

## **Circuit Description**

The L110B mainly consists of a RF part, a baseband part, an FM part and a BT part. The RF part includes transmit module, transceiver and SAW filter. The baseband part contains the CPU, SIM card controller and audio IC. Both the FM part and the BT part are single-chip solutions.

### **RF part**

#### **Signal reception**

Signals received at the antenna terminal pass through an coaxial connector SA100(MM8430), which is just for test in laboratory, to the transmit module U103(RF7167). The transmit module is a dual band GSM/GPRS transmit module with two symmetrical receive ports. It builds upon a power amplifier and an SP4T switch. After passing through the transmit module, received signals come to the SAW filter U108(SFR881PY002). The SAW filter almost clean up the out-of-band signals, leaving signals between 869MHz and 894MHz and signals from 1930MHz to 1990MHz getting into the transceiver U102(AD6548). Signals accepted by the transceiver are demodulated then sent to the CPU for further processing.

#### **Signal transmitting**

After bit-stream converted into digital in-phase and quadrature signals by CPU is sent to transceiver through I/Q interface, they are mixed into signals between 824MHz and 849MHz or signals between 1850MHz and 1910MHz. These signals mixed are then passed to transmit module. The transmit module amplify them and push them out to the antenna.

### **Baseband part**

The core component of baseband part is the CPU U200(MT6223D). It integrates not only analog baseband but also power management blocks. Using a high integrated mixed-signal Audio-Front-End, it provides easy interface for audio inputting and outputting. Voice signal input from microphone MIC500, is emphasized by R501 R502 R506 R507, and converted into digital signal by A/D converter integrated in the CPU. Digital in-phase and quadrature signals that come from the transceiver are converted into analog signals by D/A converter which is also integrated in the CPU. The CPU passes these analog signals to receiver or earphone according to the program setting. When the CPU sends analog signals to loudspeaker, it sends them to audio power amplifier U500(SN4990A) first. Signals are amplified to strong enough for driving the loudspeaker. SIM card

controller in this part controls SIM cards working or not. It makes sure the SIM card communicate with the CPU in correct order.

## **FM part**

The FM part is a single-chip solution. The tuner U602(RDA5802E) integrates synthesizer, intermediate frequency selectivity and MPX decoder. Signals between 50MHz and 108MHz coming from the earphone which is used as FM antenna are decoded and converted to analog audio signals here.

## **BT part**

The BT part is a single-chip solution too. The only one chip of this part U800(RDA5868E) is a highly integrated IC with radio transceiver and baseband processor , which is compliant with Bluetooth 2.1+EDR specification. It accepts signals of BT received at the antenna terminal and changes them to PCM data or UART data for further processing of the CPU. Also, it accepts PCM data or UART data coming from the CPU and changes them to radio signals.