Wireless Music System BL647 RF Modules

Last revised on: 19th April, 2006

Left Channel RECEIVER

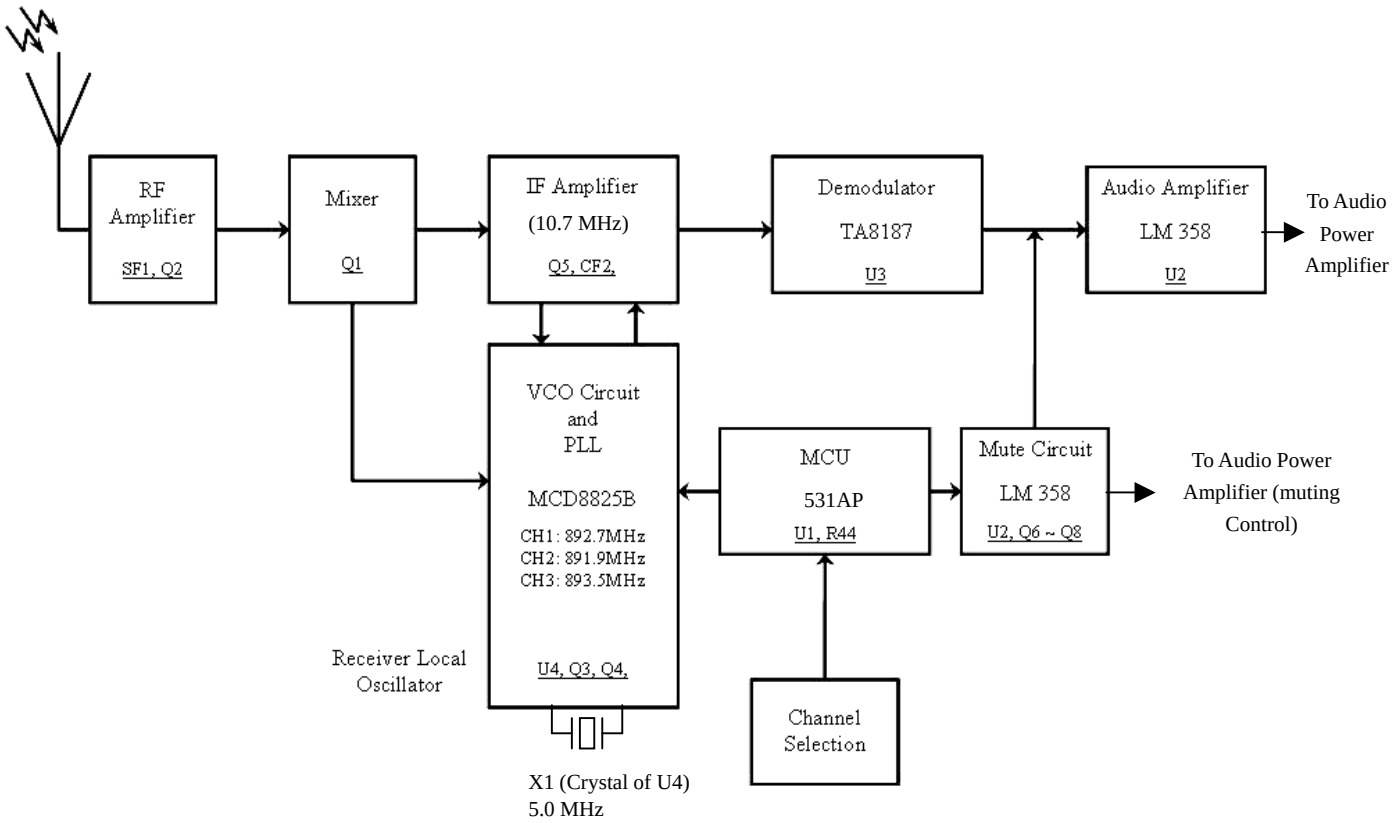
When the RF signal received from the antenna. The RF signal will be amplifier by the **RF amplifier**. Then the signal will be mixed in the **mixer circuit** with the local oscillation frequency that generated from the **VCO circuit**.
(The local oscillator frequency is control by the **PLL circuit** and the **MCU.)**

After the signal is come to an ceramic IF filter (CF2) to remove all other un-want frequencies except the 10.7MHz and enter into the **IF amplifier**. An audio signal will be came out when the IF signal will pass into the **De-modulator circuit**.

