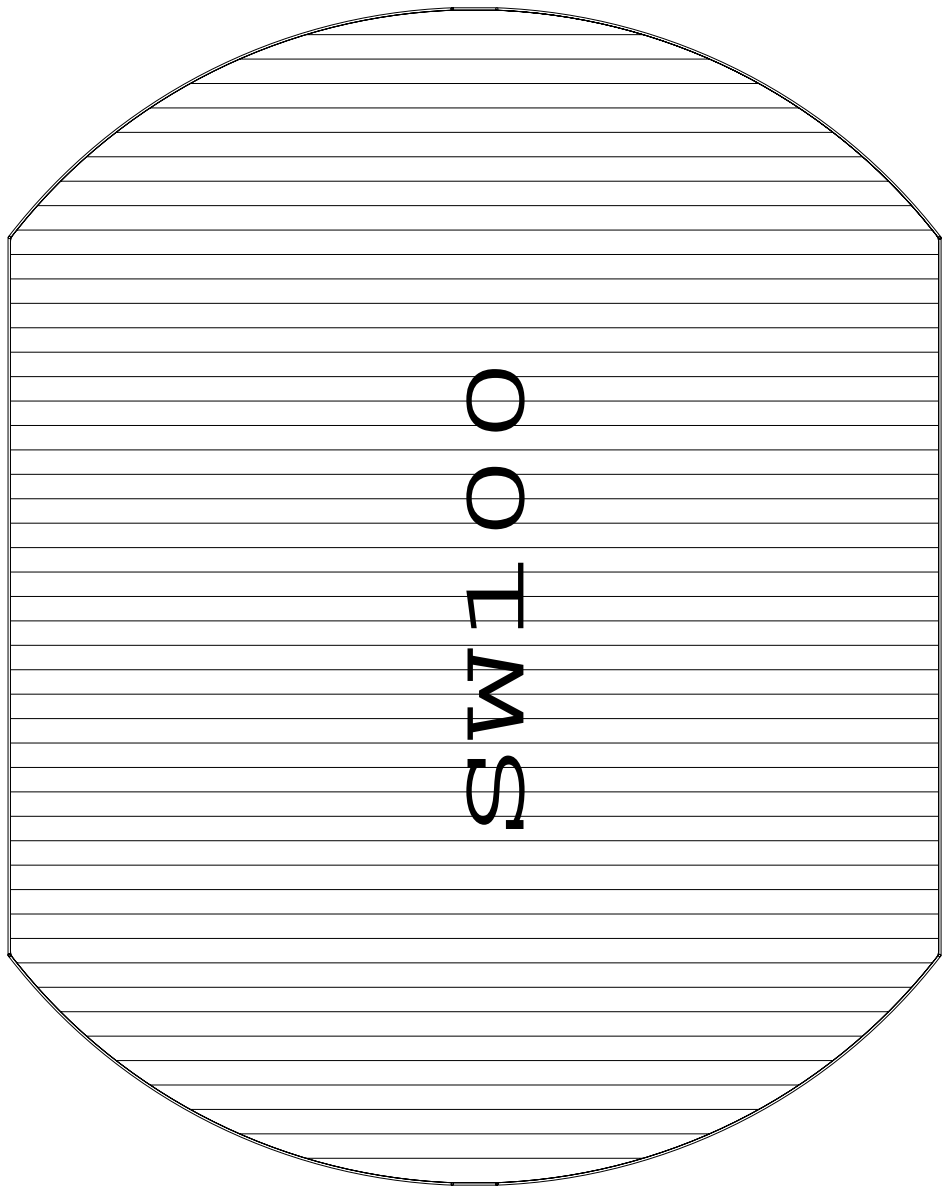


Internal Use Only

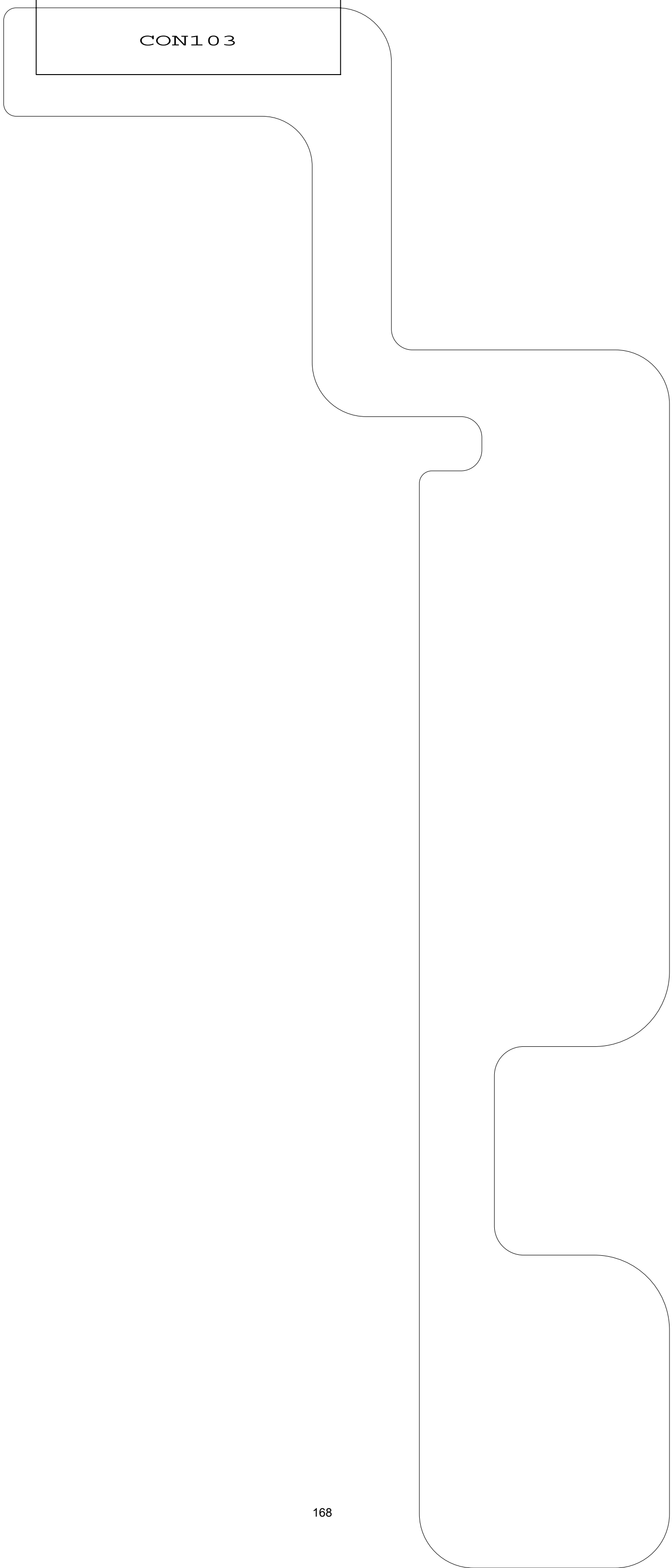
