Contents

Introduction

Manual Scope

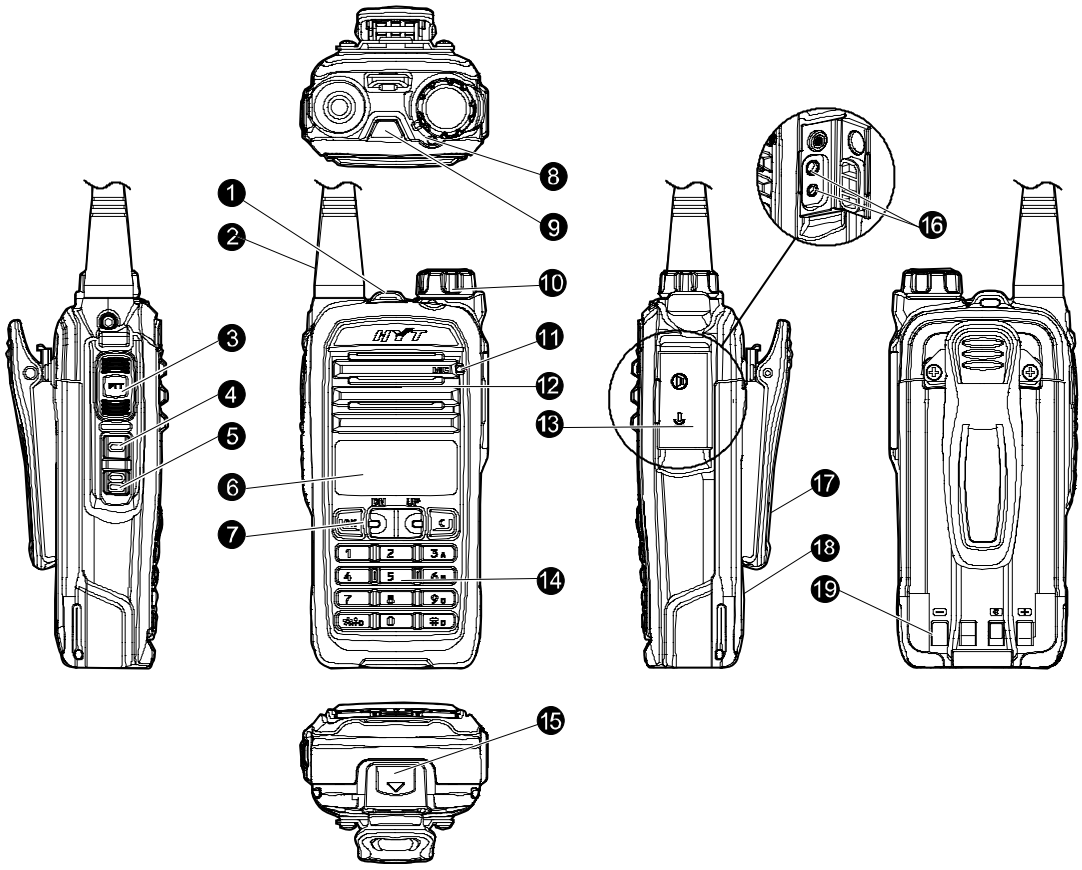
This manual is intended for use by experienced technicians familiar with similar types of communication equipment. It contains all service information required for the equipment and is current as of the publication date.

Safety Information

The following safety precautions shall always be observed during operation, service and repair of this equipment.

- ◇ This radio shall be serviced by qualified technicians only.
- ◇ Only use HYT supplied or approved batteries and chargers.
- ◇ To avoid electromagnetic interference and/or compatibility conflicts, turn off your radio in any area where posted notices instruct you to do so. Turn off your radio before boarding an aircraft. Any use of the radio must be in accordance with airline regulations or crew instructions.
- ◇ For vehicles with an air bag, do not place a radio in the area over an air bag or in the air bag deployment area.
- ◇ Turn off your radio prior to entering any area with explosive and flammable materials.
- ◇ Do not charge or replace your battery in a location with explosive and flammable materials.
- ◇ Turn off your radio before entering a blasting area.
- ◇ Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn may result.
- ◇ Do not expose the radio to direct sunlight for a long time, nor place it close to a heating source.
- ◇ During transmission, hold the radio in a vertical position with its microphone 2.5 to 5.0 centimeters (1-2 inches) away from your lips, and keep the antenna at least 2.5 centimeters (approximately 1 inch) away from your head. If you wear a portable radio on your body, ensure that the antenna is at least 2.5 centimeters (approximately 1 inch) away from your body when transmitting.

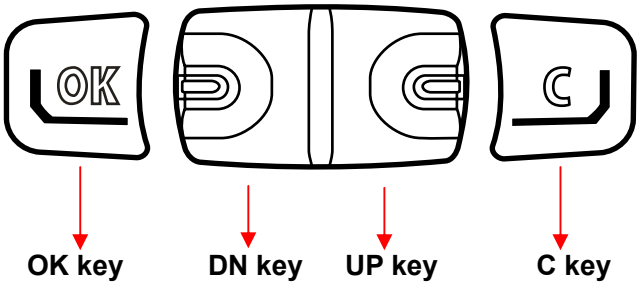
Radio Overview



(1) Strap Hole	(2) Antenna	(3) PTT (Push-to-Talk) Key	(4)SK1 (programmable)
(5)SK2 (programmable)	(6) LCD Display	(7) Function Keypad	(8) LED Indicator
(9) TK (programmable)	(10)Radio On-Off/Volume Control Knob	(11) Microphone	(12) Speaker
(13) Accessory Jack Cover	(14) Numeric Keypad	(15) Battery Latch	(16) Accessory Jack
(17) Belt Clip	(18) Battery	(19) Charging Piece	

* Function Keypad

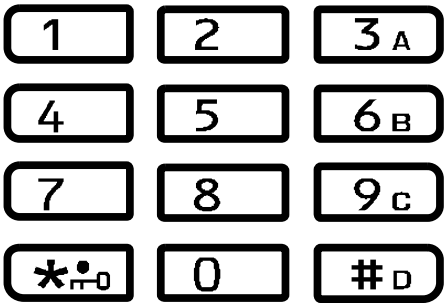
- **OK** key: to access a menu or to select an option.
- **DN** key: to switch channels downwards during non-menu operation or to scroll options downwards during menu operation.
- **UP** key: to switch channels upwards during non-menu operation or to scroll options upwards during menu operation.
- **C** key: to return to the previous menu. Long press this key to return to the main menu.



* Numeric Keypad

Used to enter information for programming the radio.

- 1 - 9 C: Used to enter numbers or characters.
- : Used to enter decimal points or characters. Press **OK** first and then * . 0 immediately to lock/unlock the keypad.
- # D: Used to enter characters.



* LED Indicator

Status indications and alert tones are shown in the table below:

Operations/Functions		LED Indications and Alert Tones
Wired Clone	To enter Wired Clone mode: Turn on the source radio with **SK1** held down for approximately 2 seconds, and turn on the target radio directly.	The LED on the source radio flashes red once upon power-on.
	Status of the source radio in Wired Clone mode (After the target radio is turned on and the cloning cable is connected, press **PTT** of the source radio to begin cloning.)	The LED glows red during cloning process. The LED flashes orange upon cloning errors. (Press **OK**, and then the orange LED goes out. Press **PTT** to restart cloning.) The LED solidly glows orange once cloning is completed.
	Status of the target radio in Wired Clone mode	The LED glows green during cloning process. The green LED goes out once cloning is completed.

Power On (to enter User Mode)	The LED flashes green once and the power-on alert tone sounds.
Low Battery Alert	The LED flashes red, and a low-pitched tone sounds every 10 (programmable) seconds.
Transmitting	The LED glows red during transmitting. When TOT timer expires, the radio sounds beep tones continuously. A TOT pre-alert tone sounds before the TOT timer expires.
Receiving	The LED glows green during receiving.
Scanning	The LED flashes green during scanning. Scan Start Alert (programmable by the dealer): one beep is heard. Scan End Alert (programmable by your dealer): two continuous beeps are heard.
Writing/Reading	The LED glows red when reading data. The LED glows green when writing data.
When a call is transmitted (within the Auto Reset Time)	The LED solidly glows orange.
When a call is received	The LED rapidly flashes orange.
When an individual call is received (within the Auto Reset Time)	The orange LED gives indication by means of double flash.
When a group call is received (within the Auto Reset Time)	The LED flashes orange.
Adjusting TX items	The LED solidly glows red.
Adjusting RX items	The LED solidly glows green.

Software Specifications

Description of Features

1. 256 available channels
2. 32 available zones
3. High /Low power switchable
4. 5 selectable VOX sensitivity levels
5. Channel Scan
6. Bandwidth Switch
7. Home Channel
8. Time-out Timer (TOT)
9. Busy Channel Lockout (transmission prohibited in busy status)
10. 9 selectable squelch levels
11. Monitor
12. Compandor
13. Scrambler
14. Whisper
15. CTCSS/CDCSS Encode & Decode (CTCSS Tail Revert of 180/120 degrees, supporting non-standard CTCSS/CDCSS)
16. DTMF Decode
17. Manual Frequency Input
18. Keypad Lock
19. Menu Edit
20. Channel Set Mode
21. Channel Alias Display
22. Reverse Display
23. Incoming-call Display
24. PC Programming
25. Wired Clone
26. Manual Adjust
27. Battery Strength Indicator

28. Low Battery Alert
29. Battery Save
30. Power-on Password
31. Reset: to restore factory settings
32. Emergency Alarm
33. Software Update

Description of Modes

User Mode

It is a conventional communication mode. After the radio is turned on, it enters the User mode.

PC Programming Mode

The radio in User mode enters PC Programming mode through specific protocol based communication with the programming software. In this mode, radio functions and adjustment parameters can be set through the programming software (including User Version and Factory Version).

Reset Mode

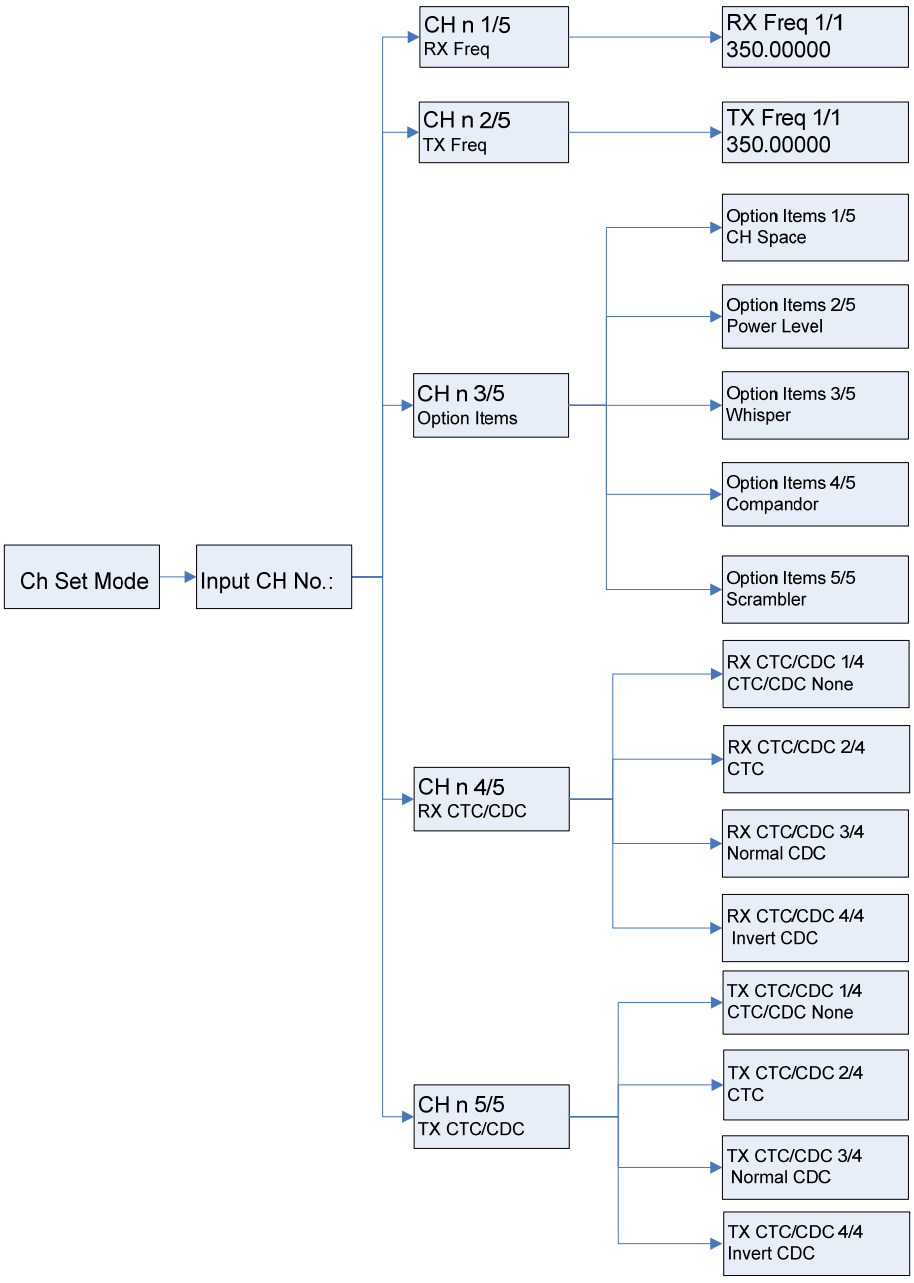
You can restore the settings, which may affect normal operation, to factory defaults in this mode. The factory default settings include radio parameters, as well as 8 channel frequencies and other channel-related parameters.

If your radio is programmed with this function, you can enable it by pressing **PTT**, **SK1** and **SK2** for 2 seconds while powering on the radio.

Channel Set Mode

You can edit parameters on the current channel through menu operation and keypad input. Once the Channel Set mode is entered, you can select and edit parameters like TX/RX frequency, CTCSS/CDCSS, channel spacing, power level and so on, through the menu. Such settings are mainly made through the menu. Some of these parameters can only be selected from the drop-down list (like Wide/Narrow channel spacing, and High/Low power level) and some can be input through numeric keys (like TX/RX frequency).

Press and hold down **PTT** and **SK2** for 2 seconds while powering on the radio to enter the Channel Set mode. See the structure illustrated below:



After the Channel Set mode is entered, you will be required to input the channel number for further menu operation.

Level-1 Menu (Displayed Content)	Level-2 Menu (Displayed Content)	Description for Level-2 Menu
CH n RX Freq	RX Freq 350.00000	Displays the RX frequency. Press **OK** to edit.

CH n TX Freq	TX Freq 350.00000	Displays the TX frequency. Press **OK** to edit.
CH n Option Items	Option Items CH Space	Sets the spacing of the current channel.
	Option Items Power Level	Sets the power level of the current channel.
	Option Items Whisper	Sets the whisper feature on the current channel.
	Option Items Compandor	Sets the compandor feature on the current channel.
	Option Items Scrambler	Sets the scrambler feature on the current channel.
CH n RX CTC/CDC	RX CTC/CDC CTC/CDC None	Sets not to receive CTCSS/CDCSS on the current channel.
	RX CTC/CDC CTC	Displays the RX CTCSS on the current channel. Press **OK** to edit it.
	RX CTC/CDC Normal CDC	Displays the RX CDCSS on the current channel. Press **OK** to edit it.
	RX CTC/CDC Invert CDC	Displays the RX CDCSS on the current channel. Press **OK** to edit it.
CH n TX CTC/CDC	TX CTC/CDC CTC/CDC None	Sets not to transmit CTCSS/CDCSS on the current channel.
	TX CTC/CDC CTC	Displays the TX CTCSS on the current channel. Press **OK** to edit it.
	TX CTC/CDC Normal CDC	Displays the TX CDCSS on the current channel. Press **OK** to edit it.
	TX CTC/CDC Invert CDC	Displays the TX CDCSS on the current channel. Press **OK** to edit it.

Wired Clone Mode

1. Description

Wired Clone mode is an independent mode. To access other modes, you must restart the radio.

Wired Clone mode includes Clone mode and Factory Clone mode.

1) Clone Mode:

Connect two radios using a cloning cable. Then press and hold down **SK1** for 2 seconds while powering the source radio on, and the radio enters Clone mode. The target radio can be directly turned on to enter the mode. In this mode, data stored in EEPROM of the source radio will be cloned to EEPROM of the target radio. The data transferred only covers channel data and common parameters, excluding adjustment data, version and serial No. of the model.

2) Factory Clone Mode:

Connect two radios using a clone cable. Then hold down **SK1** for 2 seconds while powering the source radio on, and the radio enters Clone mode; press the **SK2** afterwards to switch to Factory Clone mode. The target radio can be directly turned on to enter the Clone mode. The data transferred covers all data in EEPROM other than serial No, with flag of manual adjustment switch included.

2. Process

Process of Wired Clone:

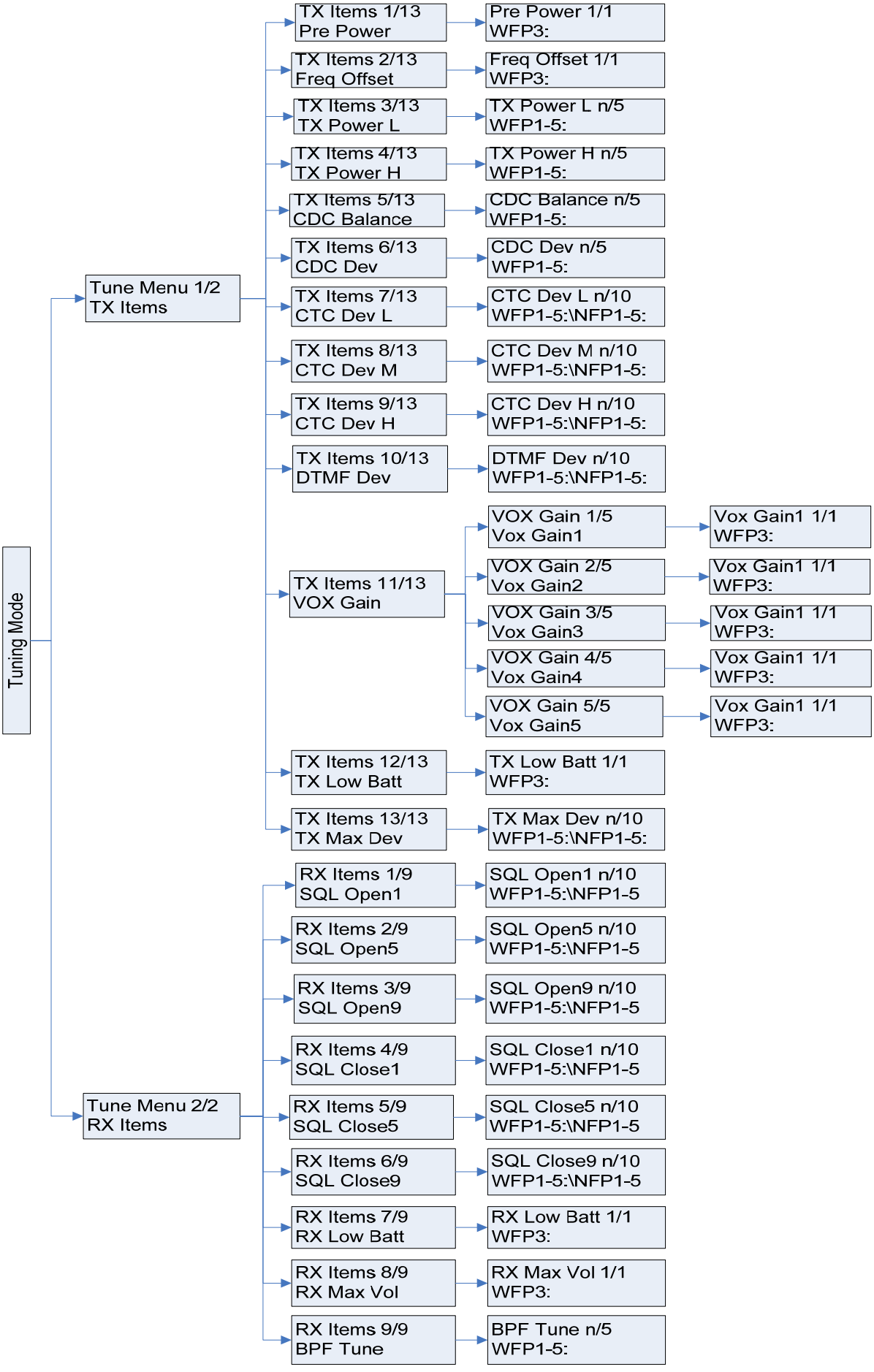
1) The LED flashes red once after the source radio enters Wired Clone mode. Press **PTT** to begin to clone data to the target radio.
2) During cloning, LED of the source radio solidly glows red, and LED of the target radio solidly glows green. When cloning ends, LED of the source radio solidly glows orange, while LED of the target radio goes out, and the target radio restarts automatically to prepare for a further clone.
3) If any abnormal situation occurs during cloning, the source radio will stop cloning and its orange LED will flash, indicating both radios are ready for another cloning operation.
4) When cloning ends, the source radio goes back to standby status no matter whether the cloning is successful. Press **PTT** again to begin another cloning operation.

Manual Tune Mode

Press and hold down **PTT** and **SK1** on the radio for 2 seconds while powering it on, and the radio enters Manual Tune mode. (Note: This operation is subject to the option Manual Tune Mode in the programming software. If this option is unchecked, the radio can not enter this mode, which helps avoid change of parameters and degradation of radio performance caused by user's misoperations.)

Keep this option unchecked after values are well adjusted from factory, to avoid any unexpected change of values. And re-adjust the values upon your further requirement. These values will remain in other modes.

See the tuning items illustrated below:


Tuning Mode
Tune Menu 1/2
TX Items
TX Items 1/13
Pre Power
Pre Power 1/1
WFP3:
TX Items 2/13
Freq Offset
Freq Offset 1/1
WFP3:
TX Items 3/13
TX Power L
TX Power L n/5
WFP1-5:
TX Items 4/13
TX Power H
TX Power H n/5
WFP1-5:
TX Items 5/13
CDC Balance
CDC Balance n/5
WFP1-5:
TX Items 6/13
CDC Dev
CDC Dev n/5
WFP1-5:
TX Items 7/13
CTC Dev L
CTC Dev L n/10
WFP1-5:\NFP1-5:
TX Items 8/13
CTC Dev M
CTC Dev M n/10
WFP1-5:\NFP1-5:
TX Items 9/13
CTC Dev H
CTC Dev H n/10
WFP1-5:\NFP1-5:
TX Items 10/13
DTMF Dev
DTMF Dev n/10
WFP1-5:\NFP1-5:
TX Items 11/13
VOX Gain
VOX Gain 1/5
Vox Gain1
Vox Gain1 1/1
WFP3:
VOX Gain 2/5
Vox Gain2
Vox Gain1 1/1
WFP3:
VOX Gain 3/5
Vox Gain3
Vox Gain1 1/1
WFP3:
VOX Gain 4/5
Vox Gain4
Vox Gain1 1/1
WFP3:
VOX Gain 5/5
Vox Gain5
Vox Gain1 1/1
WFP3:
TX Items 12/13
TX Low Batt
TX Low Batt 1/1
WFP3:
TX Items 13/13
TX Max Dev
TX Max Dev n/10
WFP1-5:\NFP1-5:
Tune Menu 2/2
RX Items
RX Items 1/9
SQL Open1
SQL Open1 n/10
WFP1-5:\NFP1-5
RX Items 2/9
SQL Open5
SQL Open5 n/10
WFP1-5:\NFP1-5
RX Items 3/9
SQL Open9
SQL Open9 n/10
WFP1-5:\NFP1-5
RX Items 4/9
SQL Close1
SQL Close1 n/10
WFP1-5:\NFP1-5
RX Items 5/9
SQL Close5
SQL Close5 n/10
WFP1-5:\NFP1-5
RX Items 6/9
SQL Close9
SQL Close9 n/10
WFP1-5:\NFP1-5
RX Items 7/9
RX Low Batt
RX Low Batt 1/1
WFP3:
RX Items 8/9
RX Max Vol
RX Max Vol 1/1
WFP3:
RX Items 9/9
BPF Tune
BPF Tune n/5
WFP1-5:

1. To enter the Manual Tune mode

Hold down **PTT** and **SK1** for 2 seconds while powering on the radio. Then the LCD displays "Tuning Mode", indicating that the Manual Tune mode has been entered. At this time, release the keys.

