# TK-8102H Tuning Procedure

Before attempting to tune the transceiver, connect the unit to a suitable power supply. Whenever the transmitter tuned, must be connected to a suitable dummy load, unless the instructions specify otherwise. The speaker output connector must be terminated with a 4ohms dummy load at any time during the tuning and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement meter at all the time during the tuning.

## 1-1 Adjusting Mode
Connect with the Radio and Personal Computer to COMPUTER PROGRAMMING INTERFACE (KPG-46)

## 1-2 Tuning Items
Frequency Tune
RF High Power
RF Low Power
DQT Balance (Wide/Narrow)
Max Deviation (Wide/Narrow)
QT Fine Deviation (Wide/Narrow)
DQT Fine Deviation (Wide/Narrow)
DTMF Fine Deviation (Wide/Narrow)
Sensitivity (Wide)
Squelch (Tight) (Wide/Narrow)
Squelch (Open) (Wide/Narrow)

## 1-3 Test Mode
Starting Test Mode, select the Tuning Frequency and Signaling.

**1-3-1** Click the Program or press [Alt]+[P] to open the Program Menu of Window.

**1-3-2** Click Test Mode or press [T] to Test Mode.

**1-3-3** Open the Test Mode window after Tuning Data Read.

 : Combo Box

**1-3-4** Click Combo box or use [Tab] keys to select channel combo box.
Then click or use [↓][↑] keys to select channel number.

**1-3-5** Click Combo box or use [Tab] keys to select Signaling combo box.
Then click or use [↓][↑] keys to select Signaling number.

**1-3-6** Press the [Space] key or Click the [PTT] button on the Test Mode Window then Transmitter on.
**1-3-7** Back to Reception during transmitter use [Space] keys or Click the [PTT] button.

**2-1 Tuning Mode**
Starting Tuning Mode from Test Mode.

**2-1-1** Click [Wide] button or use [Alt]+[w] keys to select Wide.

**2-1-2** Click [Narrow] button or use Press [Alt]+[n] keys to select Narrow.

**2-1-3** Click list box or use [Tab] key to select List box. Then Click or use [↓][↑] keys to select tuning item. Then Click the [Tuning Mode] button or use [Enter] key to go to Tuning Mode.

 : List Box

**2-1-4** Open Tuning Mode window.

 : Slider

**2-1-5** Press the [Space] key or Click the [PTT] button on the Test Mode Window then Transmitter on.

**2-1-6** Back to Reception during transmitter use [Space] keys or Click the [PTT] button.

**2-1-7** Click the Slider and use [←][→] keys to adjust the level then press [OK] button or press use [Alt]+[o] keys.

**2-1-8** Click [Cancel] button or press use [Alt]+[c] keys to cancel the adjustment level.

**2-1-9** Return to Test Mode Window.

**2-1-10** Repeat from **2-1-1** to **2-1-9** to adjust each tuning item.

**3-1 Ending Test Mode**
Click the Exit button or press [Alt] +[x] on the test mode window to end test mode.

**4-1 Tuning Frequencies**
        Low             RX : 450.05000,   TX : 450.10000
        Low'            RX : 460.05000,   TX : 460.10000
        Center       RX : 470.05000,   TX : 470.10000
        High'          RX : 480.05000,   TX : 480.10000
        High           RX : 489.95000,   TX : 489.90000

    Adjustment points
                    1point  : Use Center frequency
                    3points : Use Low, Center and High frequencies
                    5points : Use Low, Low', Center, High' and High frequencies

**5-1 VCO Alignment**

**5-1-1** Connect a voltmeter to CV

**5-1-2** Set the frequency High

**5-1-3** Adjust the voltage 5.5 ± 0.2V (TX: TC2, RX: TC1)


**5-2 Transmitter tuning**

**5-2-1** Select the tuning item "Frequency Tune", set the frequency Center and transmit the
radio, then adjust the frequency to 160.10000MHz ± 50Hz

**5-2-2** Select the tuning item "RF High Power", and transmit the radio.
Then adjust the RF Power to 45 ± 1.0W.                    Adjustment point is 5.

**5-2-3** Select the tuning item "RF Low Power", and transmit the radio.
Then adjust the RF Power to 15 ± 0.5W.                    Adjustment point is 5.

**5-2-4** Select the tuning item "DQT Balance (Wide)", and transmit the radio.
Then adjust the DQT waveform flat.                        Adjustment point is 3.

**5-2-5** Select the tuning item "DQT Balance (Narrow)", and transmit the radio.
Then adjust the DQT waveform flat.                        Adjustment point is 1.


**5-2-6** Select the tuning item "Max Deviation (Wide)" and transmit the radio.
Then adjust the Deviation 4.0 ± 0.1kHz.                   Adjustment point is 3.

**5-2-7** Select the tuning item "Max Deviation (Narrow)" and transmit the radio.
Then adjust the Deviation 2.0 ± 0.05kHz.                  Adjustment point is 1.

**5-2-8** Select the tuning item "QT Fine Deviation (Wide)" and transmit the radio.
Then adjust the Deviation 0.75 ± 0.05kHz.                 Adjustment point is 1.

**5-2-9** Select the tuning item "QT Fine Deviation (Narrow)" and transmit the radio.
Then adjust the Deviation 0.35 ± 0.05kHz.                 Adjustment point is 1.

**5-2-10** Select the tuning item "DQT Fine Deviation (Wide)" and transmit the radio.
Then adjust the Deviation 0.75 ± 0.05kHz.                 Adjustment point is 1.

**5-2-11** Select the tuning item "DQT Fine Deviation (Narrow)" and transmit the radio.
Then adjust the Deviation 0.35 ± 0.05kHz.                 Adjustment point is 1.

**5-2-12** Select the tuning item "DTMF Fine Deviation (Wide)" and transmit the radio.
Then adjust the Deviation 3.0 ± 0.2kHz.                   Adjustment point is 1.

**5-2-13** Select the tuning item "DTMF Fine Deviation (Narrow)" and transmit the radio.
Then adjust the Deviation 1.5 ± 0.1kHz.                   Adjustment point is 1.

**5-3 Receiver tuning**

**5-3-1** Select the tuning item "Sensitivity".
Then adjust the receiver sensitivity maximum.          Adjustment point is 3.

**5-3-2** Select the tuning item "Squelch (Tight) (Wide)".
Then adjust the squelch (Tight) opening level –113dBm.    Adjustment point is 1.

**5-3-3** Select the tuning item "Squelch (Tight) (Narrow)".
Then adjust the squelch (Tight) opening level –112dBm.    Adjustment point is 1.

**5-3-4** Select the tuning item "Squelch (Open) (Wide)".
Then adjust the squelch (Open) opening level –120dBm.    Adjustment point is 3.

**5-3-5** Select the tuning item "Squelch (Open) (Narrow)".
Then adjust the squelch (Open) opening level –119dBm.    Adjustment point is 1.