

TK-7102H 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 : 146.05000,	TX : 146.10000
Low'	RX : 153.05000,	TX : 153.10000
Center	RX : 160.05000,	TX : 160.10000
High'	RX : 167.05000,	TX : 167.10000
High	RX : 173.95000,	TX : 173.90000

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 $160.10000MHz \pm 50Hz$
- 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 $15 \pm 0.5W$. 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 $4.0 \pm 0.1kHz$. Adjustment point is 3.
- 5-2-7 Select the tuning item "Max Deviation (Narrow)" and transmit the radio.
Then adjust the Deviation $2.0 \pm 0.05kHz$. Adjustment point is 1.
- 5-2-8 Select the tuning item "QT Fine Deviation (Wide)" and transmit the radio.
Then adjust the Deviation $0.75 \pm 0.05kHz$. Adjustment point is 1.
- 5-2-9 Select the tuning item "QT Fine Deviation (Narrow)" and transmit the radio.
Then adjust the Deviation $0.35 \pm 0.05kHz$. Adjustment point is 1.
- 5-2-10 Select the tuning item "DQT Fine Deviation (Wide)" and transmit the radio.
Then adjust the Deviation $0.75 \pm 0.05kHz$. Adjustment point is 1.
- 5-2-11 Select the tuning item "DQT Fine Deviation (Narrow)" and transmit the radio.
Then adjust the Deviation $0.35 \pm 0.05kHz$. Adjustment point is 1.
- 5-2-12 Select the tuning item "DTMF Fine Deviation (Wide)" and transmit the radio.
Then adjust the Deviation $3.0 \pm 0.2kHz$. Adjustment point is 1.
- 5-2-13 Select the tuning item "DTMF Fine Deviation (Narrow)" and transmit the radio.
Then adjust the Deviation $1.5 \pm 0.1kHz$. 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.