2. To switch the tuning item

After the tuning mode is entered, switch the tuning item using **UP** or **DN** key. The LCD displays the tuning item accordingly. The LED solidly glows red for the TX group items and glows green for the RX group items.

3. To adjust the value

At a certain frequency, short press **SK1** to increase the value in the step of 1; hold down the key to increase the value continuously in steps of 1.

At a certain frequency, short press **SK2** to decrease the value in the step of 1; hold down the key to decrease the value continuously in steps of 1.

4. To save the value

After the value is set, press **UP** or **DN** to switch the frequency, or press **OK** to save the value.

5. To enter the selected item

Use **UP** or **DN** key to choose your desired tuning items, and press **OK** to enter the item.

6. To return to the previous menu

Short press **C** to return to the previous menu; and long press **C** to return to the first level menu.

7. Measures on special items

TX group items: Including the VOX Level 1-5 and TX Low Voltage Threshold. These tuning items are related to AD sampling. Short press **SK1** or **SK2** after entering the above items, to activate AD sampling (including calculation) once. Press **UP** or **DN** to switch the frequency and press **OK** to save the current AD sampling value. If neither of **SK1** or **SK2** is pressed, the tuning value will not be updated, and AD sampling will not be activated.

Rx Group Items: Including the SQL On 1, SQL On 5, SQL On 9, SQL Off 1, SQL Off 5, SQL Off 9 and Rx Low Voltage Threshold. These tuning items are related to AD sampling. Short press **SK1** or **SK2** after entering the above items, to activate AD sampling (including calculation) once. Press **UP** or **DN** to switch the frequency and press

OK to save the current AD sampling value. If neither of **SK1** or **SK2** is pressed, the tuning value will not be updated, and AD sampling will not be activated.

8. Description of key-press

Short press: indicates to press the key for shorter than 1 second;

Long press: indicates to press the key for 1 second or more.

Circuit Description

General Realization Method

TX Section: The audio signal from MIC is amplitude limited and amplified by U203. After that, the signal feeds to the AGC circuit and then to the baseband processor U202 in AK2347, where the signal is filtered, compressed, pre-emphasized and amplitude limited. The signal from AK2347 goes to VCO for frequency modulation (the PLL system is composed of U101, Q100 and Q101). After modulated onto the RF carrier, the signal is processed by the buffer amplifiers Q104 and Q106. Then the signal passes through the TX/RX switch D401, and goes to the front-stage power amplifier for pre-amplification. After that, the signal is further amplified by the driver amplifier Q402, for obtaining the power to drive the final-stage amplifier. After the signal is amplified by the final-stage amplifier (Q403), the signal with required power is generated. Then it passes through the TX/RX switch D403, and feeds to the low-pass filter circuit. Finally, the signal is transmitted via the antenna after high-order harmonics are removed (The TX/RX switch circuit is composed of D401, D511, D403, D501 and D502).）

RX Section: The RF signal from the antenna passes through the low-pass filter, and then feeds to the bandpass filter (composed of D514, D515 and D516) to filter out undesired out-of-band interference signal. Then the desired RF signal enters the high-frequency low-noise amplifier Q501, where it is amplified. The amplified signal goes to the bandpass filter (composed of D509, D510 and D513) to filter out out-of-band interference signal again. The desired RF signal is mixed with the first local oscillator signal from VCO at Q502. The newly generated signal is processed by the crystal filter (Z1, Z2 or XF501) to generate the first IF signal. After amplified at Q505, the first IF signal goes to the IF modulator (U201), where it is mixed with the second local oscillator signal from X101 to generate the second IF signal (it is filtered by CF201). Then U201 demodulates the second IF signal, and outputs audio signal, which is divided into two flows and sent to the baseband processor U202 in AK2347. One flow of audio signal is amplified, and then goes to the low-pass filter to filter out high-frequency audio signal (CTCSS/CDCSS signal is kept). The CTCSS/CDCSS signal is sent to MCU (U611) for decoding. The other flow of audio signal is filtered, de-emphasized and expanded, and then is sent to the audio amplifier (U205), where the audio power of the signal is amplified to drive the speaker directly.

Power Supply Section: The 7.4V battery voltage goes to the LDO IC (U601), and generates 5V DC voltage, which is divided into two flows. One flow is converted into 4.5V voltage via the dual LDO IC (U602) (under the control of MCU, one flow (4.5T) supplies power for the TX circuit; one flow (V_SAVE)

supplies power for VCO; under the control of 4.5T, V_SAVE is converted to 4.5R via Q604); the other flow goes to the dual LDO IC (U603), and generates two flows of 3V voltage (3M1 and 3M2), supplying power for MCU/LCD and PLL/U202(AK2347) respectively.

Signaling Encoding: MCU (U611) generates two flows of CTCSS/CDCSS. One flow is output via the RC network, and is sent to VCO together with the audio signal for modulation. The other flow goes through the RC network to modulate the PLL reference frequency oscillator. The signal amplitude of the two flows can be adjusted separately.

Realization Methods of Basic Functional Modules

1 HF Section

1) Block Diagram of PLL Circuit:

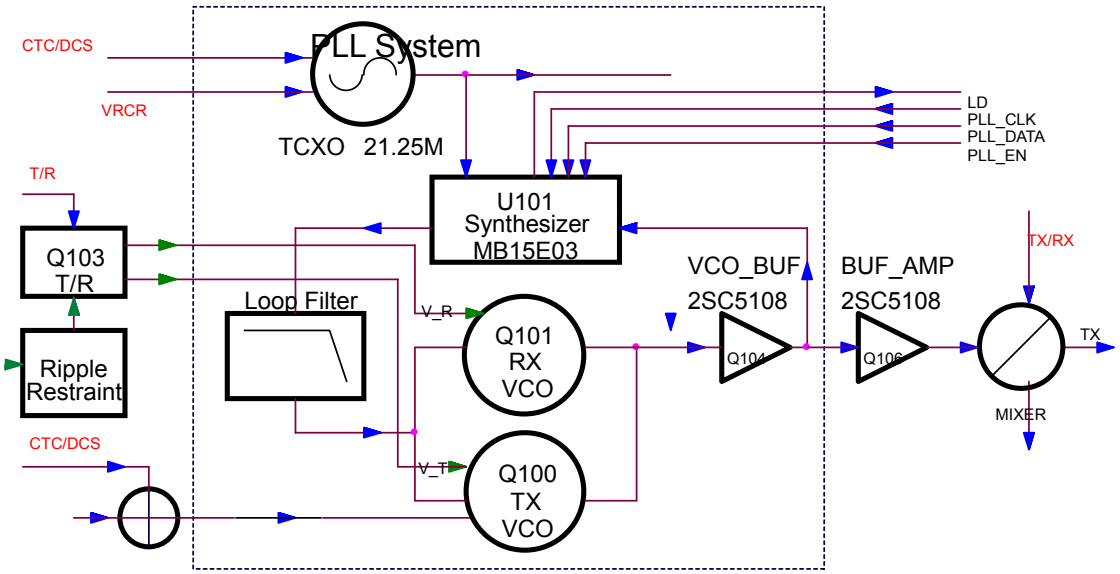


Figure 1.1 Block Diagram of PLL and VCO

The PLL circuit generates RF carrier signal for TX and the first local oscillator signal for RX.

PLL: The step frequency of the PLL circuit is 5.0KHz, 6.25KHz, 10.0KHz or 12.5KHz. In U101, the 21.25MHz reference oscillator signal is divided into 5.0KHz, 6.25 KHz, 10.0 KHz or 12.5 KHz reference frequencies via a fixed counter in PLL. The signal output from the VCO (TX VCO/RX VCO) is processed by the buffer amplifier Q104, and then enters PLL, where it is further processed by the variable frequency-divider. Then the signal is compared with the reference frequency in the phase detector (PD) of PLL. The signal from PD passes through a low-pass filter, and then is sent to the varactors of VCO so as to control its output frequency.

VCO: There is a TX VCO and a RX VCO. In TX mode, PLL generates a control voltage via the phase detector and the low-pass filter (LOOP FILTER) to control the varactor, making TX VCO generate the RF carrier signal consistent with the preset frequency of MCU. The modulation signal from U202 (AK2347) and MCU is modulated onto the RF carrier via D108. Then the signal is processed by the buffer amplifier, and is sent to the RF power amplifier circuit for power amplification. In RX mode, RX PLL generates a control voltage via the phase detector and the low-pass filter (LOOP FILTER) to control the varactor, making RX VCO generate the first local oscillator signal consistent with the preset frequency of MCU. Then the signal is mixed with the received RF signal at Q502, and the first IF signal is therefore generated.

Unlock Detector: If the LD pin of U101 is at low level, unlock status is valid. When this status is detected by the microprocessor, neither transmission nor reception can be made, and the unlock alarm sounds.

2) Block Diagram of The RF Power Amplifier Circuit:

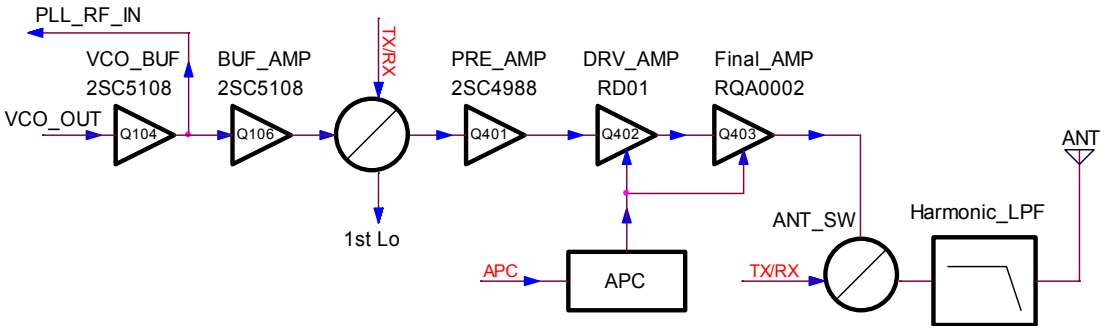


Figure 1.2 Block Diagram of TX RF Circuit

The modulated carrier signal is processed by the front-stage amplifier Q401 and by the driver amplifier Q402, for obtaining the power to drive the final-stage amplifier. Then the RF signal is further amplified by the final-stage amplifier Q403, for obtaining required power. The amplified RF signal passes through D403, and goes to the LC low-pass filter circuit (LPF). Finally the signal is transmitted via the antenna after high-order harmonics are removed in LPF.

The APC circuit is composed of U401, Q405 and Q404. U401 controls the bias voltage at the gates of Q402 and Q403, so as to control the TX current and to further regulate power.

3) Block Diagram of RX Low-noise Amplifier and The First Mixer Circuit:

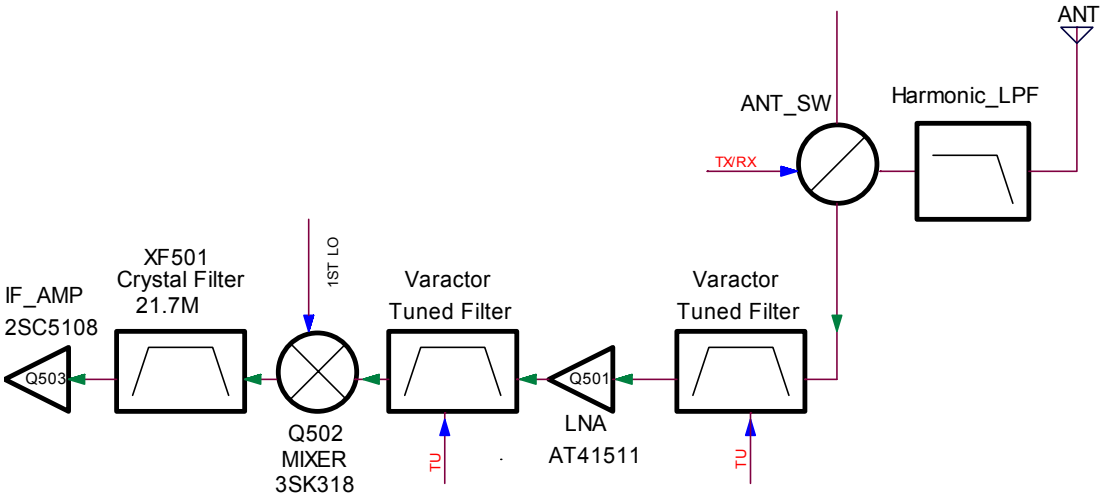


Figure 1.3 Block Diagram of RX RF Circuit

Desired and undesired RF signals received via the antenna feed to the band-pass filter to filter out undesired out-of-band interference signal. Then the desired RF signal is amplified by the high-frequency low-noise amplifier Q501. Afterwards, the amplified signal goes through the bandpass filter again to filter out undesired out-of-band interference signal. The desired RF signal is mixed with the first local oscillator signal from VCO at Q502.

The MCU outputs through APC/TU pin a voltage, which controls the central frequency of the electrically tunable bandpass filter.

2. IF Processing and Audio Demodulation

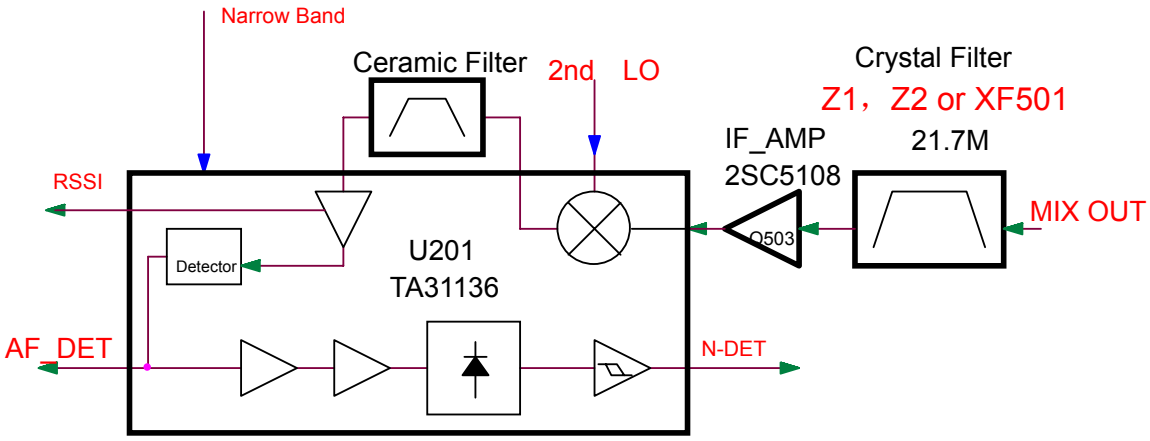


Figure 1.4 Block Diagram of IF Processing

The newly generated signal at Q501 is processed by the crystal filter (Z1, Z2 or XF501) to generate the first IF signal (21.7MHz). After amplified by Q505, this IF signal enters the IF demodulator U201, where it will be mixed with the second local oscillator signal to generate the second IF signal (450KHz). Then U201 demodulates this second IF signal and outputs an audio signal which will be sent to AK2347.

3. MCU Control, Signal Processing and Audio Power Amplification

Circuit diagram of this section is shown as below:

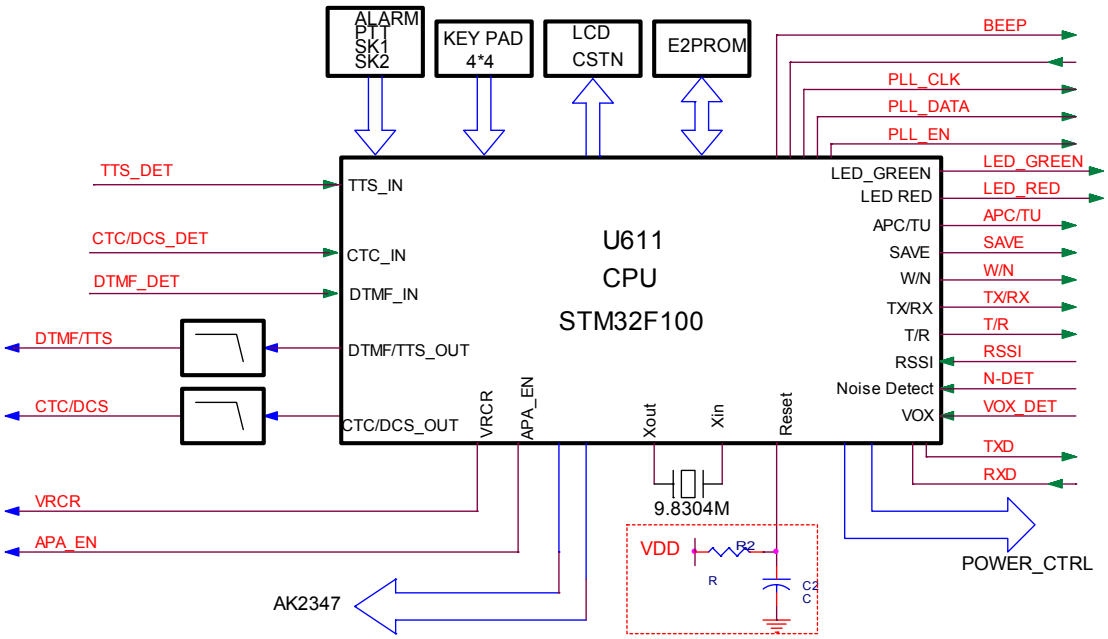


Figure 1.5 Block Diagram of MCU Control Circuit

1) MCU Control Circuit

MCU control circuit is composed of MCU, EEPROM, keys and etc. This section has the following functions: to initialize data of the radio and save data to EEPROM; to check the battery voltage and signals from external keys, LD and VOX-DET, and make responses; to transmit required data to PLL; to switch and control RX/TX status based on the input PTT signal; to switch the squelch circuit on or off based on the input signaling decode signal and squelch level signal; to control circuits of high/low power switch, audio power amplification, VCO power supply, RX power supply and TX power supply; (for programming) to communicate with PC via RXD/TXD, and transmit data to or receive data from PC.

2) Signal Processing Circuit

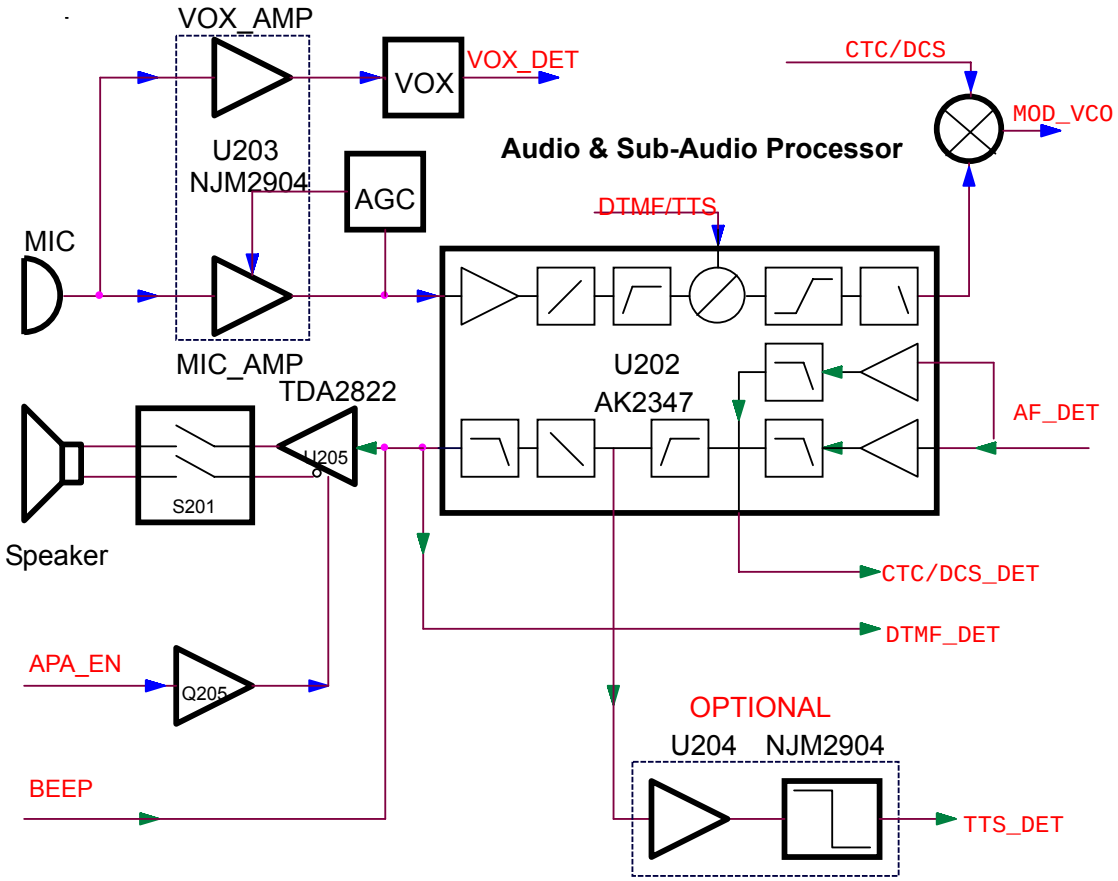


Figure 1.6 Block Diagram of Baseband Processing

a. TX Baseband Processing

The modulation signal from MIC is amplitude limited and amplified by U204. Afterwards, the signal feeds to the AGC circuit and then to the baseband processor U202 in AK2347, where it is filtered, compressed, pre-emphasized and amplitude limited. Then the modulated signal enters VCO for direct frequency modulation.

b. Rx Baseband Processing

The DEMOD signal derived from IF demodulation has two flows after entering U202 in AK2347. One flow of audio signal is amplified, and then goes to the low-pass filter to filter out high-frequency audio signal and to reserve the CTCSS/CDCSS signal; then the reserved CTCSS/CDCSS signal is sent to MCU (U611) for decoding. The other flow of audio signal is filtered, de-emphasized and expanded, and then is sent to the audio power amplifier (U205).

c. Audio Power Amplification

The audio signal output from U202 in AK2347 goes through the volume control switch, and it is then amplified by the audio power amplifier (U205) to drive the speaker directly.

4. Power Supply Processing

Block diagram of power supply circuit is shown as below:

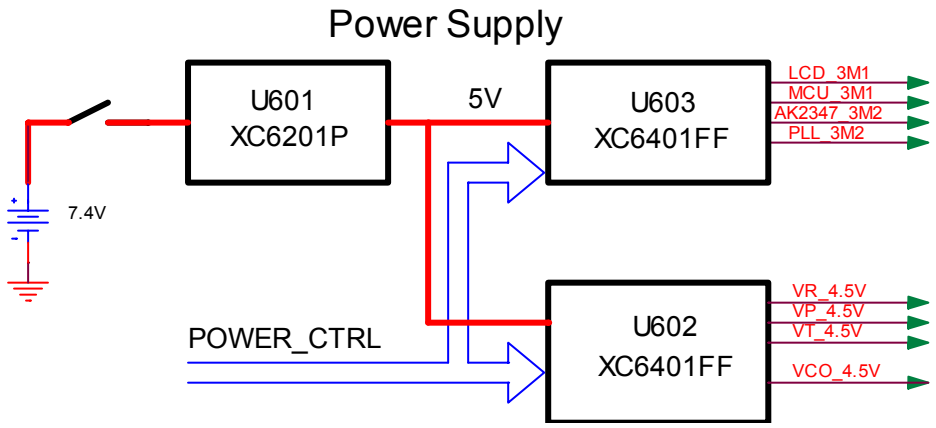


Figure 1.7 Block Diagram of Power Supply Circuit

Power Supply Section: The 7.4V battery voltage goes to the LDO U601 and generates a 5V DC voltage, which is divided into two flows. One flow is converted into a 4.5V DC voltage via the dual LCO IC (U602) and supplies the TX, RX and VCO circuits. The other flow goes through U603 and generates a 3V voltage to supply the MCU, EEPROM, LCD, PLL, and U202 (AK2347) etc.

