

## The description of APA -210

### **Transmission for the remote control handset:**

The TX and RX of the remote control handset is see the MA-210HHU.SCH.

After any of the 4 buttons (SW1 ~ SW4) of the remote control handset is pressed and released, As shown in (MA-210 HHU RF.SCH), The CPU(U3) can opens Q3 (FET) and supply the Power VCC for transmitter [TX] by software. In other words, the power supplier is not provided when the remote control handset have not transmitting signal, so as both to save power consumption and to prevent from interference. As shown in (MA-210 HHU.SCH), The DATA CODE is sent to the circuit (MA-210 HHU RF.SCH) for modulation via JP1 (2).

As show in MA-210 HHU RF.SCH, Using L2, X2 & Q5 to modulate the DATA CODE. The modulated frequency are 433.92MHz. The transistor Q6 as a power amplification.

The condenser C6 and the other component comprises a Class-C Power Amplifier. The main frequency of 433.92MHz with L12, C9 and C8.

### **Receiver for the remote control handset:**

As shown in the JP2 (2) of MA-210 HHU RE.SCH,

The remote control handset is receiving signals, will receive the signals and makes U2 stay on WORK mode and generates oscillation frequency of 423.22MHz. Meanwhile, the multi-function IC U3 stays on WORK mode.

The RF signals received from the antenna go to Q3 for high frequency amplification and then proceed to Low-Loss Filter to filter out other frequencies. The RF signals then further go to U2 for mixing to become intermediate frequency, and after going through X4 (intermediate frequency wave filter), the signals then are sent back to U2 for detection and amplification to restore to DATA CODE. The DATA CODE is sent to JP2 (3) through U2 (14) and to CPU U3 (7) of MA-210 HHU.SCH through connecting terminals to finish the full receiving action.

### **TX of the Central Unit**

When the main unit get information from the remoter control handset or the main unit want send the information to remoter control handset. As shown in MA-210 \_ 05-MCU.SCH. The CPU U5-(5) will transmitting DATA CODE to transmitter via JP1(3) for modulation.

As show in MA-210 TX.Sch. The DATA CODE is sent to L1, X1 and Q1 for frequency modulation. The modulated DATA CODE with frequency of 433.92 MHz then is sent to Q2 for power amplification via some peripheral components.

As show in MA-210 TX. Sch., It is a Type-C amplifier which send out the signal of the basic frequency with frequency 433.92MHz through the tuned circuits L3, C6, C7, C10, C13, L4 and C12.

### **Receiver for the Main Unit.**

A show in MA-210\_03\_Receiver.SCH is a simple super-regenerative receiver which sends the signals to CPU U5.(6) for processing as shown in MA-210\_05.SCH.