CONTO 3

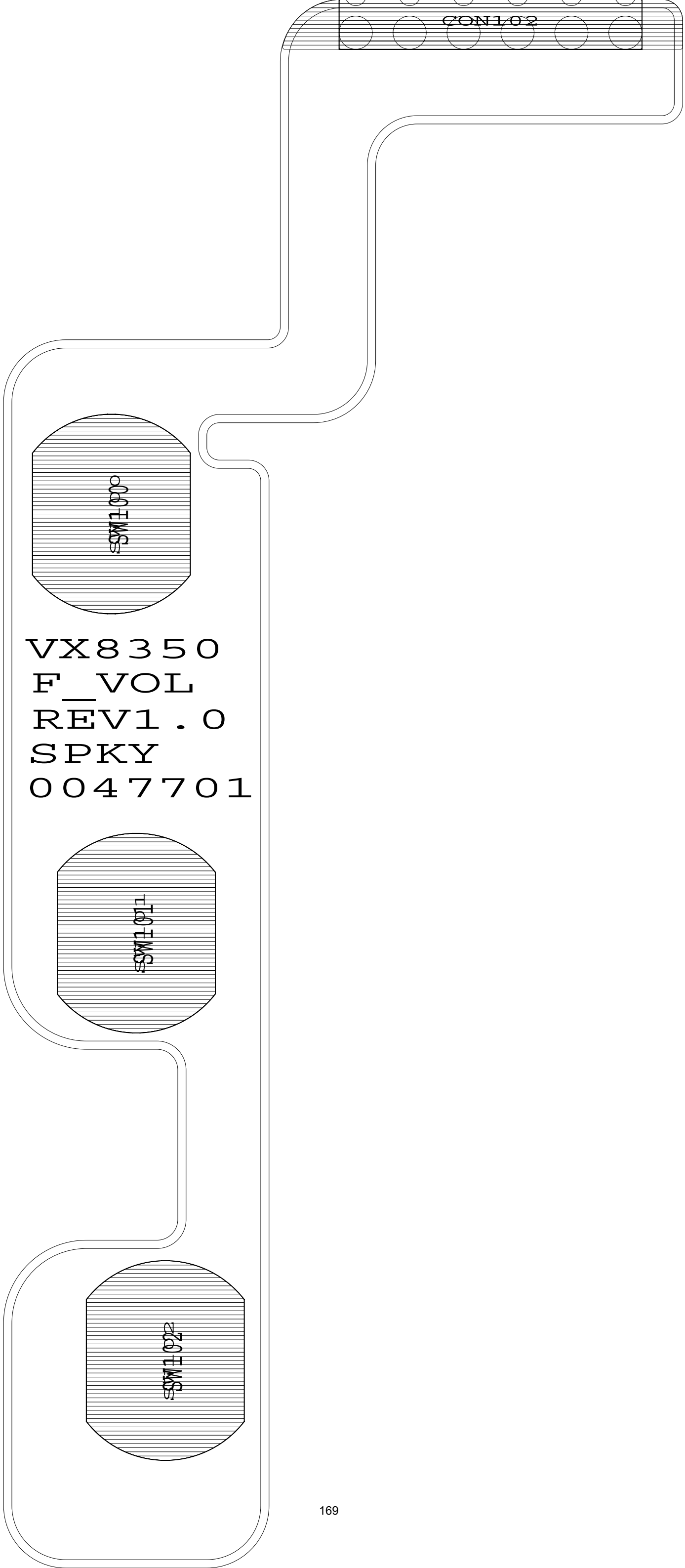
Internal Use Only





VX8350
CAM_REV1.0