5. Keypad and LCD

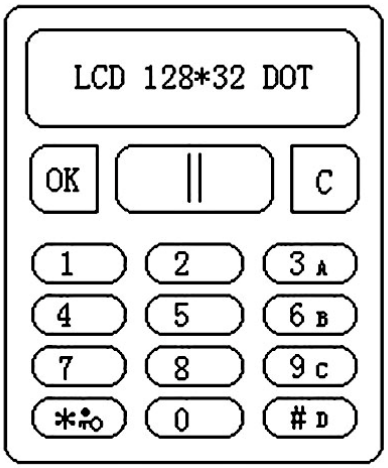


Figure 1.8 Diagram of LCD and Keypad

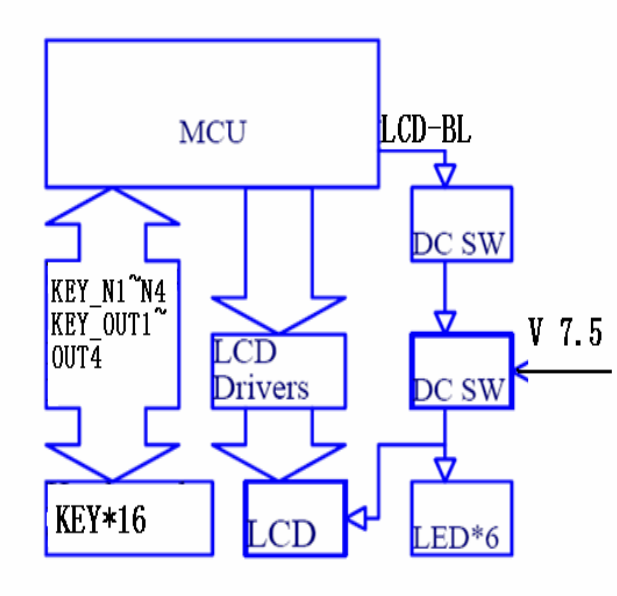


Figure 1.9 Block Diagram of Display Circuit

The radio adopts a LCD of 128*32 pixels, and a keypad of 16 keys which includes 4 function keys and 12 numeric keys. The display circuit is composed of MCU (U611), LCD module, 16-key keypad, LED and other components. The backlight enable pin LCD_BL is controlled by MCU. When it is set to H, the backlight will be turned on.

CPU Pins

Pin No.	Port	Pin Name	I/O	Function
1	PE2	LCD_BLT	O	Controls the LCD backlight. H: On.
2	PE3	Reserved	O	Reserved
3	PE4	EXT_PTT	I	PTT key on the earpiece (valid at high level)
4	PE5	VSAVE_CTRL	O	Controls the power in Battery Save mode. H: On; L: Off.
5	PE6	TX_CTRL	O	Controls the TX power. H: On; L: Off.
6	VABT			Provides a power-off protection interface (temporarily not valid); however, a 100nF ceramic capacitor is required to be connected to VDD.
7	PC13-ANTI_TAMP	Reserved	O	Reserved
8	PC14-OSC32_IN	Reserved	O	Reserved
9	PC15-OSC32_OUT	Reserved	O	Reserved
10	VSS_5			GND
11	VDD_5			VCC
12	OSC_IN	OSC_IN	I	For 9.8304MHz main crystal oscillator
13	OSC_OUT	OSC_OUT	O	Green LED
14	NRST	RESET	I	Reset pin (valid at low level)
15	PC0/ADC_IN10	RSSI_DET	AD	Detects signal strength.
16	PC1/ADC_IN11	Reserved	O	Reserved
17	PC2/ADC_IN12	VOX_DET	AD	Provides VOX detection (to detect voice signals)
18	PC3/ADC_IN13	CTC_DCS_IN	AD	Inputs CTCSS/CDCSS
19	VSSA			Analog ground
20	VREF-			Must be connected to VSSA.
21	VREF+			ADC reference voltage
22	VDDA			VDDA
23	PA0_WKUP/USART2_CTS/ADC_IN0/TIM2_CH1_ETR	CTC_DCS_VCO	PWM	Outputs CTCSS/CDCSS to VCO.
24	PA1/USART2_RTS/ADC_IN1/TIM2_CH2	CTC_DCS_PLL	PWM	Outputs CTCSS/CDCSS to PLL.
25	PA2/USART2_TX/ADC_IN2/TIM2_CH3	BEEP_OUT	PWM	Outputs audio signals of BEEP.
26	PA3/USART2_RX/ADC_IN3/TIM2_CH4	DTMFO/TTSO/MSKO	PWM	Outputs DTMF, 2-TONE, MSK and Emergency tone.
27	VSS_4			GND
28	VDD_4			VCC

29	PA4/DAC_OUT1/SPI1_NSS/USART2_CK/ADC_IN4	APC/TU	DA	For automatic power control/ tune voltage
30	PA5/SPI1_SCK/DAC_OUT2/ADC_IN5	VRCR	DA	Adjusts tolerance of carrier frequencies.
31	PA6/SPI1_MISO/ADC_IN6/TIM3_CH1	BEEP_MUTE	O	Controls the TX modulation circuit for BEEP (L: Off; H: On).
32	PA7/SPI1_MOSI/ADC_IN7/TIM3_CH2	Reserved	O	Reserved
33	PC4/ADC_IN14	SQL_DET	AD	Detects carrier signals.
34	PC5/ADC_IN15	BAT_DET	AD	Detects battery voltage.
35	PB0/ADC_IN8/TIM3_CH3	DTMFI/MSKI	AD	Input pin for DTMF/MSK decoding
36	PB1/ADC_IN9/TIM3_CH4	Reserved	O	Reserved
37	PB2 / BOOT1	BOOT1	I	Input the low level.
38	PE7	Reserved	O	Reserved
39	PE8	PTT	I	PTT key (valid at low level)
40	PE9	SK1	I	Programmable function key (SK1) (valid at low level)
41	PE10	SK2	I	Programmable function key (SK2) (valid at low level)
42	PE11	TK	I	Emergency Key (valid at low level)
43	PE12	PLL_EN	O	MB15E03SL PLL ENABLE
44	PE13	LD	I	Detects PLL circuit unlock (H: Lock; L: Unlock).
45	PE14	AK2347_CSN	O	Enables Ak2347 serial data.
46	PE15	MIC_CTRL	O	Switches the MIC on or off (H: Off; L: On).
47	PB10/I2C2_SCL/USART3_TX	Reserved	O	Reserved
48	PB11/I2C2_SDA/USART3_RX	Reserved	O	Reserved
49	VSS_1			GND
50	VDD_1			VCC
51	PB12/SPI2_NSS/I2C2_SMBAI/USART3_CK	Reserved	O	Reserved
52	PB13/SPI2_SCK/USART3_CTS	LCD_SCL	O	Serial Port: inputs LCD Clock.
53	PB14/SPI2_MISO/USART3_RTS	Reserved	O	Reserved
54	PB15/SPI2_MOSI	LCD_SDI	O	Serial Port: inputs LCD serial data.
55	PD8	OPT_SEL_2	O	Reserved
56	PD9	OPT_SEL_1	I	Detects external earpiece (valid at high level).
57	PD10	APA_EN	O	Controls the power for audio PA (H: On; L: Off).

58	PD11	COM_SCLK	O	Clock signal for MB15E03SL PLL clock/ AK2347 clock.
59	PD12	COM_DATA	O	Data cable for MB15E03SL PLL data/ AK2347 data.
60	PD13	GLED	O	Green LED (H: On)
61	PD14	RLED	O	Red LED (H: On)
62	PD15	LCD_RS	O	Displays data or options.
63	PC6	LCD_RSTB	O	Reset Input Pin When RSTB is set to L, initialization begins.
64	PC7	T/R	O	Controls the RF TX/RX switch (H: RX; L: TX).
65	PC8	EEP_SCLK	I/O	EEPROM Clock
66	PC9	EEP_SDA	I/O	EEPROM Data
67	PA8/USART1_CK /MCO	Reserved	O	Reserved
68	PA9/USART1_TX/	UART1_TX	O	UART TxD
69	PA10/USART1_RX	UART1_RX	I	UART RxD
70	PA11 / USART1_CTS	Reserved	O	Reserved
71	PA12 / USART1_RTS/	Reserved	O	Reserved
72	PA13/JTMS/SWDIO	JTMS/SWDIO		Can not remain open during adjustment.
73	Not connected			
74	VSS_2			GND
75	VDD_2			VCC
76	PA14/JTCK/SWCLK	JTCK/SWCLK		Can not remain open during adjustment.
77	PA15/JTDI	JTDI		Can not remain open during adjustment.
78	PC10	KEY_IN4	I	Input pin for key matrix scan
79	PC11	KEY_IN3	I	
80	PC12	KEY_IN2	I	
81	PD0	KEY_IN1	I	
82	PD1	KEY_OUT4	O	Output pin for key matrix scan
83	PD2/TIM3_ETR	KEY_OUT3	O	
84	PD3	KEY_OUT2	O	
85	PD4	KEY_OUT1	O	
86	PD5	Reserved	O	Reserved
87	PD6	Reserved		Reserved
88	PD7	Reserved		Reserved
89	PB3/JTDO/TRACESWO	JTDO		Can not remain open during adjustment.
90	PB4/JNTRST	JNTRST		Can not remain open during adjustment.
91	PB5/I2C1_SMBAI	Reserved		Reserved
92	PB6/I2C1_SCL/TIM4_CH1	Reserved		Reserved
93	PB7/I2C1_SDA/TIM4_CH2	TTSI	TRG	Inputs 2-Tone.

94	BOOT0	BOOT0	I	Input the low level.
95	PB8/TIM4_CH3	Reserved		Reserved
96	PB9/TIM4_CH4	Reserved		Reserved
97	PE0/TIM4_ETR	Reserved		Reserved
98	PE1	W/N	O	Controls the channel spacing between wide and narrow (L: Narrow; H: Wide.).
99	VSS_3			GND
100	VDD_3			VCC

TC-580 Parts List 1

TC-580 (350-390MHz) Parts List 1					
No.	Part No.	Description	Qty.	Ref No.	Print No.
1	41005801000C0	PCB Board FR4 6L 4P 108.29*46.31*1.20mm C (RoHS)	1	PCB	
2	3801045030130	Ceramic Filter 450KHz±6.0KHz 450F (RoHS)	1	CF201	T2H
3	3099080398000	Chip Resistor 1206 0.39Ω J 1/4W (RoHS)	1	R429	B3C
4	3099080398000	Chip Resistor 1206 0.39Ω J 1/4W (RoHS)	1	R430	B3C
5	3099080398000	Chip Resistor 1206 0.39Ω J 1/4W (RoHS)	1	R431	B3C
6	3001052790000	Chip Resistor 0402 2.7Ω J 1/16W (RoHS)	1	R506	T4D
7	3001054790000	Chip Resistor 0402 4.7Ω J 1/16W (RoHS)	1	R269	B2B
8	3001054790000	Chip Resistor 0402 4.7Ω J 1/16W (RoHS)	1	R271	B1B
9	3001051000020	Chip Resistor 0402 10Ω F 1/16W (RoHS)	1	R121	T5F
10	3001051000020	Chip Resistor 0402 10Ω F 1/16W (RoHS)	1	R126	T4F
11	3001051000020	Chip Resistor 0402 10Ω F 1/16W (RoHS)	1	R133	T3E
12	3001051000020	Chip Resistor 0402 10Ω F 1/16W (RoHS)	1	R237	B2A
13	3001051000020	Chip Resistor 0402 10Ω F 1/16W (RoHS)	1	R251	T2H
14	3001051000020	Chip Resistor 0402 10Ω F 1/16W (RoHS)	1	R268	B2B
15	3001051000020	Chip Resistor 0402 10Ω F 1/16W (RoHS)	1	R404	T5E
16	3001054700000	Chip Resistor 0402 47Ω J 1/16W (RoHS)	1	R407	T5D
17	3001054700000	Chip Resistor 0402 47Ω J 1/16W (RoHS)	1	R411	T5C
18	3001056810000	Chip Resistor 0402 680Ω J 1/16W (RoHS)	1	R644	B4D
19	3001056810000	Chip Resistor 0402 680Ω J 1/16W (RoHS)	1	R649	B4D
20	3001055600000	Chip Resistor 0402 56Ω J 1/16W (RoHS)	1	R106	T4F
21	3001055100020	Chip Resistor 0402 51Ω J 1/16W (RoHS)	1	R107	T4F
22	3001051010000	Chip Resistor 0402 100Ω J 1/16W (RoHS)	1	R112	T4E
23	3001051010000	Chip Resistor 0402 100Ω J 1/16W (RoHS)	1	R514	T1E
24	3001055110000	Chip Resistor 0402 510Ω J 1/16W (RoHS)	1	R518	T4D
25	3001051010000	Chip Resistor 0402 100Ω J 1/16W (RoHS)	1	R521	T1E
26	3001051010000	Chip Resistor 0402 100Ω J 1/16W (RoHS)	1	R535	T1G
27	3001051010000	Chip Resistor 0402 100Ω J 1/16W (RoHS)	1	R643	B3C
28	3001051010000	Chip Resistor 0402 100Ω J 1/16W (RoHS)	1	R670	B4D
29	3001061010000	Chip Resistor 0603 100Ω J 1/10W (RoHS)	1	R415	T3B
30	3001051510000	Chip Resistor 0402 150Ω J 1/16W (RoHS)	1	R131	T3E
31	3001062710000	Chip Resistor 0603 270Ω J 1/10W (RoHS)	1	R706	B3A
32	3001053310010	Chip Resistor 0402 330Ω J 1/16W (RoHS)	1	R405	T4E
33	3001053310010	Chip Resistor 0402 330Ω J 1/16W (RoHS)	1	R513	T1E
34	3001063910000	Chip Resistor 0603 390Ω J 1/10W (RoHS)	1	R729	B2E
35	3001063910000	Chip Resistor 0603 390Ω J 1/10W (RoHS)	1	R730	B2E
36	3001063910000	Chip Resistor 0603 390Ω J 1/10W (RoHS)	1	R731	B1E
37	3001055620000	Chip Resistor 0402 5.6KJ 1/16W (RoHS)	1	R200	B1A
38	3001055610000	Chip Resistor 0402 560Ω J 1/16W (RoHS)	1	R100	T4G
39	3001055610000	Chip Resistor 0402 560Ω J 1/16W (RoHS)	1	R516	T1F
40	3001055610000	Chip Resistor 0402 560Ω J 1/16W (RoHS)	1	R517	T1G
41	3001056810000	Chip Resistor 0402 680Ω J 1/16W (RoHS)	1	R632	B2A
42	3001058210000	Chip Resistor 0402 820Ω J 1/16W (RoHS)	1	R402	T4E
43	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C243	T2G

44	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C262	B1A
45	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C276	B1A
46	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C414	T4B
47	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C439	B4C
48	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C538	T1E
49	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C539	T1E
50	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C543	T1F
51	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C547	T1G
52	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C558	T1G
53	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C623	B2D
54	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C673	B2D
55	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C678	B2D
56	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C681	B2C
57	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C684	B2C
58	3101051030020	Chip Capacitor 0.01UF K 25V 0402 (RoHS)	1	C686	B3C
59	3101052230000	Chip Capacitor 0402 0.022UF K 16V (RoHS)	1	C157	T5H
60	3101051050000	Chip Capacitor 0402 1UF K 16V (RoHS)	1	C266	T3G
61	3101052230000	Chip Capacitor 0402 0.022UF K 16V (RoHS)	1	C672	B1D
62	3101052230000	Chip Capacitor 0402 0.022UF K 16V (RoHS)	1	C676	B1D
63	3101052230000	Chip Capacitor 0402 0.022UF K 16V (RoHS)	1	C707	B3A
64	3101072240000	Chip Capacitor 0.22UF K 25V 0805 (RoHS)	1	C102	T3G
65	3101053330000	Chip Capacitor 0402 0.033UF K 16V (RoHS)	1	C158	T5H
66	3101053330000	Chip Capacitor 0402 0.033UF K 16V (RoHS)	1	C273	T3I
67	3101053330000	Chip Capacitor 0402 0.033UF K 16V (RoHS)	1	C274	T4I
68	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C118	T5F
69	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C119	T4F
70	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C133	T4G
71	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C141	T4H
72	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C145	T5H
73	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C151	T5F
74	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C172	T3F
75	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C207	T3I
76	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C210	T2I
77	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C211	T2I
78	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C216	B1E
79	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C222	T2I
80	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C242	T2G
81	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C252	T2H
82	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C257	B2B
83	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C259	B2B
84	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C261	B2B
85	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C264	T3H
86	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C269	B2C
87	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C272	B1B
88	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C277	B2E
89	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C280	T2H
90	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C281	T2H

91	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C407	T5D
92	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C413	T4B
93	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C435	B4D
94	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C440	B4C
95	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C514	T4D
96	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C520	T4D
97	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C535	T1E
98	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C603	T2A
99	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C624	B5D
100	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C674	B2D
101	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C679	B2C
102	3101051040060	Chip Capacitor 0.1UF K 16V 0402 (RoHS)	1	C682	B2C
103	3104071040010	Tantalum Capacitor 0.1UF M 20V -55~+125℃ P (RoHS)	1	C100	T4G
104	3101050590020	Chip Capacitor 0402 0.5PF B 50V (RoHS)	1	C109	T5F
105	3101050590020	Chip Capacitor 0402 0.5PF B 50V (RoHS)	1	C116	T4F
106	3101050590020	Chip Capacitor 0402 0.5PF B 50V (RoHS)	1	C117	T4F
107	3001050000000	Chip Resistor 0402 0Ω J 1/16W (RoHS)	1	C412	T5D
108	3001050000000	Chip Resistor 0402 0Ω J 1/16W (RoHS)	1	R104	T3G
109	3001050000000	Chip Resistor 0402 0Ω J 1/16W (RoHS)	1	R220	T2I
110	3001050000000	Chip Resistor 0402 0Ω J 1/16W (RoHS)	1	R283	T3G
111	3001050000000	Chip Resistor 0402 0Ω J 1/16W (RoHS)	1	R406	T5E
112	3001050000000	Chip Resistor 0402 0Ω J 1/16W (RoHS)	1	R642	B2C
113	3001050000000	Chip Resistor 0402 0Ω J 1/16W (RoHS)	1	R712	B3A
114	3001060000000	Chip Resistor 0603 0Ω J 1/10W (RoHS)	1	R410	T5C
115	3001051220000	Chip Resistor 0402 1.2KΩ J 1/16W (RoHS)	1	R102	T4G
116	3001051020000	Chip Resistor 0402 1KΩ J 1/16W (RoHS)	1	R275	B2A
117	3001051520010	Chip Resistor 0402 1.5KΩ F 1/16W (RoHS)	1	R403	T4E
118	3001051520010	Chip Resistor 0402 1.5KΩ F 1/16W (RoHS)	1	R532	T2G
119	3001051820000	Chip Resistor 0402 1.8KΩ J 1/16W (RoHS)	1	R246	T1G
120	3001051820000	Chip Resistor 0402 1.8KΩ J 1/16W (RoHS)	1	R408	T5D
121	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C103	T3F
122	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C104	T3F
123	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C120	T5F
124	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C134	T4G
125	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C139	T4H
126	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C146	T5G
127	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C148	T5G
128	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C152	T5E
129	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C154	T4E
130	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C209	T3I
131	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C213	B2E
132	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C221	T2I
133	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C223	T3I
134	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C237	B1A
135	3101054710010	Chip Capacitor 470PF K 50V 0402 (RoHS)	1	C238	T3H
136	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C256	B2A
137	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C260	B2B

138	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C282	T3G
139	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C404	T5D
140	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C411	T5C
141	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C443	B4D
142	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C505	T3B
143	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C522	T3D
144	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C527	T2E
145	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C557	T2G
146	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C559	T2G
147	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C621	T2A
148	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C634	B2A
149	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C635	B2A
150	3101051020010	Chip Capacitor 1000PF K 50V 0402 (RoHS)	1	C727	T1D
151	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R105	T3G
152	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R122	T5F
153	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R124	T5F
154	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R212	T3I
155	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R226	T3I
156	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R235	T3I
157	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R502	T3B
158	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R507	T3D
159	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R508	T3D
160	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R509	T1E
161	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R511	T1E
162	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R522	T3B
163	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R523	T2D
164	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R525	T3B
165	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R609	T1B
166	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R636	B1D
167	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R656	B2D
168	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R668	T2B
169	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R672	B4C
170	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R679	B4C
171	3001051040000	Chip Resistor 0402 100KΩ F 1/16W (RoHS)	1	R685	B4C
172	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C135	T4H
173	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C136	T4H
174	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C137	T4H
175	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C138	T4G
176	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C513	T4D
177	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C703	B4A
178	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C704	B4A
179	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C705	B3A
180	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C706	B3A
181	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C708	B3E
182	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C709	B4G
183	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C710	B3G
184	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C711	B1G

185	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C712	B5E
186	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C713	B1F
187	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C714	B4F
188	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C715	B3E
189	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C716	B5B
190	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C717	B5B
191	3101051010030	Chip Capacitor 100PF J 50V 0402 (RoHS)	1	C718	B5B
192	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R101	T5G
193	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R115	T5H
194	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R116	T5H
195	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R117	T5H
196	3001051530000	Chip Resistor 0402 15KΩ J 1/16W (RoHS)	1	R209	T2I
197	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R224	T3I
198	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R273	T1H
199	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R276	B2A
200	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R277	T3H
201	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R279	T3H
202	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R401	T3E
203	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R418	B5D
204	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R519	T2E
205	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R601	B2C
206	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R602	B2C
207	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R666	B3E
208	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R667	B3C
209	3001051030000	Chip Resistor 0402 10KΩ J 1/16W (RoHS)	1	R676	B2D
210	3001051060000	Chip Resistor 10M J 1/16W 0402 (RoHS)	1	R716	B3A
211	3215006100010	Chip Inductor 10nH J 600mA 0.12Ω 0603 (RoHS)	1	L413	T5D
212	3101051000020	Chip Capacitor 10PF J 50V 0402 (RoHS)	1	C105	T4G
213	3101051000020	Chip Capacitor 10PF J 50V 0402 (RoHS)	1	C147	T5G
214	3101051000020	Chip Capacitor 10PF J 50V 0402 (RoHS)	1	C149	T5G
215	3101061000000	Chip Capacitor 0603 10PF J 50V (RoHS)	1	C111	T4F
216	3102992000040	Trimmer Capacitor 10pF ±2.5pF 55V -25~+85℃ SMD (RoHS)	1	TC101	T4F
217	3102992000040	Trimmer Capacitor 10pF ±2.5pF 55V -25~+85℃ SMD (RoHS)	1	TC102	T3F
218	3104071060070	Tantalum Capacitor 10UF M 10V -55~+125℃ P (RoHS)	1	C230	T4I
219	3104071060070	Tantalum Capacitor 10UF M 10V -55~+125℃ P (RoHS)	1	C251	T2G
220	3104071060070	Tantalum Capacitor 10UF M 10V -55~+125℃ P (RoHS)	1	C627	B2D
221	3104081060120	Tantalum Capacitor 10UF M 16V -55~+125℃ S (RoHS)	1	C258	B2B
222	3104081060120	Tantalum Capacitor 10UF M 16V -55~+125℃ S (RoHS)	1	C441	B4C
223	3001051240000	Chip Resistor 0402 120KΩ J 1/16W (RoHS)	1	R108	T4H
224	3001051240000	Chip Resistor 0402 120KΩ J 1/16W (RoHS)	1	R123	T4E
225	3001058230000	Chip Resistor 0402 82KΩ J 1/16W (RoHS)	1	R222	T2I
226	3001051240000	Chip Resistor 0402 120KΩ J 1/16W (RoHS)	1	R285	B2C
227	3001051230000	Chip Resistor 0402 12KΩ J 1/16W (RoHS)	1	R503	T4D
228	3101050900000	Chip Capacitor 0402 9PF J 50V (RoHS)	1	C503	T3B
229	3101050400010	Chip Capacitor 0402 4PF J 50V (RoHS)	1	C506	T3C
230	3101050900000	Chip Capacitor 0402 9PF J 50V (RoHS)	1	C511	T3B

