

## TK-7102H(K2) Tuning Procedure

### 1-1 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.

#### 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

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

**4-1 Tuning Frequencies**

Low	RX : 136.05000,	TX : 136.10000
Low'	RX : 142.55000,	TX : 142.60000
Center	RX : 149.05000,	TX : 149.10000
High'	RX : 155.55000,	TX : 155.60000
High	RX : 161.95000,	TX : 161.90000

## 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  $5.5 \pm 0.2V$  (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  $149.10000MHz \pm 50Hz$ **5-2-2** Select the tuning item “RF High Power”, and transmit the radio.

Then adjust the RF Power to  $50 \pm 1.0W$ . Adjustment point is 5.

**5-2-3** Select the tuning item “RF Low Power”, and transmit the radio.

Then adjust the RF Power to  $25 \pm 1.0W$ . 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  $4.0 \pm 0.1\text{kHz}$ . Adjustment point is 3.

**5-2-7** Select the tuning item “Max Deviation(Narrow)” and transmit the radio.

Then adjust the Deviation  $2.0 \pm 0.05\text{kHz}$ . Adjustment point is 1.

**5-2-8** Select the tuning item “QT Fine Deviation(Wide)” and transmit the radio.

Then adjust the Deviation  $0.75 \pm 0.05\text{kHz}$ . Adjustment point is 1.

**5-2-9** Select the tuning item “QT Fine Deviation(Narrow)” and transmit the radio.

Then adjust the Deviation  $0.35 \pm 0.05\text{kHz}$ . Adjustment point is 1.

**5-2-10** Select the tuning item “DQT Fine Deviation(Wide)” and transmit the radio.

Then adjust the Deviation  $0.75 \pm 0.05\text{kHz}$ . Adjustment point is 1.

**5-2-11** Select the tuning item “DQT Fine Deviation(Narrow)” and transmit the radio.

Then adjust the Deviation  $0.35 \pm 0.05\text{kHz}$ . Adjustment point is 1.

**5-2-12** Select the tuning item “DTMF Fine Deviation(Wide)” and transmit the radio.

Then adjust the Deviation  $3.0 \pm 0.2\text{kHz}$ . Adjustment point is 1.

**5-2-13** Select the tuning item “DTMF Fine Deviation(Narrow)” and transmit the radio.

Then adjust the Deviation  $1.5 \pm 0.1\text{kHz}$ . 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  $-113\text{dBm}$ . Adjustment point is 1.

**5-3-3** Select the tuning item “Squelch(Tight) (Narrow)”.

Then adjust the squelch(Tight) opening level  $-112\text{dBm}$ . 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.