The de-modulation oscillator frequency uses 892.7 MHz (Channel 1), 891.9 MHz (Channel 2) and 893.5 MHz (Channel 3).

Noted: The VCO frequency is controlled by MCU. If the MCU pin 3 is pull high, the left channel frequency is selected.

Left Channel Block Diagram



RF Amplifier is formed by *SF1, C1~ C6, L1 ~ L4, R1 ~ R4* and *Q2*

MCU is 531AP *(U1)* and used a resistor *(R44)* to control the VCO frequency.

VCO Circuit and PLL Circuit is formed by U4 and other passive components *Q3, Q4, D1, C17~C31, R7 ~ R15, L8* and *L9.*

De-modulation Circuit is formed by *U3 (TA8187), L11, L12, C47 C49~C55* and *R32*.

IF Amplifier is formed by *Q5, CF2, R23 ~ R29, C44 ~ C47 and R23 ~ R29*

Audio Amplifier is formed by *U2 (LM 358)* and other components *C63 ~ C68, R46, R47 and R49 ~ R53.*

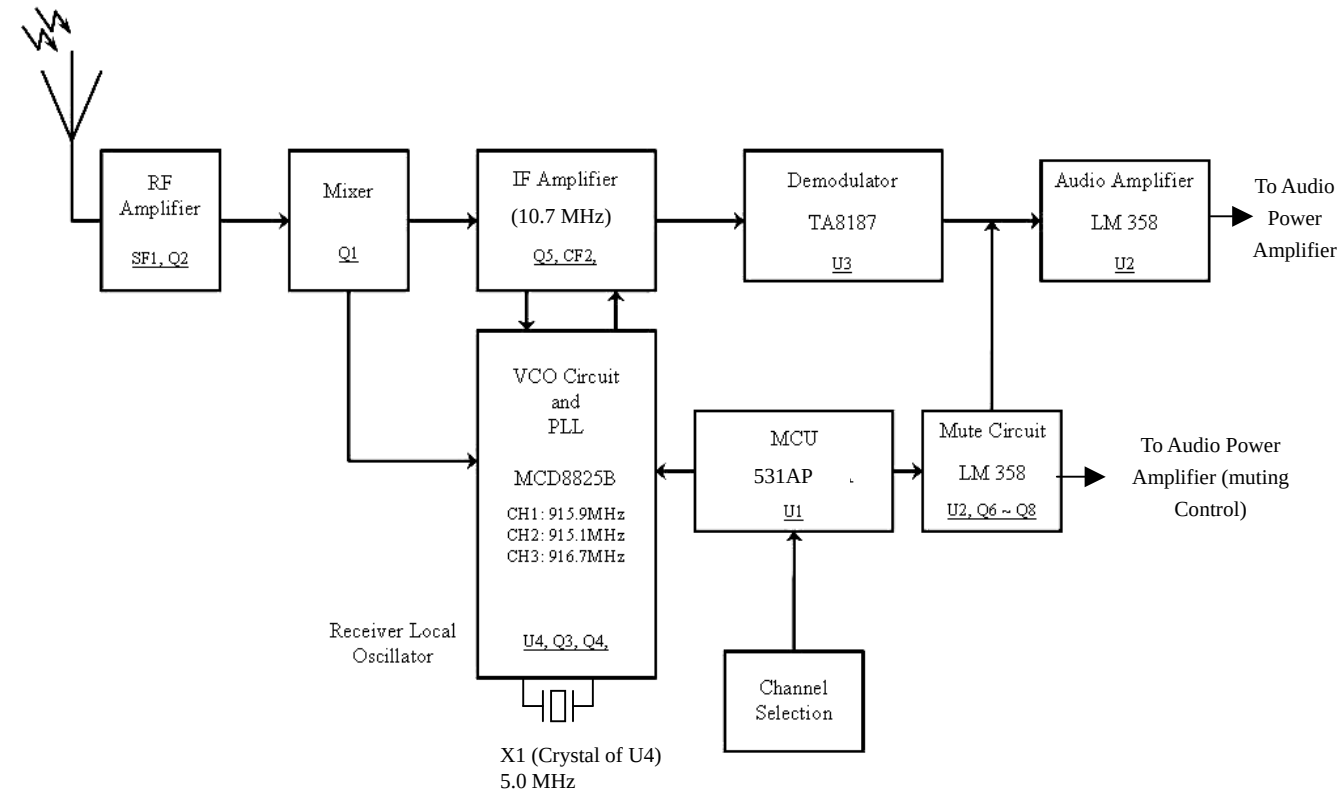
Right Channel RECEIVER

When the RF signal received from the antenna. The RF signal will be amplifier by the **RF amplifier**. Then the signal will be mixed in the **mixer circuit** with the local oscillation frequency that generated from the **VCO circuit**.
(The local oscillator frequency is control by the **PLL circuit** and the **MCU.)**