231	3101061200000	Chip Capacitor 0603 12PF J 50V (RoHS)	1	C451	T4B
232	3001051540000	Chip Resistor 0402 150KΩ F 1/16W (RoHS)	1	R211	T2I
233	3001052240000	Chip Resistor 0402 220KΩ F 1/16W (RoHS)	1	R249	T2H
234	3001051540000	Chip Resistor 0402 150KΩ F 1/16W (RoHS)	1	R510	T1E
235	3001051540000	Chip Resistor 0402 150KΩ F 1/16W (RoHS)	1	R512	T1E
236	3001061540010	Chip Resistor 0603 150KΩ D 1/10W (RoHS)	1	R419	B5D
237	3001061540010	Chip Resistor 0603 150KΩ D 1/10W (RoHS)	1	R420	B5C
238	3001061540010	Chip Resistor 0603 150KΩ D 1/10W (RoHS)	1	R421	B5D
239	3001061540010	Chip Resistor 0603 150KΩ D 1/10W (RoHS)	1	R422	B5D
240	3001061540010	Chip Resistor 0603 150KΩ D 1/10W (RoHS)	1	R423	B5D
241	3001061540010	Chip Resistor 0603 150KΩ D 1/10W (RoHS)	1	R432	B5C
242	3210106680000	Chip Inductor 68nH K 340mA -40~+85℃ 0603（RoHS）	1	L506	T4D
243	3001051530000	Chip Resistor 0402 15KΩ J 1/16W (RoHS)	1	R234	T2I
244	3001051530000	Chip Resistor 0402 15KΩ J 1/16W (RoHS)	1	R530	T1G
245	3101051500020	Chip Capacitor 15PF J 50V 0402 (RoHS)	1	C519	T3E
246	3001051830000	Chip Resistor 0402 18KΩ J 1/16W (RoHS)	1	R207	T2I
247	3001051830000	Chip Resistor 0402 18KΩ J 1/16W (RoHS)	1	R208	T2I
248	3210305180000	Chip Inductor 18nH J 300mA -55~+125℃ 0402 (RoHS)	1	L113	T3F
249	3101050700010	Chip Capacitor 7PF J 50V 0402 (RoHS)	1	C517	T4E
250	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R103	T4G
251	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R127	T5F
252	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R202	B1C
253	3001051010000	Chip Resistor 0402 100Ω F 1/16W (RoHS)	1	R210	T2I
254	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R215	T1H
255	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R216	T1H
256	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R221	B1E
257	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R267	B2A
258	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R286	B2A
259	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R287	B2C
260	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R647	B1D
261	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R648	B2C
262	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R651	B3C
263	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R655	B3C
264	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R701	T1D
265	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R710	B4A
266	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R711	B4A
267	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R713	B3A
268	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R720	T2D
269	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R721	B3E
270	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R722	B4G
271	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R723	B3G
272	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R724	B1G
273	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R725	B4E
274	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R726	B2F
275	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R728	B3F
276	3001051020000	Chip Resistor 0402 1KΩ F 1/16W (RoHS)	1	R732	B3E
277	3001061020010	Chip Resistor 0603 1KΩ J 1/10W (RoHS)	1	R526	B1E

278	3005051020010	Integrated Resistor 1K J 1/16W -55~+125℃ 4*0402 (RoHS)	1	RN101	T4H
279	3005051020010	Integrated Resistor 1K J 1/16W -55~+125℃ 4*0402 (RoHS)	1	RN202	T4I
280	3001051050000	Chip Resistor 0402 1MΩ F 1/16W (RoHS)	1	R206	T3I
281	3001051050000	Chip Resistor 0402 1MΩ F 1/16W (RoHS)	1	R233	B1A
282	3001051050000	Chip Resistor 0402 1MΩ F 1/16W (RoHS)	1	R242	T3H
283	3001051050000	Chip Resistor 0402 1MΩ F 1/16W (RoHS)	1	R417	B4D
284	3001051050000	Chip Resistor 0402 1MΩ F 1/16W (RoHS)	1	R424	B4D
285	3001051050000	Chip Resistor 0402 1MΩ F 1/16W (RoHS)	1	R426	B3C
286	3001051050000	Chip Resistor 0402 1MΩ F 1/16W (RoHS)	1	R433	B4D
287	3001051050000	Chip Resistor 0402 1MΩ F 1/16W (RoHS)	1	R616	B2D
288	3304010100180	Varactor 10V 10-45PF 4.3 -55~125℃ SC-79 (RoHS)	1	D104	T4G
289	3304010100180	Varactor 10V 10-45PF 4.3 -55~125℃ SC-79 (RoHS)	1	D105	T4F
290	3304010100180	Varactor 10V 10-45PF 4.3 -55~125℃ SC-79 (RoHS)	1	D106	T3F
291	3304010100180	Varactor 10V 10-45PF 4.3 -55~125℃ SC-79 (RoHS)	1	D107	T3F
292	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C202	B1A
293	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C203	T2I
294	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C205	T2I
295	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C214	T3I
296	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C215	T3I
297	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C217	T1I
298	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C218	T1I
299	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C229	T4I
300	3101053330000	Chip Capacitor 0.033UF K 6.3V 0402 (RoHS)	1	C236	T3H
301	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C270	B1A
302	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C279	T3I
303	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C446	B3C
304	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C604	T1B
305	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C670	B2D
306	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C685	B3C
307	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C687	B3C
308	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C688	B3C
309	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C689	B4C
310	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C690	B4E
311	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C696	B2C
312	3101051050000	Chip Capacitor 1UF K 6.3V 0402 (RoHS)	1	C719	B3A
313	3101061050020	Chip Capacitor 1UF K 25V 0603 (RoHS)	1	C219	T1I
314	3101051020010	Chip Capacitor 1000P K 6.3V 0402 (RoHS)	1	C235	B1D
315	3101061050020	Chip Capacitor 1UF K 25V 0603 (RoHS)	1	C220	T1H
316	3104071050070	Tantalum Capacitor 1UF M 16V -55~+125℃ P (RoHS)	1	C433	B5D
317	3213306102000	Chip Inductor 1uH K 25mA 0.6Ω -25~+85℃ 0603 (RoHS)	1	L116	T5H
318	3213306102000	Chip Inductor 1uH K 25mA 0.6Ω -25~+85℃ 0603 (RoHS)	1	L117	T5G
319	3213306102000	Chip Inductor 1uH K 25mA 0.6Ω -25~+85℃ 0603 (RoHS)	1	L201	T2I
320	3213212102000	Chip Inductor 1uH J 245mA 1.1Ω -40~+105℃ 1008 (RoHS)	1	L404	T5D
321	3213212102000	Chip Inductor 1uH J 245mA 1.1Ω -40~+105℃ 1008 (RoHS)	1	L412	B4B
322	3213212102000	Chip Inductor 1uH J 245mA 1.1Ω -40~+105℃ 1008 (RoHS)	1	L511	T1E
323	3213212102000	Chip Inductor 1uH J 245mA 1.1Ω -40~+105℃ 1008 (RoHS)	1	L513	T1E
324	3001052220010	Chip Resistor 0402 2.2KΩ F 1/16W (RoHS)	1	R201	B1A

325	3001052220010	Chip Resistor 0402 2.2KΩ F 1/16W (RoHS)	1	R204	B1E
326	3001052220010	Chip Resistor 0402 2.2KΩ F 1/16W (RoHS)	1	R250	T3G
327	3001052220010	Chip Resistor 0402 2.2KΩ F 1/16W (RoHS)	1	R629	B2A
328	3101062250000	Chip Capacitor 2.2UF K 10V 0603 (RoHS)	1	C240	T1G
329	3101062250000	Chip Capacitor 2.2UF K 10V 0603 (RoHS)	1	C605	T1B
330	3101062250000	Chip Capacitor 2.2UF K 10V 0603 (RoHS)	1	C606	T1B
331	3101062250000	Chip Capacitor 2.2UF K 10V 0603 (RoHS)	1	C607	T1B
332	3101062250000	Chip Capacitor 2.2UF K 10V 0603 (RoHS)	1	C608	T2B
333	3101062250000	Chip Capacitor 2.2UF K 10V 0603 (RoHS)	1	C609	T2B
334	3101062250000	Chip Capacitor 2.2UF K 10V 0603 (RoHS)	1	C612	T1B
335	3104072250060	Tantalum Capacitor 2.2UF M 10V -55~+125℃ P (RoHS)	1	C132	T4G
336	3104072250060	Tantalum Capacitor 2.2UF M 10V -55~+125℃ P (RoHS)	1	C140	T4H
337	3104072250060	Tantalum Capacitor 2.2UF M 10V -55~+125℃ P (RoHS)	1	C225	T2I
338	3104072250060	Tantalum Capacitor 2.2UF M 10V -55~+125℃ P (RoHS)	1	C227	T3I
339	3104242250000	Tantalum Capacitor 2.2UF K 16V -55~+125℃ A (RoHS)	1	C101	T4G
340	3001052720000	Chip Resistor 0402 2.7KΩ J 1/16W (RoHS)	1	R272	B1D
341	3001051820000	Chip Resistor 0402 1.8KΩ J 1/16W (RoHS)	1	R515	T1E
342	3101052000020	Chip Capacitor 20PF J 50V 0402 (RoHS)	1	C523	T2D
343	3101052000020	Chip Capacitor 20PF J 50V 0402 (RoHS)	1	C528	T3D
344	3101052000020	Chip Capacitor 20PF J 50V 0402 (RoHS)	1	C549	T3D
345	3101052000020	Chip Capacitor 20PF J 50V 0402 (RoHS)	1	C552	T3B
346	3101052000020	Chip Capacitor 20PF J 50V 0402 (RoHS)	1	C553	T3B
347	3101052000020	Chip Capacitor 20PF J 50V 0402 (RoHS)	1	C617	B2D
348	3101052000020	Chip Capacitor 20PF J 50V 0402 (RoHS)	1	C619	B2D
349	3701212540040	Crystal Oscillator 21.25MHz 2.5ppm 3V -30-+75℃ (RoHS)	1	X101	T5G
350	3101052220010	Chip Capacitor 2200pF K 50V 0402 (RoHS)	1	C233	T3I
351	3001052240000	Chip Resistor 0402 220KΩ J 1/16W (RoHS)	1	R639	B1D
352	3001052240000	Chip Resistor 0402 220KΩ J 1/16W (RoHS)	1	R645	B3C
353	3001052240000	Chip Resistor 0402 220KΩ J 1/16W (RoHS)	1	R657	B3C
354	3001052740000	Chip Resistor 0402 270KΩ J 1/16W (RoHS)	1	R635	B1D
355	3212106221000	Chip Inductor 220nH J 300mA -55~+125℃ 0603（RoHS）	1	L103	T4F
356	3212106221000	Chip Inductor 220nH J 300mA -55~+125℃ 0603（RoHS）	1	L104	T3F
357	3212106221000	Chip Inductor 220nH J 300mA -55~+125℃ 0603（RoHS）	1	L109	T5F
358	3212106221000	Chip Inductor 220nH J 300mA -55~+125℃ 0603（RoHS）	1	L110	T3F
359	3210107221000	Chip Inductor 220nH J 240mA -40~+85℃ 0805 (RoHS)	1	L407	T3B
360	3101052210020	Chip Capacitor 220PF J 50V 0402 (RoHS)	1	C263	B1C
361	3101052210020	Chip Capacitor 220PF J 50V 0402 (RoHS)	1	C275	B1B
362	3101052210020	Chip Capacitor 220PF J 50V 0402 (RoHS)	1	C508	T4C
363	3101052210020	Chip Capacitor 220PF J 50V 0402 (RoHS)	1	C510	T4D
364	3101052210020	Chip Capacitor 220PF J 50V 0402 (RoHS)	1	C542	T2E
365	3101062210000	Chip Capacitor 0603 220PF J 50V (RoHS)	1	C421	T3B
366	3101062210000	Chip Capacitor 0603 220PF J 50V (RoHS)	1	C423	T3A
367	3101062210000	Chip Capacitor 0603 220PF J 50V (RoHS)	1	C430	T4A
368	3101062210000	Chip Capacitor 0603 220PF J 50V (RoHS)	1	C459	T3A
369	3221507221000	Bead 220Ω 100MHz 2000mA -55~+125℃ 0805 (RoHS)	1	L405	T4C
370	3001052230010	Chip Resistor 0402 22KΩ J 1/16W (RoHS)	1	R409	T5D
371	3001052230010	Chip Resistor 0402 22KΩ J 1/16W (RoHS)	1	R677	B2A

372	3001052230010	Chip Resistor 0402 22KΩ J 1/16W (RoHS)	1	R678	B2A
373	3210305220000	Chip Inductor 22nH J 300mA -55~+125℃ 0402 (RoHS)	1	L510	T2E
374	3210306220000	Chip Inductor 22nH J 300mA -40~+85℃ 0603 (RoHS)	1	L401	T4E
375	3101052200010	Chip Capacitor 22PF J 50V 0402 (RoHS)	1	C206	T3I
376	3101052200010	Chip Capacitor 22PF J 50V 0402 (RoHS)	1	C212	T2I
377	3101052200010	Chip Capacitor 22PF J 50V 0402 (RoHS)	1	C224	T3I
378	3101052200010	Chip Capacitor 22PF J 50V 0402 (RoHS)	1	C226	T3H
379	3101052200010	Chip Capacitor 22PF J 50V 0402 (RoHS)	1	C265	T5H
380	3101052200010	Chip Capacitor 22PF J 50V 0402 (RoHS)	1	C271	T4H
381	3101082260020	Chip Capacitor 22UF M 10V 1206 (RoHS)	1	C255	B2B
382	3104082260060	Tantalum Capacitor 22UF K 10V -55~+125℃ A (RoHS)	1	C602	T1B
383	3101052400010	Chip Capacitor 0402 24PF J 50V J (RoHS)	1	C541	T1E
384	3101052710000	Chip Capacitor 0402 270PF J 50V (RoHS)	1	C409	T5D
385	3001052730000	Chip Resistor 0402 27KΩ J 1/16W (RoHS)	1	R227	T4H
386	3001052730000	Chip Resistor 0402 27KΩ J 1/16W (RoHS)	1	R228	T3I
387	3001051530000	Chip Resistor 0402 15KΩ J 1/16W (RoHS)	1	R241	T3H
388	3210305270000	Chip Inductor 27nH J 300mA -55~+125℃ 0402（RoHS）	1	L507	T4E
389	3101051100010	Chip Capacitor 11PF J 50V 0402 (RoHS)	1	C524	T2E
390	3101062700010	Chip Capacitor 27PF J 50V 0603 (RoHS)	1	C454	T4B
391	3101050200010	Chip Capacitor 0402 2PF B 50V (RoHS)	1	C502	T3B
392	3101050200010	Chip Capacitor 0402 2PF B 50V (RoHS)	1	C530	T2E
393	3101050200010	Chip Capacitor 0402 2PF B 50V (RoHS)	1	C531	T2E
394	3101050200010	Chip Capacitor 0402 2PF B 50V (RoHS)	1	C532	T2E
395	3101050200010	Chip Capacitor 0402 2PF B 50V (RoHS)	1	C544	T2F
396	3101050200010	Chip Capacitor 0402 2PF B 50V (RoHS)	1	C546	T1G
397	3101060200010	Chip Capacitor 0603 2PF B 50V (RoHS)	1	C452	T4B
398	3101060200010	Chip Capacitor 0603 2PF B 50V (RoHS)	1	C455	T4A
399	3101060200010	Chip Capacitor 0603 2PF B 50V (RoHS)	1	C456	T4A
400	3401001000080	PNP Transistor 15V 800mA -55~150℃ SC-59 (RoHS)	1	Q701	T2D
401	3401001000490	PNP Transistor 50V 150mA -55~125℃ SSM (RoHS)	1	Q202	B2E
402	3411001000000	PNP Transistor 50V 150mA -55~150℃ SOT-523 (RoHS)	1	Q204	T1H
403	3403003000060	NPN Transistor 50V 150mA -55~150℃ SC-75A (RoHS)	1	Q702	T1D
404	3406001000090	NPN Transistor 9V 100mA -65~150℃ UPAK (RoHS)	1	Q401	T5E
405	3401002000990	NPN Transistor 10V 30mA -55~125℃ SSM (RoHS)	1	Q104	T4F
406	3401002000990	NPN Transistor 10V 30mA -55~125℃ SSM (RoHS)	1	Q106	T3E
407	3401002000990	NPN Transistor 10V 30mA -55~125℃ SSM (RoHS)	1	Q505	T1G
408	3411002000020	NPN Transistor 50V 150mA -55~150℃ SOT-523 (RoHS)	1	Q105	T4E
409	3411002000020	NPN Transistor 50V 150mA -55~150℃ SOT-523 (RoHS)	1	Q203	T1H
410	3503010000010	P-MOSFET VDS:-30V ID:-100mA VGS(th):-1.9V (RoHS)	1	Q102	T5F
411	3503010000010	P-MOSFET VDS:-30V ID:-100mA VGS(th):-1.9V (RoHS)	1	Q604	T1B
412	3503020000030	N-MOSFET VDS:30V ID:100mA VGS(th):3.0V (RoHS)	1	Q201	B1A
413	3503020000030	N-MOSFET VDS:30V ID:100mA VGS(th):3.0V (RoHS)	1	Q207	B4D
414	3503020000030	N-MOSFET VDS:30V ID:100mA VGS(th):3.0V (RoHS)	1	Q208	B2C
415	3499000000140	N-JFET VGS:15V VGSoff:-1.4V IDSS:50mA (RoHS)	1	Q100	T4F
416	3499000000140	N-JFET VGS:15V VGSoff:-1.4V IDSS:50mA (RoHS)	1	Q101	T3F
417	3001053320000	Chip Resistor 0402 3.3KΩ J 1/16W (RoHS)	1	R129	T4E
418	3001053320000	Chip Resistor 0402 3.3KΩ J 1/16W (RoHS)	1	R130	T3E

419	3001053320000	Chip Resistor 0402 3.3KΩ J 1/16W (RoHS)	1	R134	T3E
420	3001053320000	Chip Resistor 0402 3.3KΩ J 1/16W (RoHS)	1	R135	T3E
421	3001053320000	Chip Resistor 0402 3.3KΩ J 1/16W (RoHS)	1	R231	T2G
422	3001053320000	Chip Resistor 0402 3.3KΩ J 1/16W (RoHS)	1	R245	T1G
423	3001053320000	Chip Resistor 0402 3.3KΩ J 1/16W (RoHS)	1	R247	T2G
424	3213306332000	Chip Inductor 3.3uH K 15mA -25~+85℃ 0603 (RoHS)	1	L101	T4G
425	3213306332000	Chip Inductor 3.3uH K 15mA -25~+85℃ 0603 (RoHS)	1	L102	T3G
426	3213306332000	Chip Inductor 3.3uH K 15mA -25~+85℃ 0603 (RoHS)	1	L107	T4F
427	3213306332000	Chip Inductor 3.3uH K 15mA -25~+85℃ 0603 (RoHS)	1	L108	T4F
428	3702368630020	Crystal 3.6864MHz 50~100ppm 8~20pF -40~125℃ (RoHS)	1	X203	T5H
429	3101063690000	Chip Capacitor 0603 3.6PF B 50V (RoHS)	1	C112	T5F
430	3001053340000	Chip Resistor 0402 330KΩ J 1/16W (RoHS)	1	R223	T3I
431	3001053340000	Chip Resistor 0402 330KΩ J 1/16W (RoHS)	1	R425	B4D
432	3101053310020	Chip Capacitor 0402 330PF K 50V (RoHS)	1	C512	T4D
433	3001053330010	Chip Resistor 0402 33KΩ J 1/16W (RoHS)	1	R280	T3H
434	3001053330010	Chip Resistor 0402 33KΩ J 1/16W (RoHS)	1	R413	T5D
435	3210108330000	Chip Inductor 33nH J 530mA -40~+85℃ 1206 (RoHS)	1	L105	T5F
436	3210305220000	Chip Inductor 22nH J 300mA -55~+125℃ 0402 (RoHS)	1	L125	T3E
437	3210306330000	Chip Inductor 33nH J 300mA -40~+85℃ 0603 (RoHS)	1	L509	T2E
438	3101053300000	Chip Capacitor 0402 33PF J 50V (RoHS)	1	C228	T3H
439	3101053300000	Chip Capacitor 0402 33PF J 50V (RoHS)	1	C234	T3I
440	3101053300000	Chip Capacitor 0402 33PF J 50V (RoHS)	1	C246	T2G
441	3210108390000	Chip Inductor 39nH J 490mA -40~+85℃ 1206 (RoHS)	1	L106	T3F
442	3210305220000	Chip Inductor 22nH J 300mA -55~+125℃ 0402 (RoHS)	1	L111	T4E
443	3101050300000	Chip Capacitor 0402 3PF B 50V (RoHS)	1	C128	T3F
444	3101050300000	Chip Capacitor 0402 3PF B 50V (RoHS)	1	C501	T3B
445	3501020000030	N-MOSFET VDS:6V ID:20mA VGS(th):0.7V (RoHS)	1	Q502	T1E
446	3231351630000	Air-core Inductor E2-0.35*1.6*3TR (RoHS)	1	L409	T3A
447	3001054320000	Chip Resistor 0402 4.3KΩ J 1/16W (RoHS)	1	R505	T3D
448	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R120	T5E
449	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R203	B1A
450	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R265	T4I
451	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R266	B2C
452	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R428	B3C
453	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R603	B2C
454	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R630	B4D
455	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R631	B4D
456	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R637	B1D
457	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R638	B2D
458	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R640	B1D
459	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R641	B2D
460	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R652	B3C
461	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R654	B3C
462	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R697	B2C
463	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R698	B2C
464	3001054720000	Chip Resistor 0402 4.7KΩ J 1/16W (RoHS)	1	R735	T2D
465	3101064790010	Chip Capacitor 0603 4.7PF B 50V (RoHS)	1	C428	T4A

466	3101074750000	Chip Capacitor 4.7UF K 16V 0805 (RoHS)	1	C143	T5H
467	3101074750000	Chip Capacitor 4.7UF K 16V 0805 (RoHS)	1	C268	T3G
468	3104074750070	Tantalum Capacitor 4.7UF M 10V -55~+125℃ P (RoHS)	1	C122	T5F
469	3104074750070	Tantalum Capacitor 4.7UF M 10V -55~+125℃ P (RoHS)	1	C153	T5E
470	3104074750070	Tantalum Capacitor 4.7UF M 10V -55~+125℃ P (RoHS)	1	C200	B1B
471	3101054720000	Chip Capacitor 4700PF K 50V 0402 (RoHS)	1	C680	B2C
472	3101054720000	Chip Capacitor 4700PF K 50V 0402 (RoHS)	1	C683	B2C
473	3001054740000	Chip Resistor 0402 470KΩ J 1/16W (RoHS)	1	R240	T3H
474	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C114	T5F
475	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C115	T3F
476	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C123	T5F
477	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C124	T4E
478	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C131	T3F
479	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C144	T5H
480	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C150	T5F
481	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C171	T3E
482	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C173	T3F
483	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C201	B1B
484	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C208	T1H
485	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C231	T1H
486	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C232	B2C
487	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C245	T2H
488	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C247	T3G
489	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C248	T3G
490	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C249	T3H
491	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C402	T5E
492	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C403	T4E
493	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C408	T5C
494	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C415	T4B
495	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C422	T3B
496	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C432	B5D
497	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C434	B4D
498	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C436	B4D
499	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C437	B5D
500	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C438	B5D
501	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C442	B4D
502	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C518	T4D
503	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C534	T2E
504	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C536	T1E
505	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C537	T1E
506	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C540	T1E
507	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C613	T1B
508	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C657	B3A
509	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C675	B4C
510	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C677	B2D
511	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C701	T1D
512	3101054710010	Chip Capacitor 0402 470PF K 50V (RoHS)	1	C702	B3A