SPKY
0047501

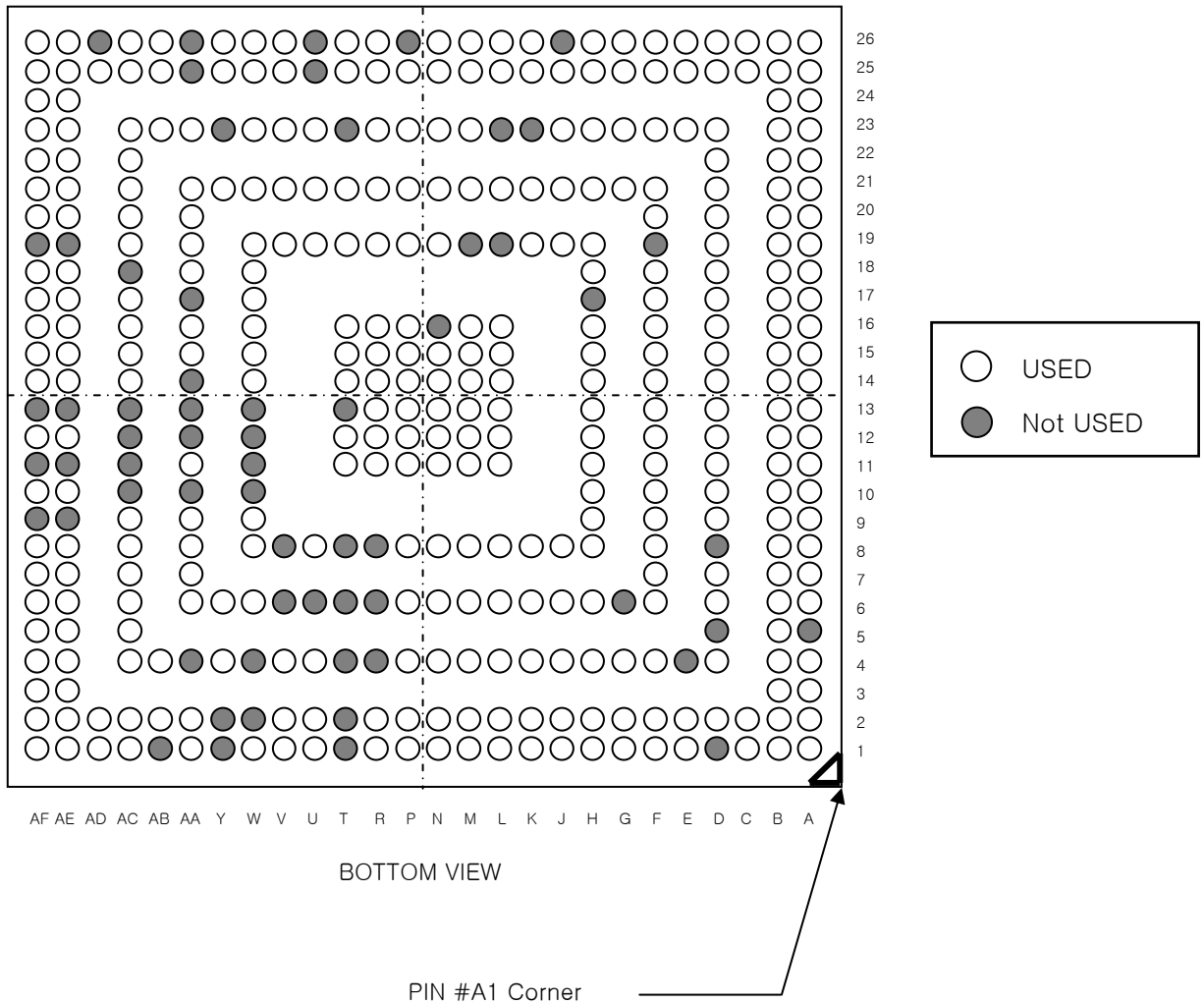




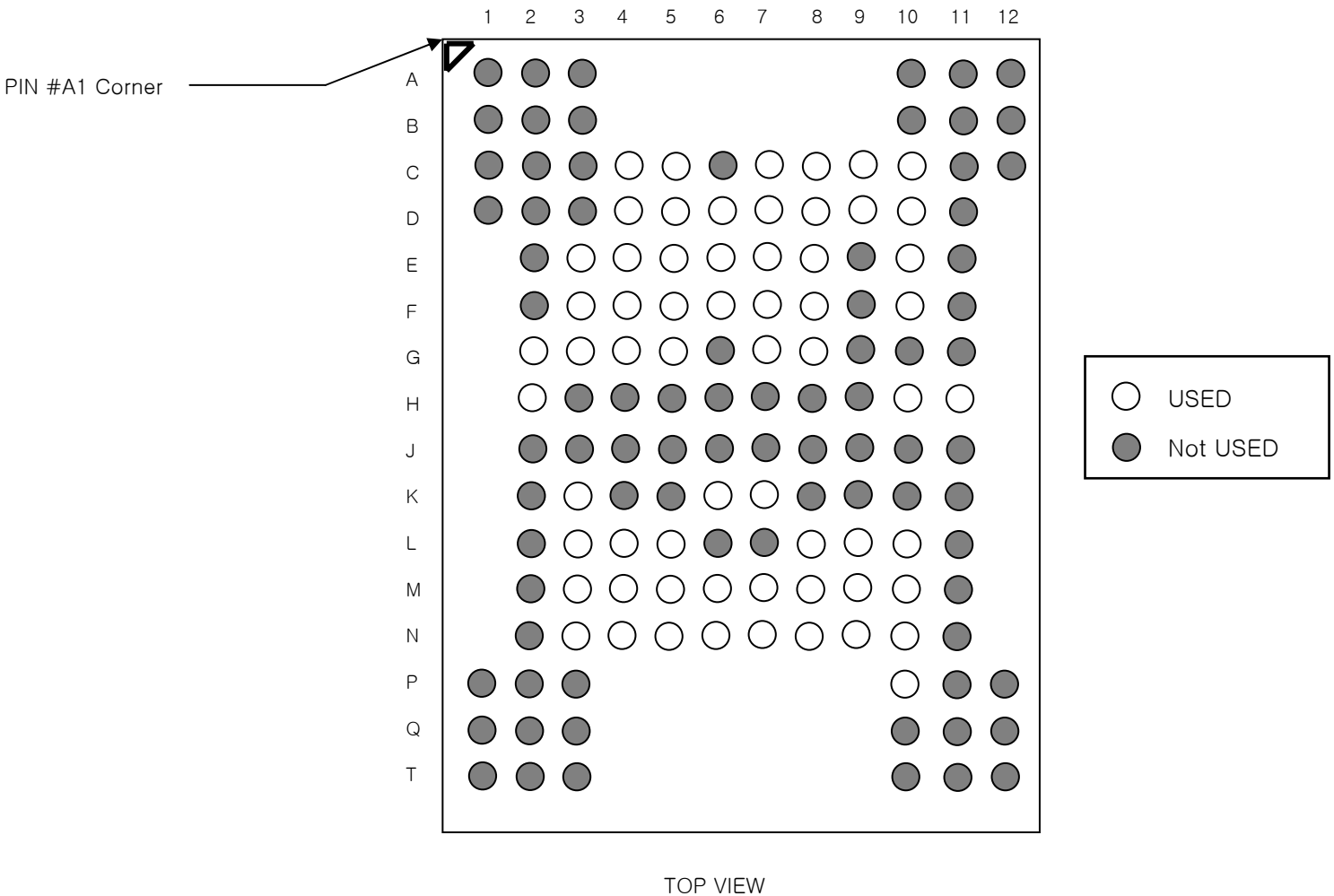
