PWM1000 Circuit Description

PWM1000 is consist of PRX1000 and PTX1000, PRX1000 is used to receive FM UHF band (440~470MHz) audio/tone signal from PTX1000, then transmit FM VHF band (136~174MHz) TONE command to PTX1000 radio, it will follow operating status to send "ON" or "OFF" command to control PTX1000 radio. In the meanwhile, it will send the audio signal & "IN USE" message to mass controller by cable.

1. Receiving Circuit
    1.1 Antenna Band Pass circuit

    The LC band pass filter had including L8,CT1,LA5,LA6,LA7,L4,L1,CR7,CR8 which connect to RF LNA circuit.

    1.2 RF LNA (Low Noise Amplifier) circuit

    The RF LNA circuit had including Q1,Q2 & C18,L9,C34,L7, it will connect to U2 pin2.

    1.3 RF chip circuit

    U2 is intergrade chip which be including the mixer, VCO, PLL, AFC, AGC, RSSI, SQ, Tone decoder & decoder circuit.

    1.4 MCU controlled circuit

    U3 is MCU which use to control U2 & other switching circuit, it has built-in the clock & other relative circuit inside the chip.

    1.5 Audio amplifier

    The Q6 is audio amplifier circuit that be control by U3 through Q11.

2. Transmit Circuit
    2.1 TONE Command

    MCU will control the U2 to encode the tone signal as a command

    2.1 RF Transmit circuit,

    U2 provide RF signal after modulation, the QT6, QT5are amplifier circuit then send to antenna through low pass circuit (LA1, LA2, LA3 & LA4).

3. Reference OSC circuit

    The X1 is VCTCXO module which be used to generate 21.25MHz signal, it will be fine tuning by U3 & use to control U2 TX/RX frequency through low pass filter（RR2,R58,R101,C67）.

4. System power supply circuit

    The power supply come from 6pin connector with 5VDC, the IC1 chip is 3VDC voltage regulator which provide to U2 & U3, MCU（U3）will control the TX/RX circuit through Q8,Q1.