513	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R109	T5H
514	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R110	T5H
515	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R114	T5F
516	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R125	T5F
517	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R137	T5F
518	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R213	B1A
519	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R229	B2E
520	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R270	B2A
521	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R414	T5D
522	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R653	B3C
523	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R673	T1B
524	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R674	T1B
525	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R702	T2D
526	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R727	B5B
527	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R733	B5B
528	3001054730000	Chip Resistor 0402 47KΩ J 1/16W (RoHS)	1	R734	B5B
529	3101054700010	Chip Capacitor 47PF J 50V 0402 (RoHS)	1	C410	T5D
530	3101051200020	Chip Capacitor 0402 12PF B 50V (RoHS)	1	C504	T3B
531	3101051590000	Chip Capacitor 0402 1.5PF B 50V (RoHS)	1	C515	T4E
532	3101060400010	Chip Capacitor 0603 4PF B 50V (RoHS)	1	C424	T3A
533	3101060400010	Chip Capacitor 0603 4PF B 50V (RoHS)	1	C426	T3A
534	3101060400010	Chip Capacitor 0603 4PF B 50V (RoHS)	1	C429	T4A
535	3231351640000	Air-core Inductor E2-0.35*1.6*4TL (RoHS)	1	L410	T3A
536	3231351640000	Air-core Inductor E2-0.35*1.6*4TL (RoHS)	1	L411	T4A
537	3231351640000	Air-core Inductor E2-0.35*1.6*4TL (RoHS)	1	L501	T3B
538	3001055620000	Chip Resistor 0402 5.6KΩ J 1/16W (RoHS)	1	R132	T3F
539	3001055130010	Chip Resistor 0402 51KΩ J 1/16W (RoHS)	1	R225	T3I
540	3001055130010	Chip Resistor 0402 51KΩ J 1/16W (RoHS)	1	R236	T3I
541	3101055610000	Chip Capacitor 0402 560PF K 50V (RoHS)	1	C254	T3H
542	3001055630000	Chip Resistor 0402 56KΩ J 1/16W (RoHS)	1	R219	B2E
543	3001055630000	Chip Resistor 0402 56KΩ J 1/16W (RoHS)	1	R412	T5D
544	3001055630000	Chip Resistor 0402 56KΩ J 1/16W (RoHS)	1	R531	T2G
545	3101055600000	Chip Capacitor 0402 56PF J 50V (RoHS)	1	C250	T2H
546	3101055600000	Chip Capacitor 0402 56PF J 50V (RoHS)	1	C406	T5D
547	3101050900010	Chip Capacitor 0402 9PF B 50V (RoHS)	1	C107	T4G
548	3101050500010	Chip Capacitor 0402 5PF B 50V (RoHS)	1	C129	T3F
549	3101050500010	Chip Capacitor 0402 5PF B 50V (RoHS)	1	C130	T3F
550	3101050500010	Chip Capacitor 0402 5PF B 50V (RoHS)	1	C529	T2E
551	3101050500010	Chip Capacitor 0402 5PF B 50V (RoHS)	1	C533	T2E
552	3101060500010	Chip Capacitor 0603 5PF B 50V (RoHS)	1	C155	T3F
553	3231351650000	Air-core Inductor E2-0.35*1.6*5TL (RoHS)	1	L515	T2E
554	3231351650000	Air-core Inductor E2-0.35*1.6*5TL (RoHS)	1	L517	T3D
555	3231351650000	Air-core Inductor E2-0.35*1.6*5TL (RoHS)	1	L518	T3E
556	3231351650000	Air-core Inductor E2-0.35*1.6*5TL (RoHS)	1	L519	T3C
557	3231351650000	Air-core Inductor E2-0.35*1.6*5TL (RoHS)	1	L520	T3C
558	3001056820000	Chip Resistor 0402 6.8KΩ J 1/16W (RoHS)	1	R504	T4D
559	3221507600000	Bead 60Ω 100MHz 3000mA -55~+125℃ 0805 (RoHS)	1	L406	T4C

560	3221507600000	Bead 60Ω 100MHz 3000mA -55~+125℃ 0805 (RoHS)	1	L606	T2A
561	3001070000000	Chip Resistor 0805 0Ω J 1/8W -55~+155℃ (RoHS)	1	L608	T1B
562	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L100	T3G
563	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L114	T4G
564	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L115	T4H
565	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L118	T4F
566	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L208	T3I
567	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L209	T4H
568	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L402	T4E
569	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L604	T2B
570	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L605	T2B
571	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L607	B1D
572	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L610	B3C
573	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L611	B5D
574	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L616	T1B
575	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L701	B3A
576	3221506601000	Bead 600Ω 100MHz 500mA -55~+125℃ 0603 (RoHS)	1	L703	T1D
577	3001056830000	Chip Resistor 0402 68KΩ J 1/16W (RoHS)	1	R113	T5H
578	3210306680000	Chip Inductor 68nH J 300mA -40~+85℃ 0603 (RoHS)	1	L414	T3A
579	3101050600010	Chip Capacitor 6PF B 50V 0402 (RoHS)	1	C174	T3E
580	3101060600010	Chip Capacitor 6PF B 50V 0603 (RoHS)	1	C110	T5F
581	5205000001000	Battery Connector Black PA9T/Brass 00 (RoHS)	1	G1	T3D
582	3101050400010	Chip Capacitor 4PF B 50V 0402 (RoHS)	1	C521	T3E
583	3101050200010	Chip Capacitor 2PF B 50V 0402 (RoHS)	1	C526	T3E
584	3101051000020	Chip Capacitor 10PF B 50V 0402 (RoHS)	1	C551	T3D
585	3101060700020	Chip Capacitor 0603 7PF B 50V (RoHS)	1	C156	T3F
586	3101060700020	Chip Capacitor 0603 7PF B 50V (RoHS)	1	C425	T3A
587	3101060700020	Chip Capacitor 0603 7PF B 50V (RoHS)	1	C427	T3A
588	3001058220000	Chip Resistor 0402 8.2KΩ J 1/16W (RoHS)	1	R416	B5D
589	3001056830000	Chip Resistor 0402 68KΩ J 1/16W (RoHS)	1	R230	T3I
590	3001058230000	Chip Resistor 0402 82KΩ J 1/16W (RoHS)	1	R238	T3H
591	3001058230000	Chip Resistor 0402 82KΩ J 1/16W (RoHS)	1	R239	T3H
592	3001058230000	Chip Resistor 0402 82KΩ J 1/16W (RoHS)	1	R248	T2G
593	3101058200000	Chip Capacitor 82PF J 50V 0402 (RoHS)	1	C244	T2G
594	3101051200020	Chip Capacitor 0402 12PF B 50V (RoHS)	1	C108	T3F
595	3101051000020	Chip Capacitor 0402 10PF B 50V (RoHS)	1	C507	T3C
596	3101060800010	Chip Capacitor 0603 8PF B 50V (RoHS)	1	C113	T4F
597	3231351680000	Air-core Inductor E2-0.35*1.6*8TR (RoHS)	1	L416	T4C
598	3701098340010	Crystal 9.8304MHz ±30ppm 20pF -30℃~+75℃ (RoHS)	1	X602	B1D
599	3001059130000	Chip Resistor 0402 91KΩ F 1/16W (RoHS)	1	R214	B2E
600	3001059130000	Chip Resistor 0402 91KΩ F 1/16W (RoHS)	1	R232	B1A
601	3101050900000	Chip Capacitor 0402 9PF B 50V (RoHS)	1	C106	T3F
602	3101050900000	Chip Capacitor 0402 9PF B 50V (RoHS)	1	C126	T4F
603	3101053300000	Chip Capacitor 0402 33PF B 50V (RoHS)	1	C127	T3F
604	3101050900000	Chip Capacitor 0402 9PF B 50V (RoHS)	1	C170	T3F
605	3101050900000	Chip Capacitor 0402 9PF B 50V (RoHS)	1	C241	T1G
606	3101050900000	Chip Capacitor 0402 9PF B 50V (RoHS)	1	C401	T4E

607	3101050900000	Chip Capacitor 0402 9PF B 50V (RoHS)	1	C405	T5D
608	3001050000000	Chip Resistor 0402 0Ω J 1/16W (RoHS)	1	C525	T2E
609	3101050900000	Chip Capacitor 0402 9PF B 50V (RoHS)	1	C548	T2F
610	3101060900010	Chip Capacitor 0603 9PF B 50V (RoHS)	1	C450	T5C
611	3101060900010	Chip Capacitor 0603 9PF B 50V (RoHS)	1	C453	T5B
612	3613034000000	Baseband Processor 2.7~3.3V -40~+85℃ VSOP-24 A (RoHS)	1	U202	T3H
613	4399090000000	Key Switch PT036-D1S (RoHS)	1	S633	B3A
614	3418001000010	NPN Transistor 10V 50mA -65~150℃ SOT-143 (RoHS)	1	Q501	T4D
615	3304040200000	Varactor VR:30V 19.7pF/1VR 2.1pF/28VR (RoHS)	1	D108	T5F
616	3612022000000	Memory EEPROM 256K 1.8~5.5V -40~85℃ (RoHS)	1	U622	B4E
617	3403007000020	BRT Vce:50V VIoff:0.3V VIon:1.4V (RoHS)	1	Q404	B5D
618	3403008000010	BRT Vce:50V VIoff:0.5V VIon:3V (RoHS)	1	Q205	B2A
619	3403008000010	BRT Vce:50V VIoff:0.5V VIon:3V (RoHS)	1	Q405	B5D
620	3399990000080	Zener Diode 6.8V -55~125℃ SOD-523 (RoHS)	1	D210	B1C
621	3399990000080	Zener Diode 6.8V -55~125℃ SOD-523 (RoHS)	1	D220	B1B
622	3399990000080	Zener Diode 6.8V -55~125℃ SOD-523 (RoHS)	1	D250	B2A
623	3399990000080	Zener Diode 6.8V -55~125℃ SOD-523 (RoHS)	1	D251	B4C
624	3399990000080	Zener Diode 6.8V -55~125℃ SOD-523 (RoHS)	1	D252	B3A
625	3399990000080	Zener Diode 6.8V -55~125℃ SOD-523 (RoHS)	1	D402	B5D
626	3499000000180	PNP Transistor 12V 2.5A -55~150℃ SOT23 (RoHS)	1	Q206	B2B
627	3304060300050	Varactor VR:15V 16.4pF/1VR 5.5pF/4VR (RoHS)	1	D509	T2D
628	3304060300050	Varactor VR:15V 16.4pF/1VR 5.5pF/4VR (RoHS)	1	D510	T2D
629	3304060300050	Varactor VR:15V 16.4pF/1VR 5.5pF/4VR (RoHS)	1	D513	T3D
630	3304060300050	Varactor VR:15V 16.4pF/1VR 5.5pF/4VR (RoHS)	1	D514	T3B
631	3304060300050	Varactor VR:15V 16.4pF/1VR 5.5pF/4VR (RoHS)	1	D515	T3B
632	5206010200020	FFC Connector 10pin 0.5mm -30℃~+85℃ (RoHS)	1	J701	B3A
633	3399990000260	Rectifier Diode 10V 15mA 380mV/1mA -55~125℃ (RoHS)	1	D505	T4C
634	3307110100080	LED Super Green 2.2V -40~85℃ (RoHS)	1	D603	B2F
635	3307110100080	LED Super Green 2.2V -40~85℃ (RoHS)	1	D604	B4G
636	3307110100080	LED Super Green 2.2V -40~85℃ (RoHS)	1	D605	B2G
637	3307110100080	LED Super Green 2.2V -40~85℃ (RoHS)	1	D606	B4F
638	3307110100080	LED Super Green 2.2V -40~85℃ (RoHS)	1	D607	B4H
639	3307110100080	LED Super Green 2.2V -40~85℃ (RoHS)	1	D608	B2H
640	3307110100080	LED Super Green 2.2V -40~85℃ (RoHS)	1	D610	B2A
641	3303020100080	LED 35V -25~85℃ (RoHS)	1	D401	T3E
642	3303020100080	LED 35V -25~85℃ (RoHS)	1	D501	T3B
643	3303020100080	LED 35V -25~85℃ (RoHS)	1	D502	T3B
644	3303020100080	LED 35V -25~85℃ (RoHS)	1	D511	T3E
645	3303020100020	LED 80V -55~150℃ (RoHS)	1	D109	T5E
646	3303020100020	LED 80V -55~150℃ (RoHS)	1	D206	T1H
647	3303030800040	LED 35V -55~125℃ (RoHS)	1	D403	T3B
648	3604007000000	PLL IC 1.2GHZ -40~+85℃ BCC-16 (RoHS)	1	U101	T4G
649	3605008005070	Operational Amplifier 3~32V -40~+85℃ (RoHS)	1	U203	T2I
650	3605008005070	Operational Amplifier 3~32V -40~+85℃ (RoHS)	1	U401	B5D
651	3307110100070	LED Super Red 1.85V -40~85℃ (RoHS)	1	D609	B2A
652	3303030300000	Schottky Barrier Diode 40V -40~125℃ (RoHS)	1	D201	T3I
653	3303030300000	Schottky Barrier Diode 40V -40~125℃ (RoHS)	1	D202	T1I

654	3303030300000	Schottky Barrier Diode 40V -40~125℃ (RoHS)	1	D203	T1H
655	3504990000010	PA MOSFET VDS:30V ID:600mA VGS(th):1.8V (RoHS)	1	Q402	T5D
656	3504990000040	PA MOSFET 10uA 25V 10uA 7.2V 7W 150℃ (RoHS)	1	Q403	T5C
657	3610017000070	MCU 32Bit 3V 7.3728MHz -40~80℃ (RoHS)	1	U611	B3D
658	3603002005440	IF Processor 455MHz -30~+85℃ SSOP-16 (RoHS)	1	U201	T2G
659	3605017005540	Operational Amplifier 1.8~15V -40~150℃ (RoHS)	1	U205	B2B
660	3302030500020	Zener Diode 18V 150℃ SOD-323 (RoHS)	1	D207	T2C
661	3499000000150	Compound Transistor PNP+NPN -50V/50V HFE:68/68 (RoHS)	1	Q103	T5F
662	3499000000150	Compound Transistor PNP+NPN -50V/50V HFE:68/68 (RoHS)	1	Q210	T1G
663	3403009000010	Compound Transistor NPN*2 50V -55~150℃ (RoHS)	1	Q621	B2A
664	3608015000060	Power Management IC LDO 5V -40~+85℃ (RoHS)	1	U601	T2B
665	3608015000040	Power Management IC LDO 3.0V&3.0V -40~+85℃ (RoHS)	1	U603	T2B
666	3608015000050	Power Management IC LDO 4.5V&4.5V -40~+85℃ (RoHS)	1	U602	T1B
667	6201836000000	Antenna Spring Plate T0.20mm 00 (RoHS)	1	ANT1	T5B
668	3403009000010	Compound Transistor NPN*2 50V -55~150℃ (RoHS)	1	Q621	B2A
669	3608015000060	Power management IC LDO 5V -40~+85℃ (RoHS)	1	U601	T2B
670	3608015000040	Power management IC LDO 3.0V&3.0V -40~+85℃ (RoHS)	1	U603	T2B
671	3608015000050	Power management IC LDO 4.5V&4.5V -40~+85℃ (RoHS)	1	U602	T1B
672	6201836000000	Antenna Spring Plate T0.20mm 00 (RoHS)	1	ANT1	T5B

Adjustment Description

Required Test Instruments

Radio communication test set (HP8921)	1 set
10V/3A regulated DC power supply	1 set
Digital voltmeter	1 set
Ammeter	1 set

Preparation

Place the board to be tested on the test fixture (please ensure good connection between each test point and the fixture), and connect the board to a power supply.

Tuning Procedures

1. Operations before Tuning

1) PCB Tuning:

Before the PCB arrives each work station for specification inspection, programs must be downloaded and EEPROM must be initialized by the profiles (downloading with a test framework/ initializing via programming software or through wired clone). If any adjustment is required, apply a programming cable to enter the adjustment mode for PC programming or manual adjustment.

2) Radio Tuning:

1) Manual Tuning: Hold down **PTT** and **SK1** for 2 seconds while powering on the radio. Then the LCD displays “Tuning Mode”. After the keys are released, press **OK**, and then press **UP/DN** to select your desired tuning item. To enter this item, press **OK** again. To return to the previous menu, press **C**. The LED solidly glows red for TX group items and green for RX group items. Follow the operation instructions to tune each item.

2) Automatic Tuning: Connect a programming cable to the radio for real-time tuning through PC.

3) Wired Clone:

1) Connect two radios using a cloning cable. Then hold down **SK1** for 2 seconds while powering the source radio on, and the radio enters Clone mode, with red LED flashing once. The target radio can be directly turned on to enter the mode.

2) Press **SK2** in Clone mode to switch to Factory Clone mode, with red LED flashing twice.

(Note: The Factory Clone Mode option must be checked through the programming software.)

3) Press **PTT** to begin cloning. During cloning, LED of the source radio glows red, while LED of the target radio glows green. Upon completion of cloning, LED of the source radio solidly glows orange. If any error occurs during cloning, LED of the source radio flashes orange. Press **OK** to return to Clone mode upon either cloning success or failure.

4) You can clone the data to multiple target radios in the same way.

2. Description of Tuning Items

TC-580 Tuning Items											
Channel	Tunable Frequency		Wide Band					Narrow Band				
			Freq. 1	Freq. 2	Freq . 3	Freq. 4	Freq. 5	Freq. 1	Freq. 2	Freq. 3	Freq. 4	Freq. 5
TX Section												
1	Preset Power				Y							
2	Frequency Tolerance				Y							
3	TX Low Power		Y	Y	Y	Y	Y					
4	TX High Power		Y	Y	Y	Y	Y					
5	CDCSS Balance		Y	Y	Y	Y	Y					
6	CDCSS Deviation		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
7	CTCSS L Deviation		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
8	CTCSS M Deviation		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
9	CTCSS H Deviation		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
10	DTMF Deviation		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
11	VOX Gain	VOX Gain 1			Y							
		VOX Gain 2			Y							
		VOX Gain 3			Y							
		VOX Gain 4			Y							
		VOX Gain 5			Y							
12	TX Low Voltage Threshold				Y							
13	Max. Deviation of TX Audio		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

RX Section											
14	SQL Level 1 ON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
15	SQL Level 5 ON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
16	SQL Level 9 ON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
17	SQL Level 1 OFF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
18	SQL Level 5 OFF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
19	SQL Level 9 OFF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
20	RX Low Voltage Threshold			Y							
21	Max. RX Volume			Y							
22	Bandpass Filter	Y	Y	Y	Y	Y					
	Note: Y indicates frequencies that can be tuned, and the rest are blank channels not available for tuning.										

1) Entry into a tuning item

Hold down **PTT** and **SK1** for 2 seconds while powering on the radio. Then the LCD displays “Tuning Mode”. Press **OK** to enter the item. (Please note that TX Item is the default item.) And use **UP/DN** to switch between TX Item and RX Item. After the item is selected, press **OK** to enter submenu under this item. Press **OK** to enter the desired tuning item or press **C** to return to the previous menu.

2) Wide/Narrow Bandwidth Switch and Frequency Switch in a Tuning Item

After an item is entered, press **UP/DN** to switch the frequency or wide/narrow bandwidth. Press **OK** to save and return to the previous menu upon completion of tuning.

3) Value Tuning

Short press **SK1** under certain bandwidth and certain tuning item to decrease the tuning value in the step of 1; hold down the key to decrease the value continuously in steps of 1. The tuning value will remain unchanged once it reaches the allowed minimum value.

Short press **SK2** under certain bandwidth and certain tuning item to increase the tuning value in the step of 1; hold down the key to increase the value continuously in steps of 1. The tuning value will remain unchanged once it reaches the allowed maximum value.

4) Measures on special items

SQL On 5, SQL Off 5 and RX Low Voltage Threshold: These tuning items are related to AD

sampling. Press **SK1** or **SK2** after entering the above items, to activate AD sampling (including calculation) once. Press **OK** to save the current AD sampling value and exit. If neither of **SK1** or **SK2** is pressed, the tuning value will not be updated, and AD sampling will not be activated.

5) Description of key-press

Please refer to "Software Specifications →Description of Modes → Manual Tune Mode → Description of key-press" on page **12.**

6) Tuning Items

TX group items: include the Preset Power, Frequency Tolerance, TX Low Power, TX High Power, CDCSS Balance, CDCSS Deviation, CTCSS Deviation (low), CTCSS Deviation (Medium), CTCSS Deviation (high), DTMF Deviation, TX Low Voltage Threshold and Max. Deviation of TX Audio tuned in tuning mode via software, and VCO Lock Voltage tuned out of the tuning mode via hardware.

Rx Group Items: include the Squelch, RX Low Voltage Threshold, Max. RX Volume and RX Bandpass Filter tuned in tuning mode, and VCO Lock Voltage tuned out of the tuning mode.

3. Specific Operations and Requirements

1) Tuning out of the mode

Note: CH1, CH2 and CH3 must be preset as wide bandwidth with low, medium and high frequency respectively and CH4, CH5 and CH6 as narrow bandwidth with low, medium and high frequency respectively. Make sure the antenna or load is connected before adjustment.

Tuning of TX/RX VCO Voltage

<table>
<tr><th rowspan="2">Item</th><th rowspan="2">Condition</th><th colspan="2">Test</th><th colspan="2">Adjustment</th><th rowspan="2">Specifications / Remarks</th></tr>
<tr><th>Test Instrument</th><th>Test point</th><th>Part</th><th>Method</th></tr>
<tr><td rowspan="2">TX VCO Lock Voltage</td><td>Set the channel to CH3 and press PTT to transmit.</td><td rowspan="4">Digital Voltmeter</td><td rowspan="4">CV</td><td rowspan="2">TC101</td><td>Adjust TC101 with ceramic tuning tool until the lock voltage meets the requirements.</td><td>4.0V±0.2V</td></tr>
<tr><td>Set the channel to CH1 and press PTT to transmit.</td><td>Check</td><td>≥0.5V</td></tr>
<tr><td rowspan="2">Rx VCO Lock Voltage</td><td>Set the channel to CH3.</td><td rowspan="2">TC102</td><td>Adjust TC102 with ceramic tuning tool until the lock voltage meets the requirements.</td><td>4.0V±0.2V</td></tr>
<tr><td>Set the channel to CH1.</td><td>Check</td><td>≥0.5V</td></tr>
</table>

2) Tuning in the mode

Note: Make sure the antenna or load is connected before adjustment.

TX group items: go to tune TX items under TX Item menu.

Item		Condition	Test		Adjustment		Specifications / Remarks
			Test Instrument	Test point	Part	Method	
Preset Power		Switch to and enter Pre Power, and set to WFP3.	Communication Test Set	Antenna Connector	Press **SK1/ SK2**	Press **SK1/SK2** to tune the TX preset power value, and press **OK** to save and exit.	1.0W
Frequency Tolerance		Switch to and enter Freq Offset, and set to WFP3.	Communication Test Set	Antenna Connector	Press **SK1/ SK2**	Press **SK1/SK2** to tune the TX carrier frequency tolerance, and press **OK** to save and exit.	＜300Hz
TX Power	High Power	Switch to and enter TX Power H. WFP1 at low frequency is set by default.	Communication Test Set / Ammeter	Antenna Connector	Press **SK1/ SK2**	Press **SK1/SK2** to tune the TX power, and press **OK** to save and exit upon completion of all settings.	UHF: 4.0W±0.2W I≤1.4A VHF/245MHz : 4.5W~5.0W I≤1.5A
		Short press **UP/DN** to switch the frequency (refer to the tunable frequencies).					
	Low Power	Switch to and enter TX Power L. WFP1 at low frequency is set by default.				Press **SK1/SK2** to tune the TX power, and press **OK** to save and exit upon completion of all settings.	1W±0.3W I≤1.0A
		Short press **UP/DN** to switch the frequency (refer to the tunable frequencies).					
CDCSS Balance		Switch to and enter CDC Blance. WFP1 at low frequency is set by default.	Communication Test Set BPF: <20Hz~300Hz	Antenna Connector	Press **SK1/ SK2**	Press **SK1/SK2** to tune the CDCSS waveform, and press **OK** to save and exit upon completion of all settings.	
		Short press **UP/DN** to switch the frequency.					

CDCSS Deviation	Wide Band	Switch to and enter CDC Dev. WFP1 at low frequency is set by default.	Communication Test Set BPF: <20Hz~300Hz AF Genl Lvl: off	Antenna Connector	Press **SK1/ SK2**	Press **SK1/SK2** to tune the CDCSS deviation, and press **OK** to save and exit upon completion of all settings.	700±50Hz
		Short press **UP/DN** to switch the frequency.					
	Narrow Band	Tune WFP5 in CDC Dev, and then press **UP** to enter NFP1 at low frequency.					450±50Hz
		Short press **UP/DN** to switch the frequency.					
CTCSS Deviation	Low Frequency	Switch to and enter CTC Dev L. WFP1 at low frequency is set by default. Short press **UP/DN** to switch the frequency.	Communication Test Set BPF: <20Hz~300Hz AF Genl Lvl: off	Antenna Connector	Press **SK1/ SK2**	Press **SK1/SK2** to tune the CTCSS deviation, and press **OK** to save and exit upon completion of all settings.	Wide band: 700±50Hz Narrow band: 450±50Hz
		Tune WFP5 in CTC Dev L, and then press **UP** to enter NFP1 at low frequency.					
	Medium Frequency	Switch to and enter CTC Dev M. WFP1 at low frequency is set by default. Short press **UP/DN** to switch the frequency.					
		Tune WFP5 in CTC Dev M, and then press **UP** to enter NFP1 at low frequency.					
	High Frequency	Switch to and enter CTC Dev H. WFP1 at low frequency is set by default. Short press **UP/DN** to switch the frequency.					
		Tune WFP5 in CTC Dev H, and then press **UP** to enter NFP1 at low frequency.					