Internal Use Only

5. BGA Pin Map

1. U200 MSM6500_90NM(EUSY0170903)

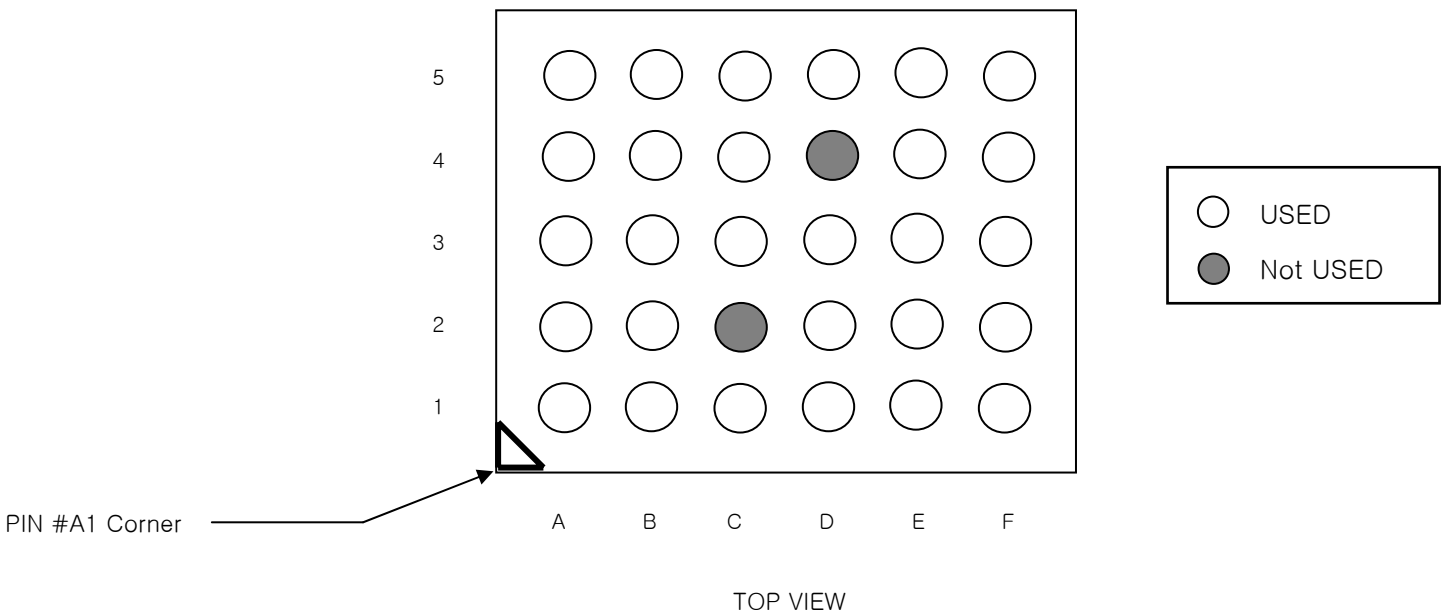


2. U300 MCP(EUSY0331001)



TOP VIEW

3. U400 Audio Amp(EUSY0194501)



TOP VIEW