Then the signal is come to an ceramic IF filter (CF2) to remove all other un-want frequencies except the 10.7MHz and enter into the **IF amplifier**. An audio signal will be came out when the IF signal will pass into the **De-modulator circuit**.

The de-modulation oscillator frequency uses 915.9 MHz (Channel 1), 915.1 MHz (Channel 2) and 916.7 MHz (Channel 3) and controlled by MCU with a resistor (R44).
Noted: The VCO frequency is controlled by MCU. If the MCU pin 3 is pull low, the right channel frequency is selected.

Right Channel Block Diagram:



RF Amplifier is formed by *SF1, C1~ C6, L1 ~ L4, R1 ~ R4* and *Q2*

MCU is 531AP (U1)

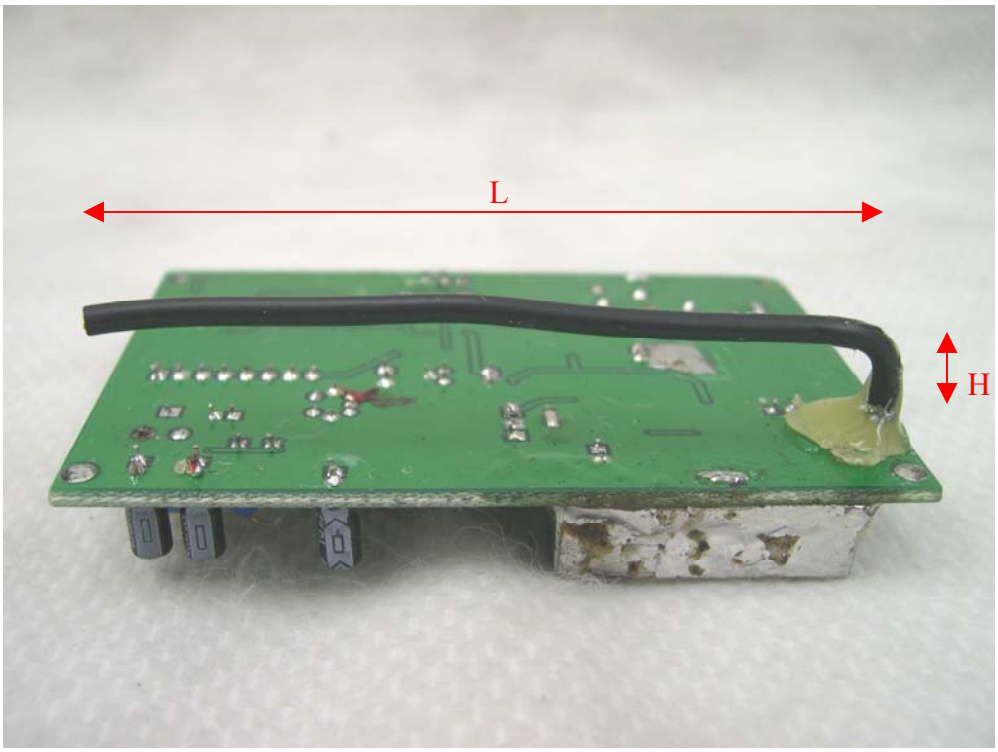
VCO Circuit and PLL Circuit is formed by U4 and other passive components *Q3, Q4, D1, C17~C31, R7 ~ R15, L8* and *L9.*

De-modulation Circuit is formed by *U3 (TA8187), L11, L12, C47 C49~C55* and *R32*.

IF Amplifier is formed by *Q5, CF2, R23 ~ R29, C44 ~ C47 and R23 ~ R29*

Audio Amplifier is formed by U2 (LM 358) and other components C63 ~ C68, R46, R47 and R49 ~ R53.

Antenna Configuration



Length of the antenna wire L: 7.5cm x H: 1.0cm, Φ = 3.0mm