DTMF Deviation	Wide Band	Switch to and enter DTMF Dev. WFP1 at low frequency is set by default. Short press **UP/DN** to switch the frequency.	Communication Test Set BPF: <20Hz~15KHz AF Genl Lvl: off	Antenna	Press **SK1/ SK2**	Press **SK1/SK2** to tune the DTMF deviation, and press **OK** to save and exit upon completion of all settings.	3±0.1kHz
	Narrow Band	Tune WFP5 in DTMF Dev, and then press **UP** to enter NFP at low frequency.					1.8±0.1kHz
Max. Modulation Frequency Deviation	Wide Band	Switch to and enter TX Max Dev. WFP1 at low frequency is set by default. Short press **UP/DN** to switch the frequency.	Communication Test Set BPF: <20Hz~15KHz AF Genl Lvl: 120mV	Antenna Earpiece Socket	Press **SK1/ SK2**	Press **SK1/SK2** to tune the audio deviation, and press **OK** to save and exit upon completion of all settings.	3.9KHz~4.1KHz
	Narrow Band	Tune WFP5 in TX Max Dev, and then press **UP** to enter NFP1 at low frequency.					1.9KHz~2.1KHz
VOX Gain		Switch to VOX Gain and press OK to enter its menu. Select VOX Gain1 and enter, and set to WFP3.	Communication Test Set BPF: <20Hz~15KHz AF Genl Lvl: 1.5mV	Antenna Earpiece Socket	Press **SK1/ SK2**	Press **SK1/SK2** to begin sampling. Press **OK** to save and return to the previous menu upon completion of sampling.	VOX Gain1: 7.0mV VOX Gain2: 4.0mV VOX Gain3: 3.0mV VOX Gain4: 2.5mV VOX Gain5: 1.5mV
		In the menu of VOX Gain, press **UP/DN** to switch among items from VOX Gain1 to VOX Gain5.					
TX Low Voltage Threshold		Switch to and enter TX Low Batt, and set to WFP3.	Digital Voltmeter	Power Supply port	Power Supply	Check the value, adjust the output voltage and inspect the emergency level.	A. 6.4~6.6V: the alert tone sounds to indicate transmission inhibition upon press of **PTT**. B. ≤6.2V: the alert tone will sound to indicate transmission inhibition if **PTT** is held down.

RX group items: go to tune RX items under RX Item menu.

Items		Condition	Test		Adjustment		Specifications / Remarks
			Test Instrument	Test point	Part	Method	
RX Sensitivity (Bandpass)		Switch to and enter BPF Tune. WFP1 at low frequency is set by default. Short press **UP/DN** to switch the frequency.	Communication Test Set SSG: -119dBm MOD: 1KHz DEV: 3.0KHz Filter: 0.3~3KHz	Antenna Earpiece Socket	Press **SK1/ SK2**	Check the bandpass waveform and press **SK1/SK2** to adjust the BPF Tune waveform. Press **OK** to save and exit upon completion of all settings.	Adjust the volume to an appropriate value before tuning, so that the output amplitude is not limited. SINAD: ≥12dB
Squelch Open	Wide Band	Switch to and enter SQL Open5. WFP1 at low frequency is set by default. Short press **UP/DN** to switch the frequency.	Communication Test Set SSG: -121dB MOD: 1KHz DEV: 3KHz Filter: 0.3~3KHz	Antenna Earpiece Socket	Press **SK1/ SK2**	Tune the SSG output signal to squelch level. Press **OK** to save and exit upon completion of all settings.	Squelch level (Level 5): -121dB
		Refer to method of SQL Open5 for that of SQL Open1 and SQL Open9.					Squelch Level: Level 1: -124dB Level 9: -117dB
	Narrow Band	Tune WFP5 in SQL Open5, and then press **DN** to enter NFP1 at low frequency.	Communication Test Set SSG: -120dB MOD: 1KHz DEV: 1.5KHz Filter: 0.3~3KHz				Squelch Level (5): -120dB
		Refer to method of SQL Open5 for that of SQL Open1 and SQL Open9.					Squelch Level: Level 1: -123dB Level 9: -116dB
Squelch Close	Wide Band	Switch to and enter SQL Close5. WFP1 at low frequency is set by default. Short press **UP/DN** to switch the frequency.	Communication Test Set SSG: -123dBm MOD: 1KHz DEV: 3KHz Filter: 0.3~3KHz	Antenna Earpiece Socket	Press **SK1/ SK2**	Tune the SSG output signal to squelch level. Press **OK** to save and exit upon completion of all settings.	Squelch level (Level 5): -123dB
		Refer to method of SQLClose 5 for that of SQL Close 1 and SQL Close 9.					Squelch Level: Level 1: -126dB Level 9: -119dB

Squelch Close	Narrow Band	Tune WFP5 in SQL Close5, and then press **UP** to enter NFP1 at low frequency.	Communication Test Set SSG: -122dBm MOD: 1KHz DEV: 1.5KHz Filter: 0.3~3KHz	Antenna Earpiece Socket	Press **SK1/ SK2**	Refer to the above.	Squelch level (Level 5): -122dB
		Refer to method of SQLClose 5 for that of SQL Close 1 and SQL Close 9.					Squelch Level: Level 1: -125dB Level 9: -118dB
RX Low Voltage Threshold		Switch to Rx Low Batt, and set to WFP3.	Digital Voltmeter	Power Supply Port	Power Supply	Check the value, adjust the output voltage and inspect the emergency level (red LED flashes and alert tone sounds).	7.0~7.2V: the red LED flashes and alert tone sounds.
Max. RX Volume		Switch to Rx Max Dev, and set to WFP3.	Communication Test Set SSG: -47dBm MOD: 1KHz DEV: 3KHz Filter: 0.3~3KHz	Antenna Earpiece Socket	Press **SK1/ SK2**	Press **SK1/SK2** to tune the maximum volume, Press **OK** to save and exit upon completion of all settings.	1.3~1.5W (2.28~2.45V)

Appendix 1: Reference Value for TC-580U Source Radio

Tuning Item	Wide Band					Narrow Band				
	Freq. 1	Freq. 2	Freq. 3	Freq. 4	Freq. 5	Freq. 1	Freq. 2	Freq. 3	Freq. 4	Freq. 5
TX Item Section										
Preset Power			167							
Frequency Tolerance			608							
TX Low Power	176	167	167	170	159					
TX High Power	400	397	389	390	387					
CDCSS Balance	89	91	110	113	89					
CDCSS Deviation	101	101	117	115	115	57	61	71	73	68
CTCSS L Deviation	152	163	136	169	171	96	104	85	106	110
CTCSS M Deviation	139	151	175	170	162	89	97	110	111	101
CTCSS H Deviation	151	155	173	169	174	94	98	109	109	109
DTMF Deviation	94	96	102	102	112	55	55	59	62	63
TX Low Voltage Threshold			202							

VOX Gain	VOX Gain1			71						
	VOX Gain2			32						
	VOX Gain3			20						
	VOX Gain4			14						
	VOX Gain5			4						
Max Deviation of TX Audio		16	17	18	19	22	16	17	18	20	22
Rx Item Section											
SQL Level 1 ON		78	69	65	67	65	82	72	68	66	70
SQL Level 5 ON		61	50	44	44	47	64	55	48	48	48
SQL Level 9 ON		32	23	19	20	21	38	26	23	23	24
SQL Level 1 OFF		85	78	76	75	79	91	84	79	80	79
SQL Level 5 OFF		72	63	59	58	61	75	66	59	62	61
SQL Level 9 OFF		46	35	31	33	31	51	39	34	33	36
RX Low Voltage Threshold				200							
Max. RX Volume				33							
Bandpass Filter		210	320	429	536	631					

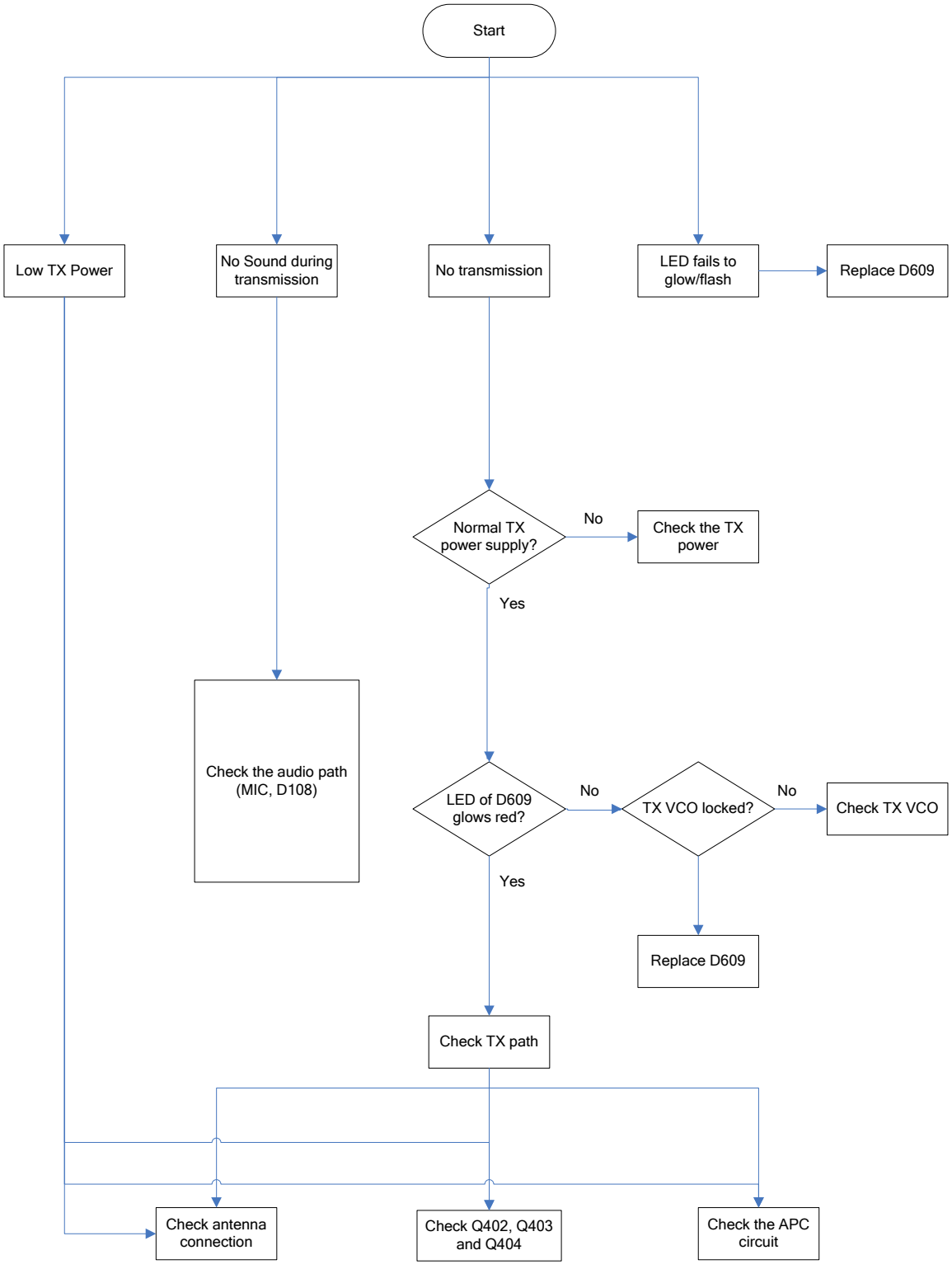
Note: The value is subject to that of the source radio.

Appendix 2: Reference Value for TC-580 Battery Strength

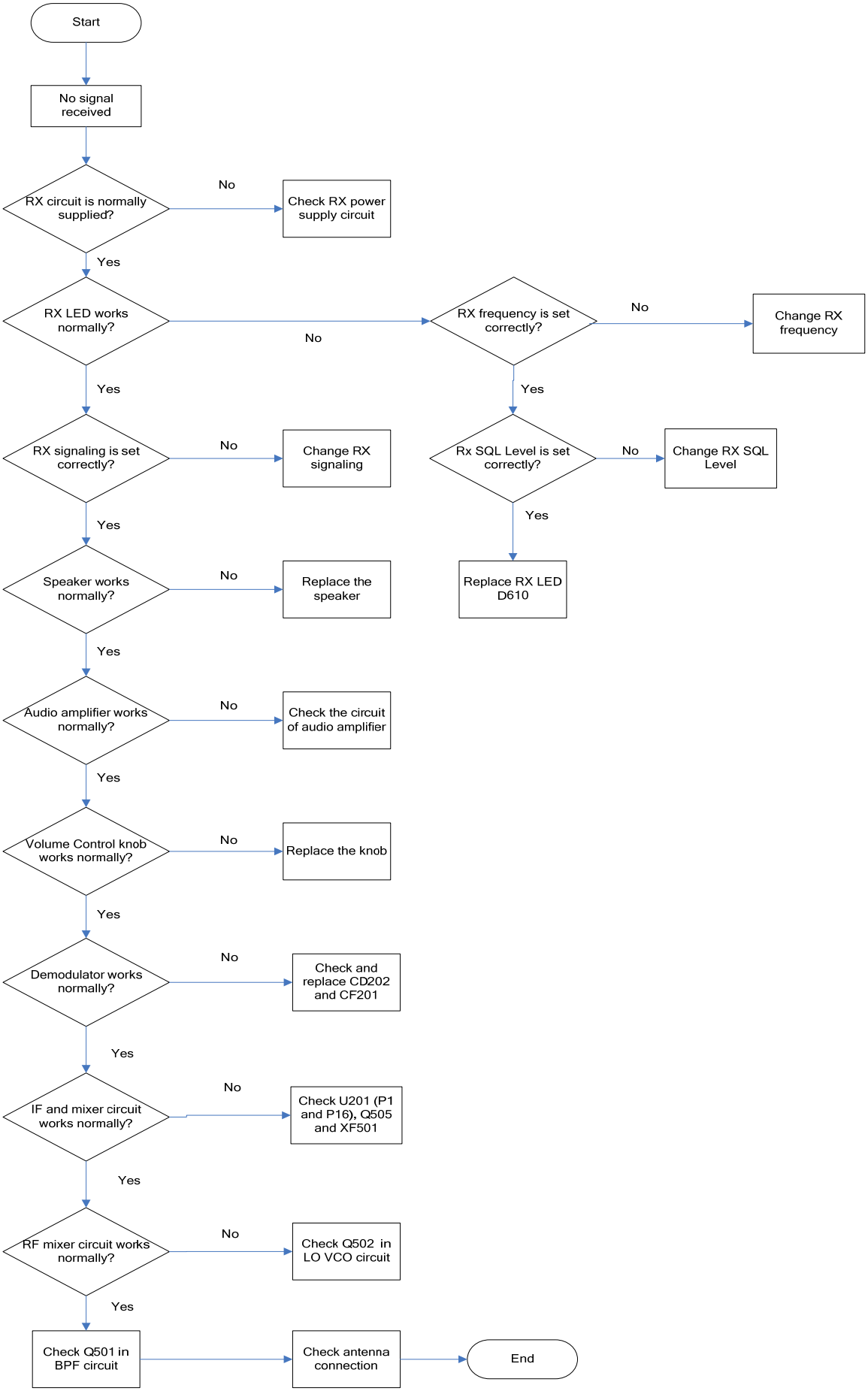
Detection in TX status		
Green LED glows (70%-100%)	>7.46V	Duration: 18 minutes
Orange LED glows (50%-70%)	7.15V - 7.35V	Duration: 12 minutes
Red LED glows (30%-50%)	7.00V - 7.15V	Duration: 12 minutes
Red LED flashes (<30%)	6.20V - 7.00V	Duration: 18 minutes
Red LED flashes and Alert tone sounds	5.80V - 6.20V	
Radio is powered off.	<5.80V	
Detection in Rx and Standby status (or press the Battery Strength Indicator key)		
Green LED glows (70%-100%)	>7.55V	Duration: 18 minutes
Orange LED glows (50%-70%)	7.35V -7.55V	Duration: 12 minutes
Red LED glows (30%-50%)	7.00V - 7.35V	Duration: 20 minutes
Red LED flashes (<30%)	6.50V - 7.00V	Duration: 18 minutes
Red LED flashes and low battery alert tone sounds every ten seconds.	5.80V - 6.50V	

Troubleshooting Flow Chart

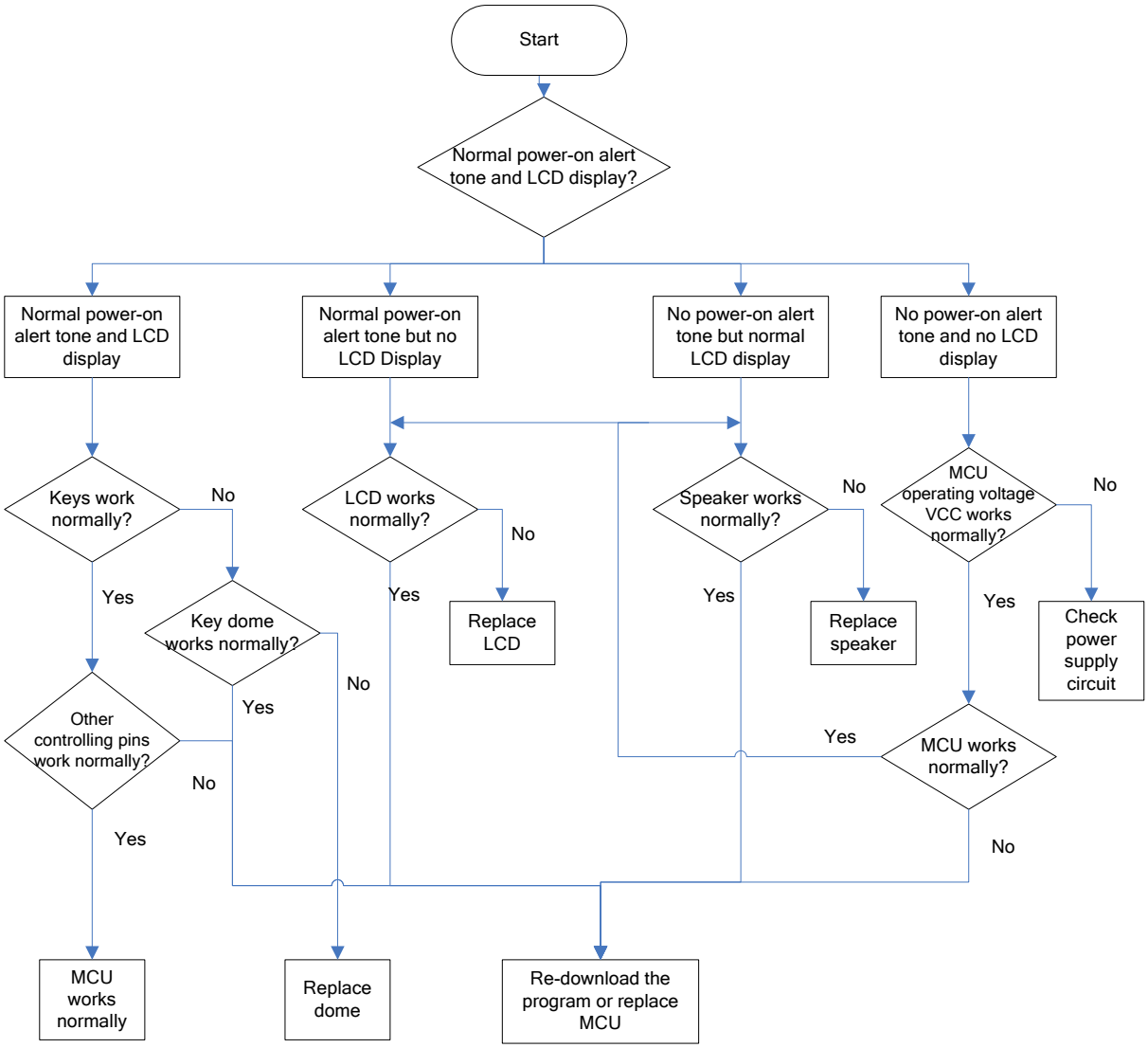
TX Section



RX Section


Start
No signal received
RX circuit is normally supplied?
No
Check RX power supply circuit
Yes
RX LED works normally?
No
RX frequency is set correctly?
No
Change RX frequency
Yes
Yes
RX signaling is set correctly?
No
Change RX signaling
Rx SQL Level is set correctly?
No
Change RX SQL Level
Yes
Yes
Speaker works normally?
No
Replace the speaker
Replace RX LED D610
Yes
Audio amplifier works normally?
No
Check the circuit of audio amplifier
Yes
Volume Control knob works normally?
No
Replace the knob
Yes
Demodulator works normally?
No
Check and replace CD202 and CF201
Yes
IF and mixer circuit works normally?
No
Check U201 (P1 and P16), Q505 and XF501
Yes
RF mixer circuit works normally?
No
Check Q502 in LO VCO circuit
Yes
Check Q501 in BPF circuit
Check antenna connection
End

MCU Section


Start
Normal power-on alert tone and LCD display?
Normal power-on alert tone and LCD display
Normal power-on alert tone but no LCD Display
No power-on alert tone but normal LCD display
No power-on alert tone and no LCD display
Keys work normally?
No
Yes
Key dome works normally?
No
Yes
Other controlling pins work normally?
No
Yes
MCU works normally
Replace dome
LCD works normally?
No
Yes
Replace LCD
Speaker works normally?
No
Yes
Replace speaker
MCU operating voltage VCC works normally?
No
Yes
Check power supply circuit
MCU works normally?
Yes
No
Re-download the program or replace MCU

Disassembly and Assembly for Repair

Disassembly

1. Power off the radio at first, and then remove the belt clip, battery and antenna one by one;
2. Disassemble the Chassis in the following steps:
    1) Remove the volume control knob in direction of ① as shown in Figure 1;
    2) Remove the nut fixing the volume control knob with sleeves in direction of ②;
    3) Remove the nut fixing the antenna connector with sleeves in direction of ③;
    4) Remove the screw fixing the antenna connector with a screwdriver in direction of ④;
    5) Remove the antenna connector with sleeves in direction of ⑤;
    6) Remove two screws fixing the chassis with a screwdriver in direction of ⑥;
    7) Lift the bottom of aluminum chassis in direction of ⑦, and pull the chassis in direction of ⑧ to take it out;
    8) Remove the rear cover in direction of ⑨;

    (Note: Pull the chassis gently and carefully; otherwise, the speaker cable may get broken.)

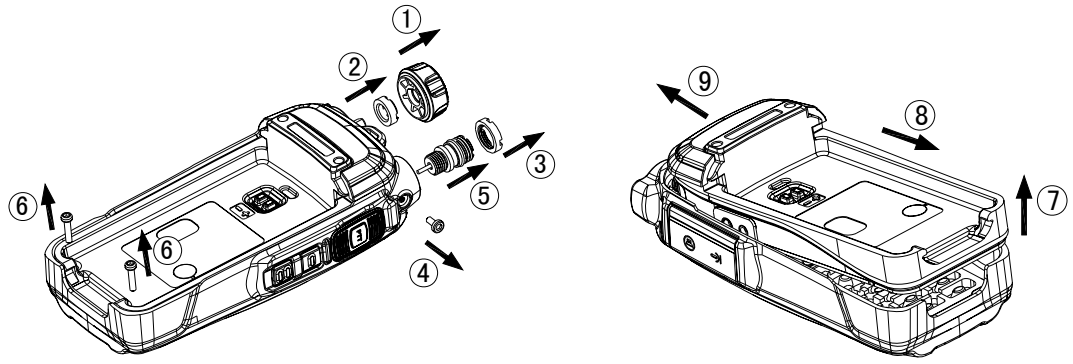


Figure 1

3. Disassemble the PCB in the following steps:
    1) Detach two speaker cables from the main PCB with an electric iron, and unsolder the keypad PCB;
    2) Remove the bracket for accessory jack in direction of ① as shown in Figure 2;
    3) Remove nine self-tapping screws from the main PCB with a screwdriver in direction of ②, and remove the main PCB in direction of ③.
    4) Remove the two screws from the keypad PCB with a screwdriver in direction of ④, and remove the keypad PCB in direction of ⑤.

