CIRCUIT DESCRIPTIONS ON THE CARF-1100R

CARF-1100R has two parts.
The first part is RX board, and the second is TX board. Also, TX board has power circuit.
Followings are descriptions on circuits.

1. RX BOARD
   The power of this board is supplied by the D/D converter on the TX board and this board demodulates the RF signal from transmitter.

   A. FRONTEND CIRCUIT
      The received signal through the antenna is amplified by Q1,Q2 (BFR92A), and the amplified signal is sent to the 1st mixer.
   B. 1st LOCAL OSCILLATOR
      The oscillated and multiplied signal by X1 (CH.CRYSTAL), Q7 and Q8 (BFR92A) is sent to the 1st mixer.
   C. FILTER (10.7MHz)
      The down converted signal through the 1st mixer is filtered by filter (10.7MHz).
   D. 1st IF AMPLIFIER
      The IF signal is amplified by Q4 (KTC3879Y), and sent to the 2nd mixer.
   E. 2nd LOCAL OSCILLATOR
      The 2nd local signal by U1 (TA31142) and X2 (10.245MHz) are sent to the 2nd mixer.
   F. 2nd MIXER
      The 2nd mixer which makes the signal of 455KHz is located inside of U1 (TA31142).
   G. CPU
      The recovered data through the U1 is supplied to the U2 (PIC16C621) and analyzed by U2.

2. TX BOARD
   This circuit makes a modulated RF signal and sends it to the receiver by air.

   A. POWER CIRCUIT
      The CARF-1100R uses the 1.5V AAA battery.
      The power supply of 1.5V is applied to the U3,U4 (RH5RI301B) and boosted up to 3.0V.
   B. FREQUENCY MODULATION
      The ID data made by the U2 is supplied to the D2 (MMBV109) of the oscillator.
   C. OSCILLATOR & FREQUENCY MULTIPLIER
      The oscillated signal by X4 (CH.CRYSTAL) is multiplied by Q9 (BFR92A) and fed to the Q10.
   D. FREQUENCY MULTIPLIER
      The multiplied signal by Q10 (BFR92A) are sent to the amplifier part.
   E. HIGH FREQUENCY AMPLIFIER
      The multiplied signal by Q10 (BFR92A) is sent to the antenna via RX/TX-exchange circuit.