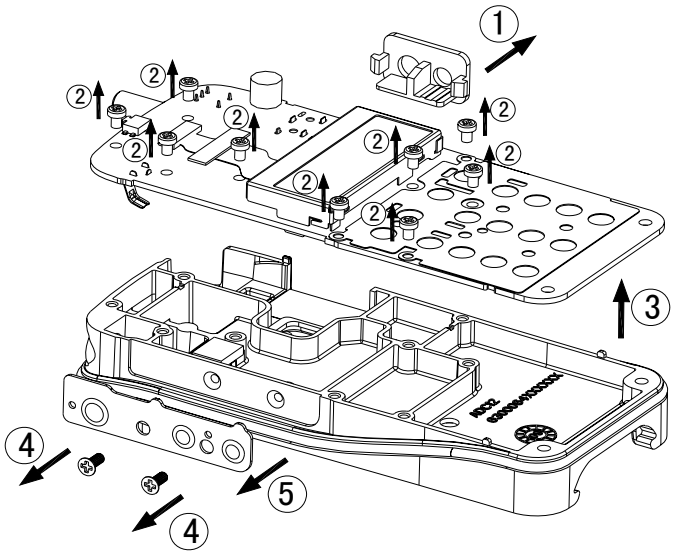


Figure 2

Assembly

1. Assemble the PCB in the following steps:
   1) Place the main PCB onto the aluminum chassis in direction of ① as shown in Figure 3, and use nine screws to secure it in direction of ②.
   2) Attach the keypad PCB to one side of the chassis in direction of ③, and secure it with two screws in direction of ④.
   3) Install the bracket for accessory jack in direction of ⑤.
   4) Solder the keypad PCB to main PCB with an electric iron;

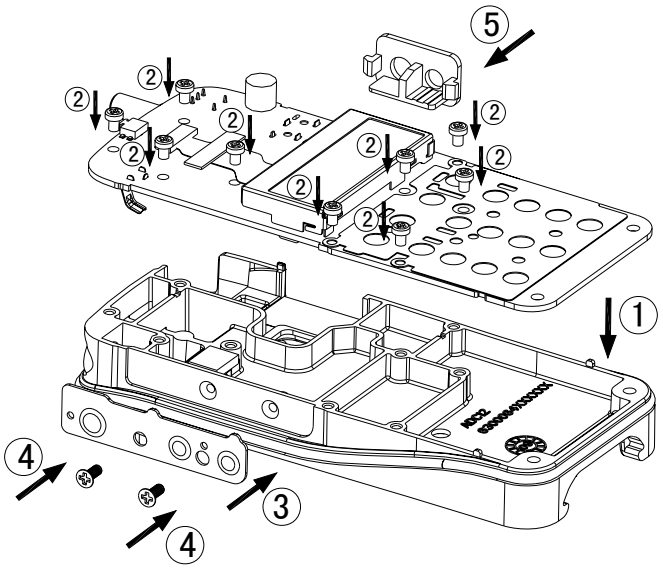


Figure 3

2. Assemble the Chassis in the following steps:

   1) Solder two speaker cables to the chassis with an electric iron;

   2) Attach the rear cover in direction of ⑨;

   3) Insert the chassis into the front case in direction of ②, and then press the bottom of the chassis; (Note: Place the waterproof ring in its place. And do not place the speaker cables over the LCD.)

   4) Secure the chassis with two screws in direction of ④.

   5) Install the antenna connector with sleeves in direction of ⑤.

   6) Secure the antenna connector with a screw using a screwdriver in direction of ⑥.

   7) Secure the antenna connector with a nut using sleeves in direction of ⑦.

   8) Attach a nut for the volume control knob with sleeves in direction of ⑧.

   9) Install the volume control knob in direction of ⑨.

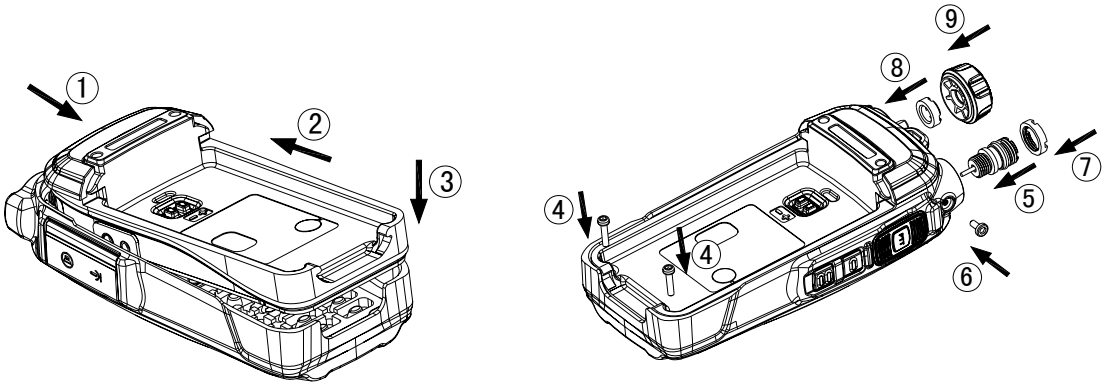
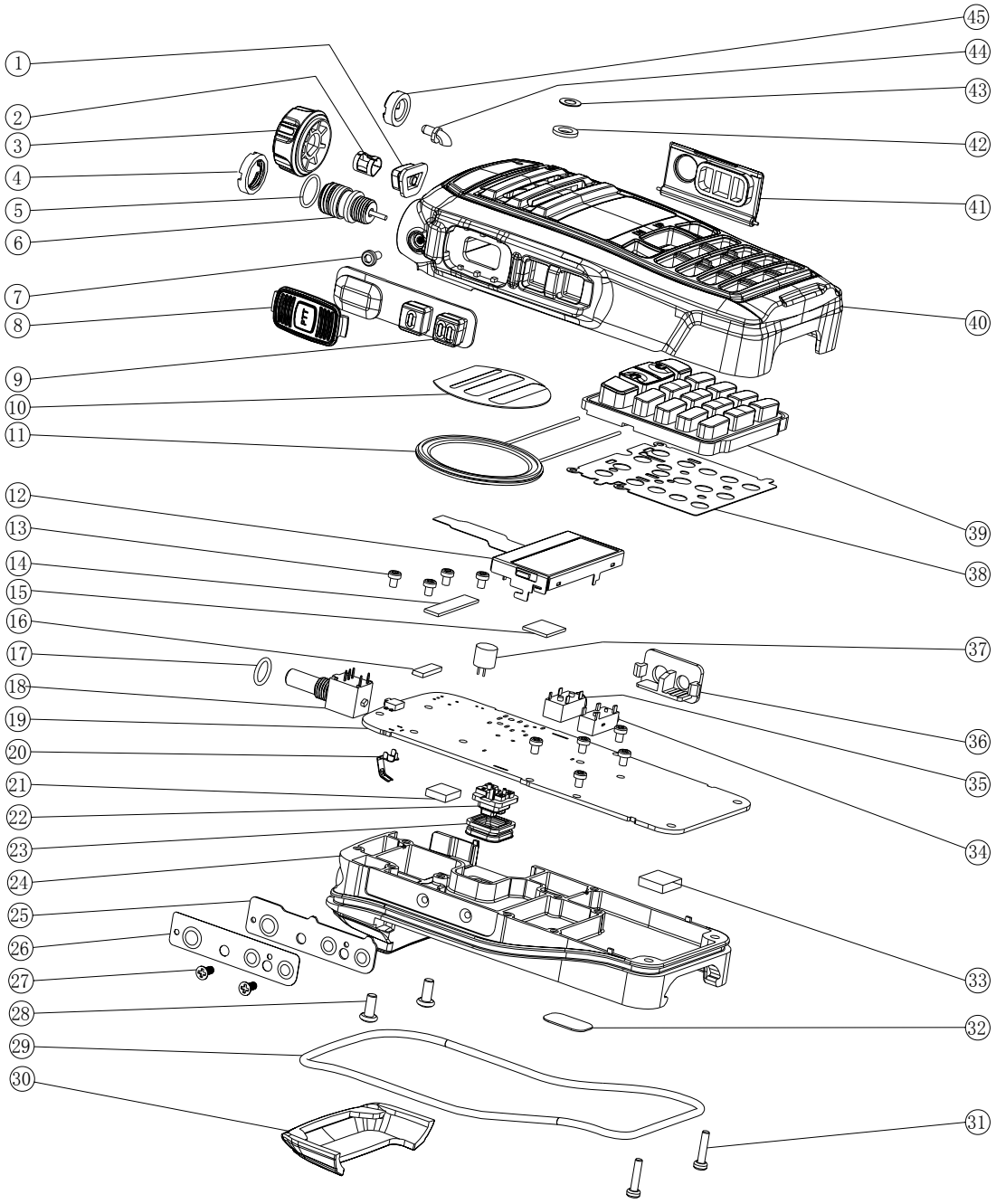


Figure 4

3. Then install the antenna, battery and belt clip one by one.

Exploded View

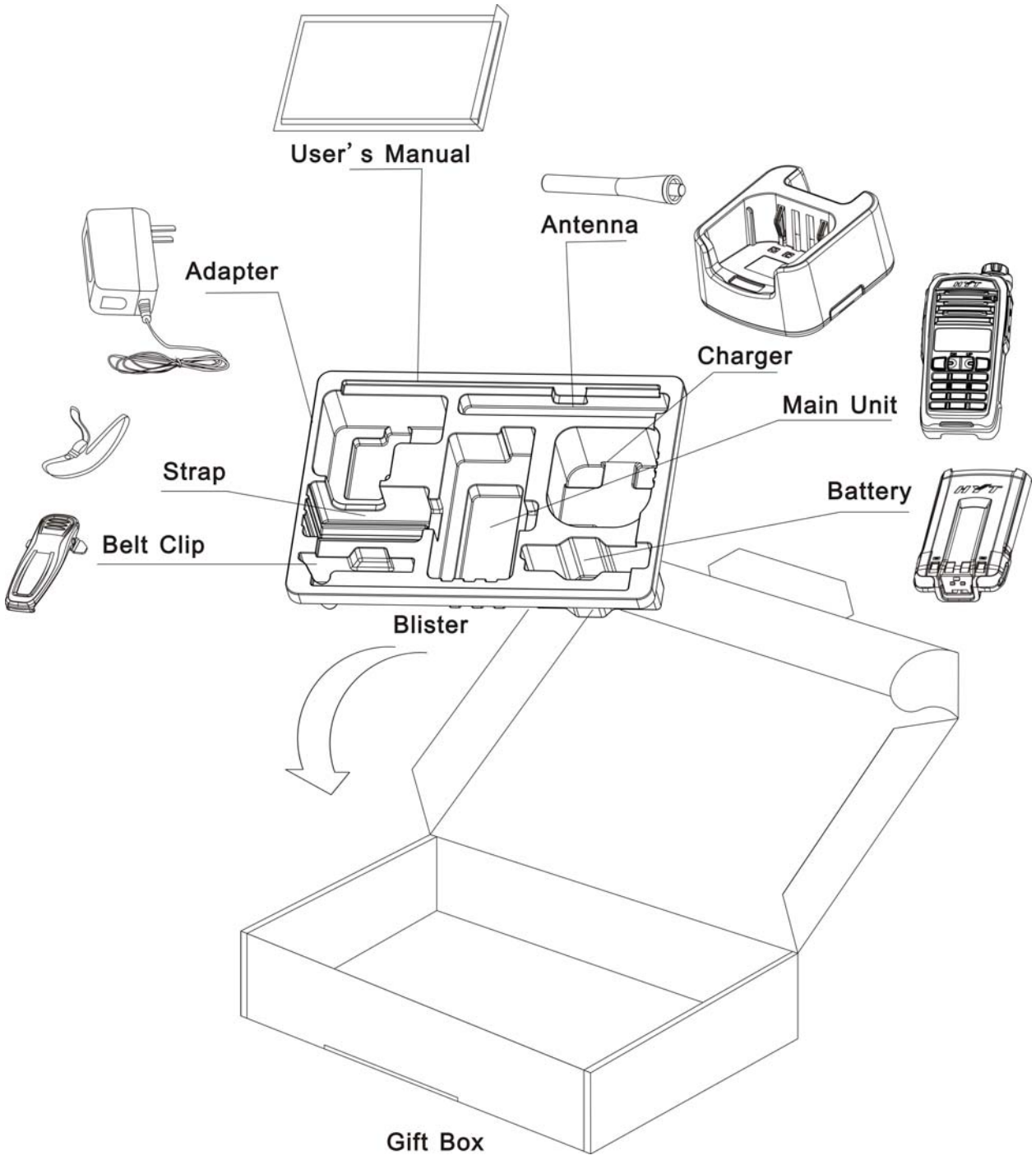


TC-580 Parts List 2

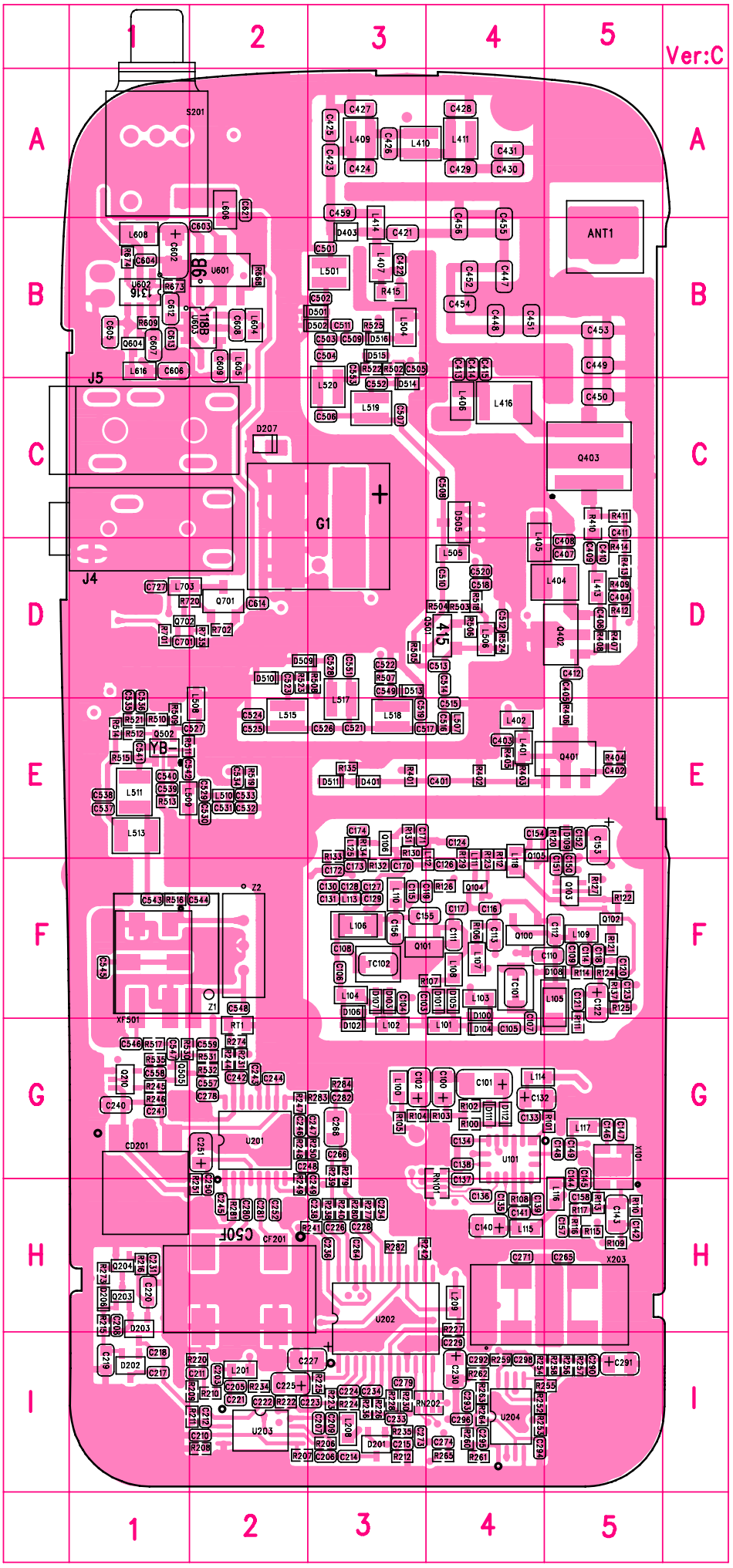
No.	Material No.	Description	Qty. (PCS)
1	6100459000000	Top key	1
2	6201739000000	Inner lining for knob	1
3	6001018000000	Volume control knob	1
4	7209002500000	Antenna nut	1
5	6100487000000	Antenna O_Ring	1
6	4400100033000	SMA RF connector	1
7	7102004000200	Machine screw	1
8	6000842100000	Plastic PTT key	1
9	6100367000000	Silicone rubber PTT key	1
10	7400234000000	Speaker felt	1
11	5001210000430	Speaker	1
12	5130000000050	Black/White LCD	1
13	7101904020200	Self-tapping screw	9
14	7500339000000	FPC sponge	1
15	7500242000000	FPCB sponge cushion	1
16	5206010200020	FPC connector	1
17	6100334000000	O-ring for encoder switch	1
18	4302020000040	Volume switch	1
19	NC	Main PCB	1
20	6201836000000	Spring plate for antenna	1
21	7500114000000	Heat sink pad	1
22	5205000001000	Battery connector	1
23	6100314000000	Waterproof ring for battery connector	1
24	6300064000000	Aluminum chassis	1
25	410058002000A0	Keypad PCB	1
26	7300037000000	Metal dome for PTT key	1
27	7102005000000	Machine screw	2
28	7103006004000	Machine screw	2
29	6100376000000	Waterproof O-ring for radio unit	1
30	6001046000000	Rear cover	1
31	7102009000100	Machine screw	2
32	7400279000000	Waterproof PC sheet for aluminum chassis	1
33	7500338000000	Sponge Pad for Crystal	1
34	5205004000020	Accessory jack	1
35	5205005000040	Accessory jack	1
36	6000852000000	Bracket for accessory jack	1
37	5002220000070	Microphone	1
38	7300036000000	Metal dome for numeric key	1
39	6100366000000	Numeric Key	1
40	6001090000000	Ultrasonic front case (with the fixing nut for antenna)	1
41	6000749000000	Accessory jack cover	1

42	7500324000000	MIC washer	1
43	7400055000000	MIC net	1
44	6000745000000	Light guide	1
45	7206002200200	Nut for volume switch	1

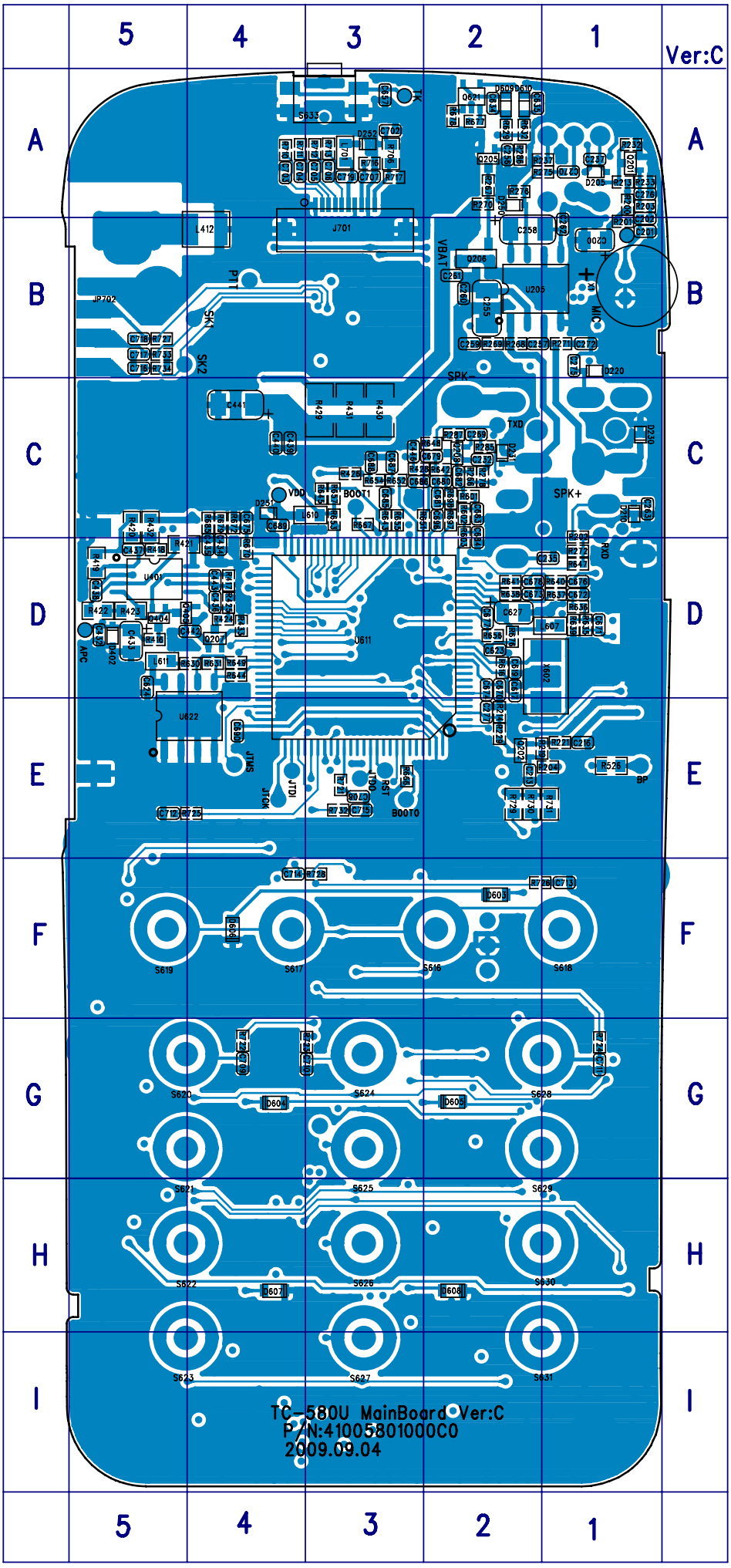
Packing


User's Manual
Antenna
Adapter
Charger
Main Unit
Strap
Battery
Belt Clip
Blister
Gift Box

TC-580 PCB View
Top Layer

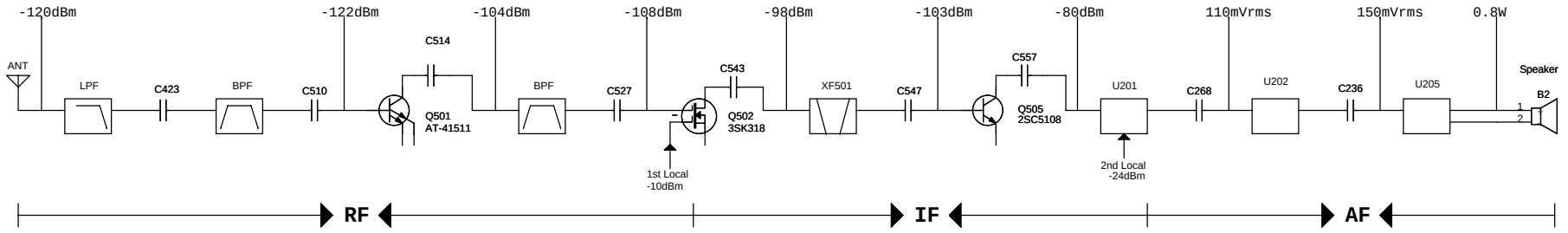


TC-580 PCB View
Bottom Layer



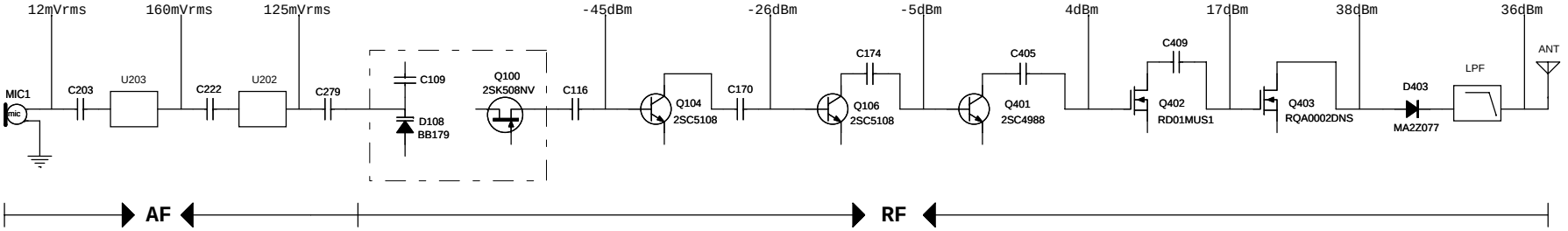
TC-580 Level Diagram

Rx Section



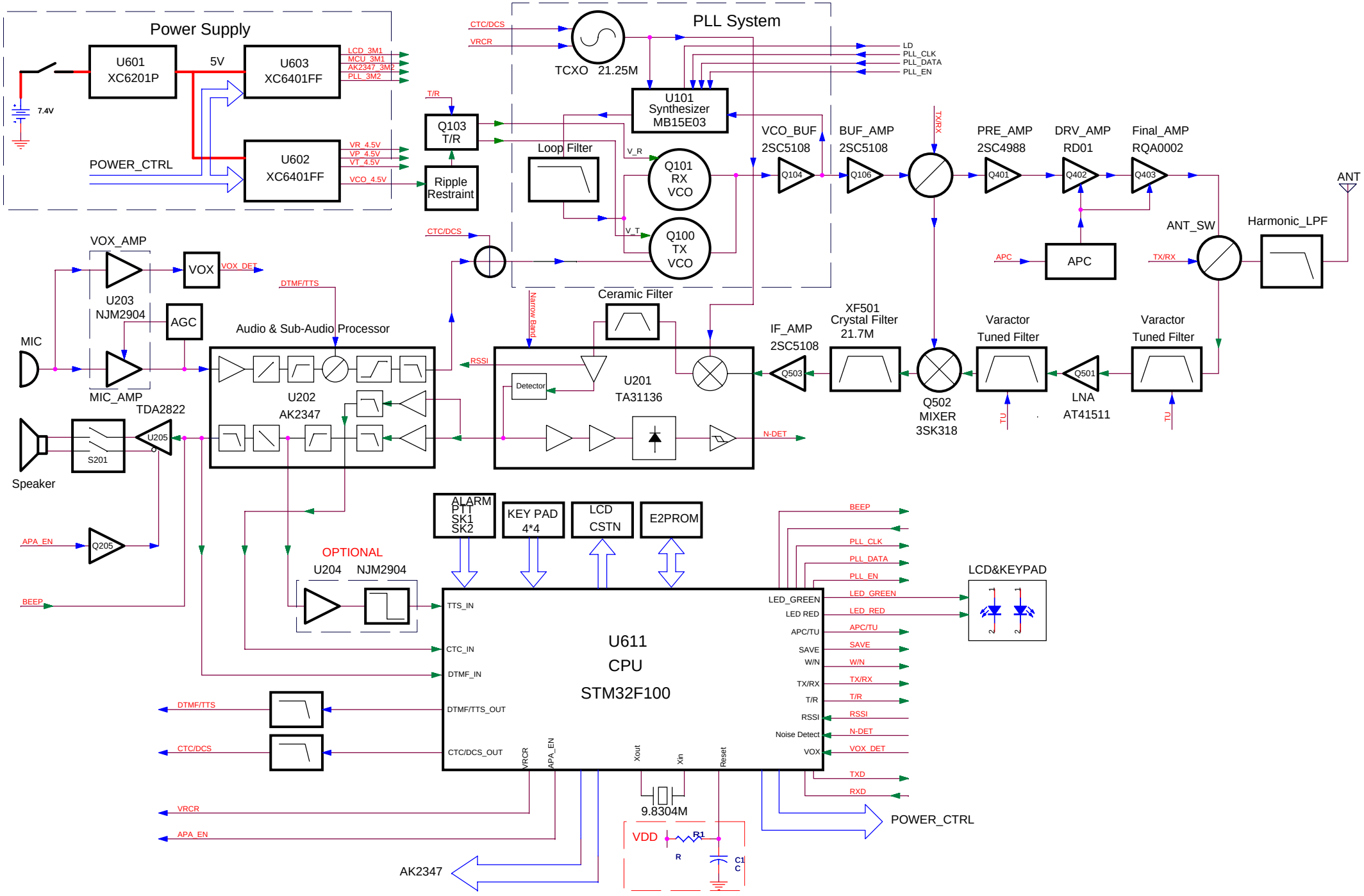
Each of the levels plotted from RF to the first IF is the level that can provide a 12dB SINAD for an SSG signal through a 470pFb coupling capacitor.When AF ouput is adjusted to 0.5W, adjust the frequency deviation of 1KHz AF level to 3KHz (Wide), 1.5KHz (Narrow).

Tx Section

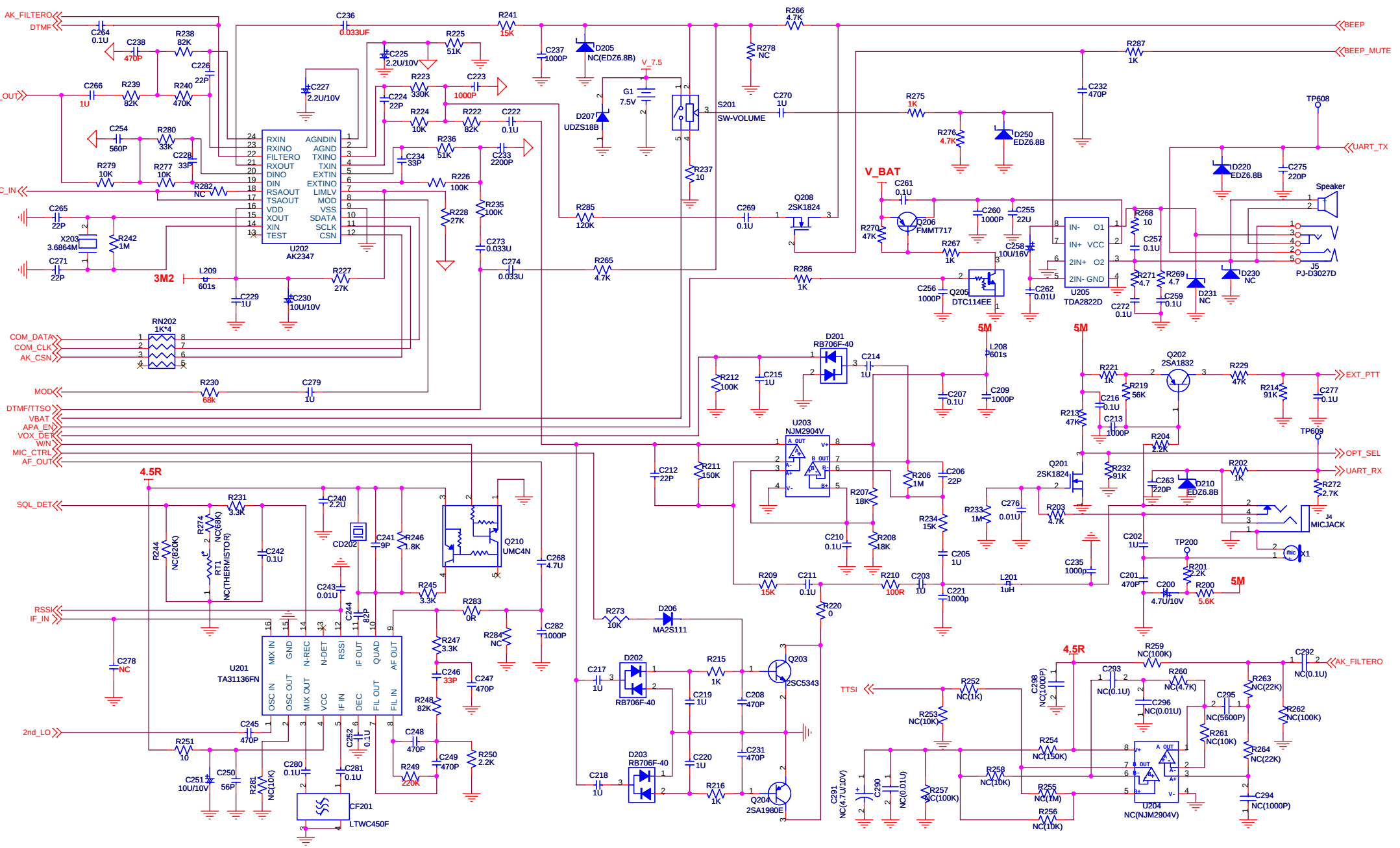


AF and RF levels are measured at high impedance.

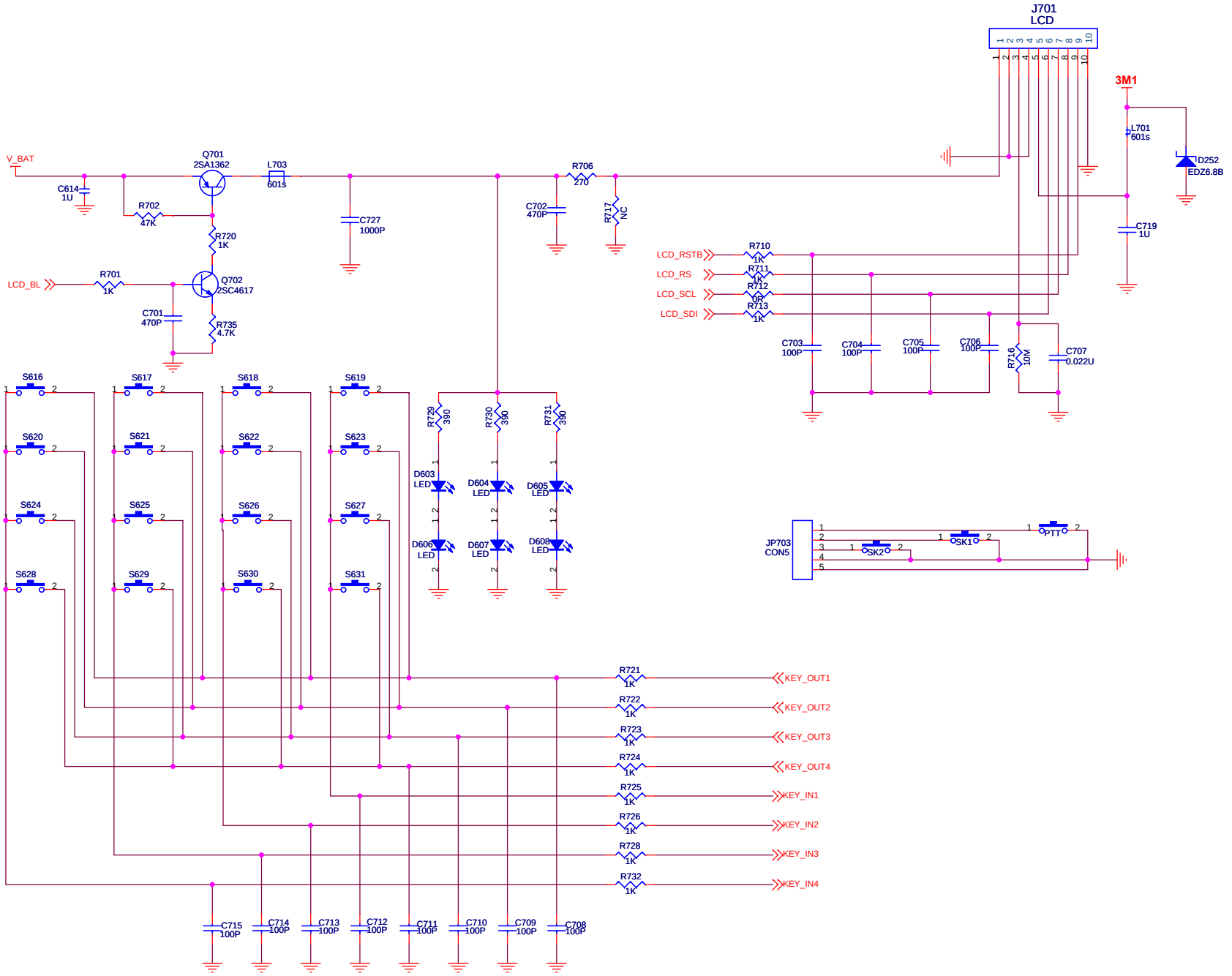
TC-580 Block Diagram



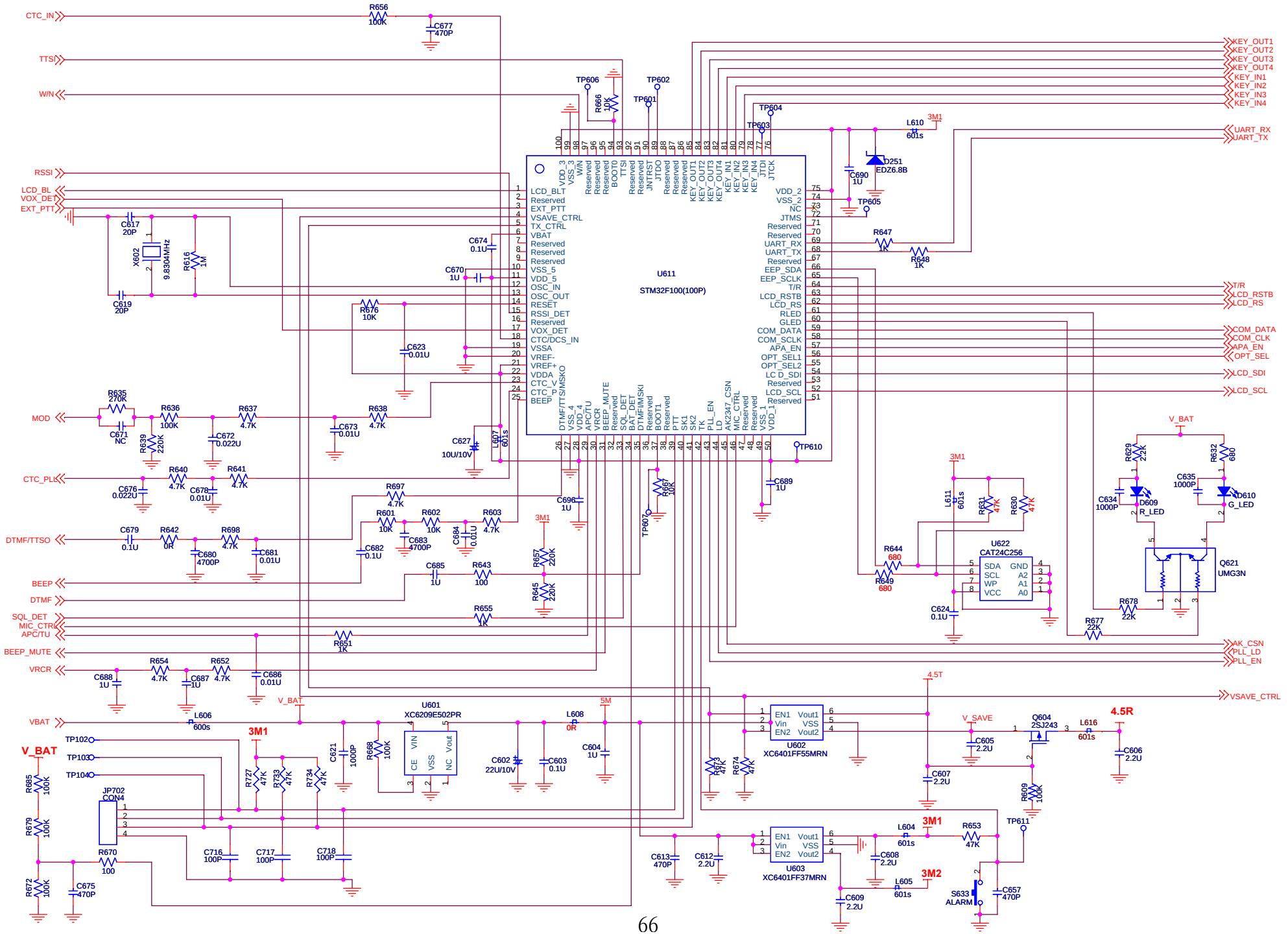
TC-580 Schematic Diagram（AF&IF）



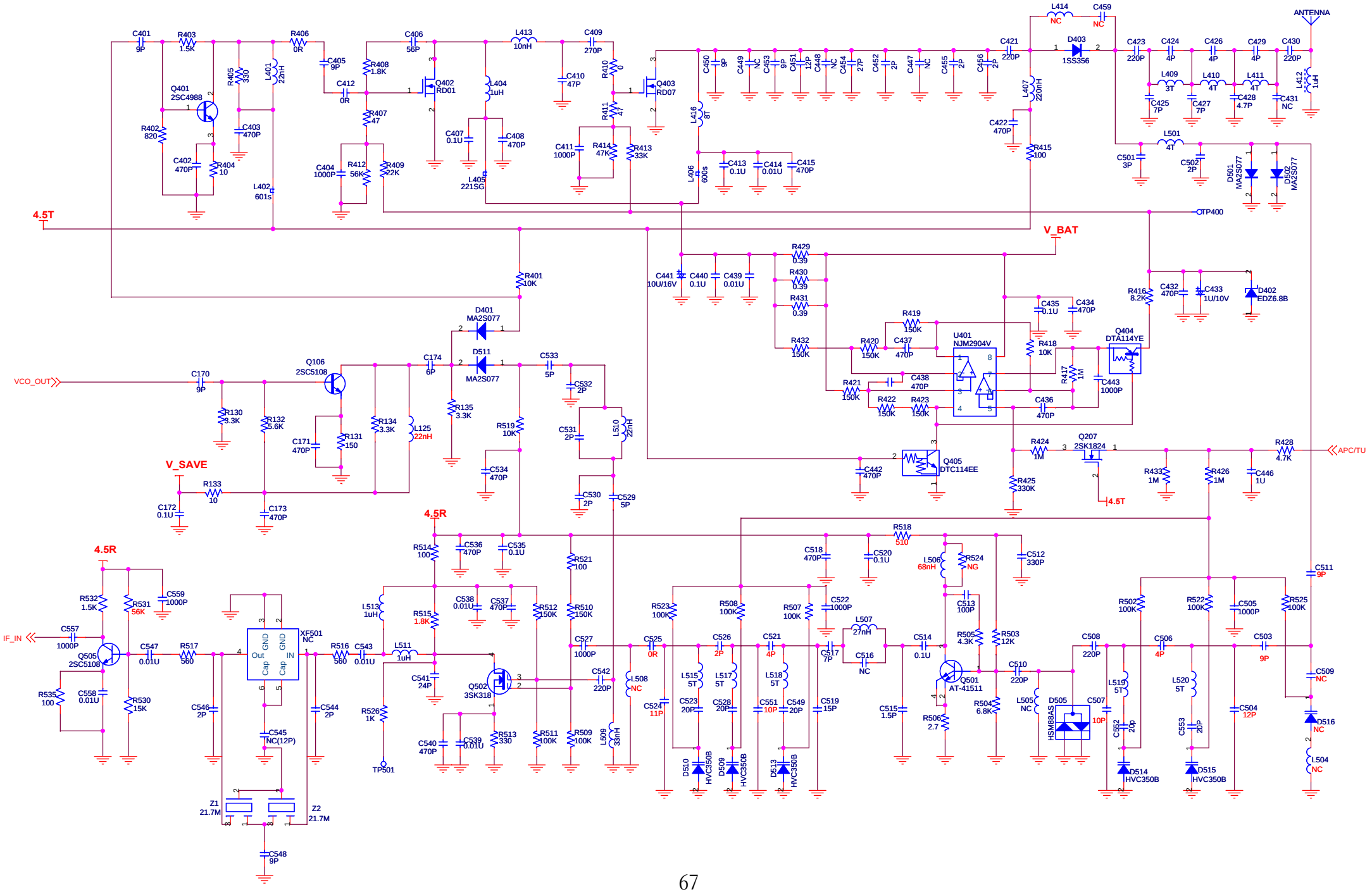
TC-580 Schematic Diagram (KEY&LCD)



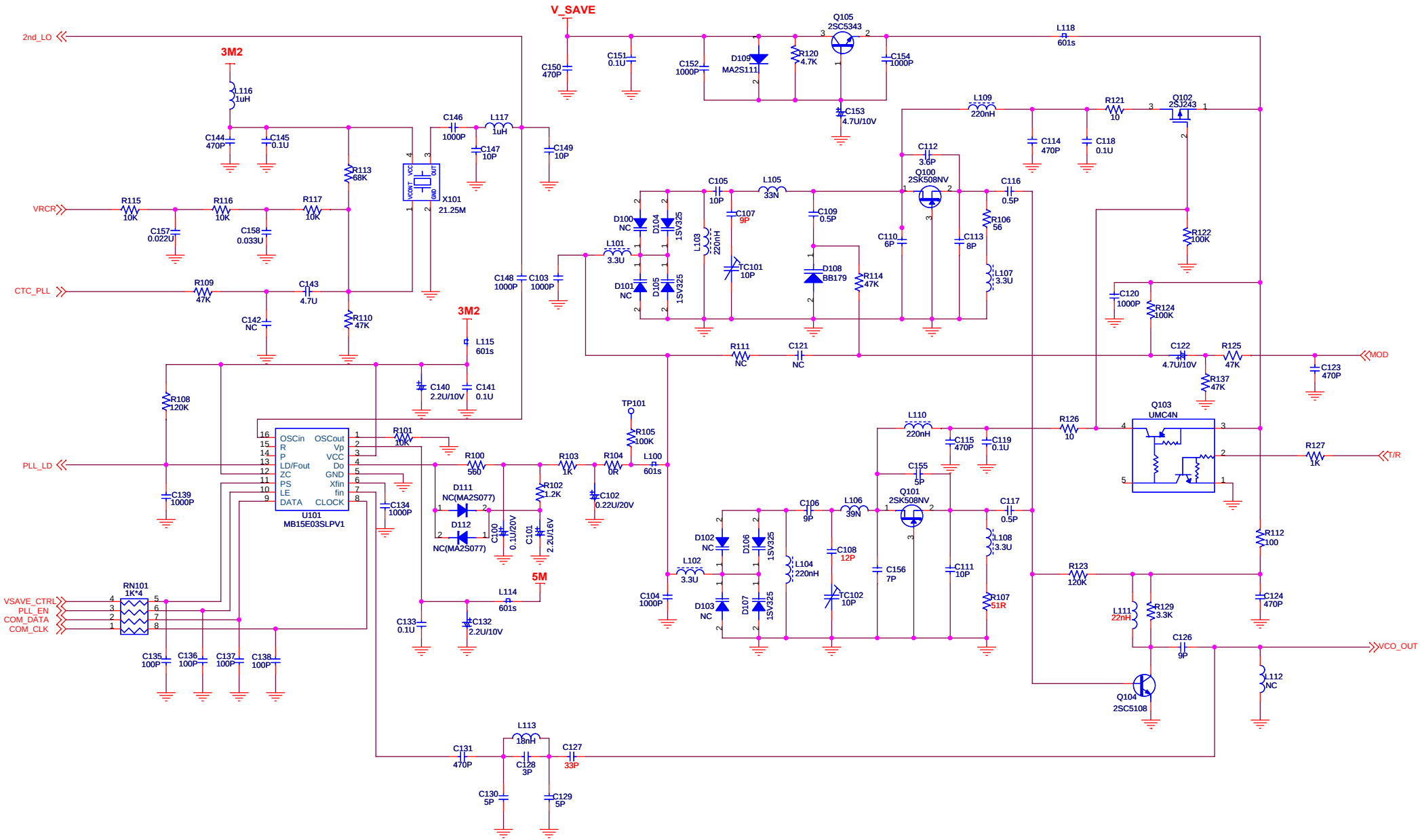
TC-580 Schematic Diagram (MCU&POWER)



TC-580 Schematic Diagram (RF)



TC-580 Schematic Diagram (VCO&PLL)



Specifications

General Specifications	
Frequency Range	VHF: 136-174 MHz 245 MHz UHF: 350-390 MHz 400-470 MHz 450-520 MHz
Channel Capacity	256
Channel Spacing	25 /12.5 KHz
Operating Voltage	7.4V DC
Battery	1100mAh Li-Ion Battery
Battery Life (5-5-90 Duty Cycle)	Above 8 Hours
Operating Temperature	-25℃~+60℃
Dimensions (H×W×D) (with battery, without antenna)	127mm*59mm*35mm
Weight (with antenna & battery)	250g
Frequency Stability	±2.5ppm
Receiver	
Sensitivity	≤0.25/0.28μV
Selectivity	70/50dB
Intermodulation	60dB
Spurious Response Rejection	70dB
Rated Audio Power Output	1W
Rated Audio Distortion	≤5%
Transmitter	
RF Power Output	VHF: 4.5-5.0W/1.0±0.3W UHF: 4.0±0.3W/1.0±0.3W
Spurious and Harmonics	-36dBm＜1GHz -30dBm＞1GHz
Modulation Limiting	≤5KHz/2.5KHz
FM Noise	≥40/35dB
Modulation Distortion	≤5%

All Specifications are tested according to TIA/EIA-603, and subject to change without notice due to continuous development.