TK-7150(K) Tuning Procedure

1 Tuning Procedure

Before attempt 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

Press the Power button while holding the leftmost button.
Next press the 3rd button on the left.

Adjust level by CH SW.
Then press the enter button (the rightmost button)
(Press the 2nd button on the right when change wide/narrow.)

2 Tuning Items

Frequency Tune
Frequency Tune for 2.5kHz Step at Low frequency
Frequency Tune for 2.5kHz Step at High frequency
RF High Power
RF Low Power
Max Deviation (Wide/Narrow)
DQT Balance (Wide/Narrow)
QT Fine Deviation (Wide/Narrow)
DQT Fine Deviation (Wide/Narrow)
LTR Fine Deviation (Wide/Narrow)
DTMF Fine Deviation (Wide/Narrow)
MSK Fine Deviation (Wide/Narrow)
Tone Fine Deviation (Wide/Narrow)
Sensitivity (Wide)
Squelch(Tight) (Wide/Narrow)
Squelch(Open) (Wide/Narrow)

3 Tuning Frequencies

Low	RX : 136.05000 ,	TX : 136.00000
Low’	RX : 145.55000,	TX : 145.50000
Center	RX : 155.05000,	TX : 155.00000
High’	RX : 164.55000,	TX : 164.50000
High	RX : 173.95000,	TX : 174.00000

Adjustment points

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

4 Transceiver tuning

4-1 VCO Alignment

4-1-1 Connect a voltmeter to CV

4-1-2 Set the frequency High

4-1-3 Adjust the voltage 8.0±0.2V (TX:TC501, RX:TC502)

4-2 Transmitter tuning

4-2-1 Select the tuning item "Frequency Tune", transmit the radio,
then adjust the frequency to 155.00000MHz ± 50Hz

4-2-2 Select the tuning item "Frequency Tune for 2.5kHz step at Low frequency"
, transmit the radio,
then adjust the frequency to 136.00250MHz ± 50Hz

4-2-3 Select the tuning item "Frequency Tune for 2.5kHz step at High frequency"
transmit the radio,
then adjust the frequency to 173.99750MHz ± 50Hz

4-2-4 Select the tuning item "RF High Power", and transmit the radio.
Then adjust the RF Power to 45 ± 1.0W. Adjustment point is 3.

4-2-5 Select the tuning item "RF Low Power", and transmit the radio.
Then adjust the RF Power to 15 ± 1.0 W. Adjustment point is 3.

4-2-6 Select the tuning item "Max Deviation(Wide)" and transmit the radio.
Then adjust the Deviation 3.8 ± 0.1kHz. Adjustment point is 3.

4-2-7 Select the tuning item "Max Deviation(Narrow)" and transmit the radio.
Then adjust the Deviation 1.75 ± 0.05kHz. Adjustment point is 3.

4-2-8 Select the tuning item "DQT Balance(Wide)", and transmit the radio.
Then adjust the DQT waveform flat. Adjustment point is 1.

4-2-9 Select the tuning item "DQT Balance(Narrow)", and transmit the radio.
Then adjust the DQT waveform flat. Adjustment point is 1.

4-2-10 Select the tuning item “QT Fine Deviation(Wide)” and transmit the radio.
Then adjust the Deviation 0.75 ± 0.05kHz. Adjustment point is 1.

4-2-11 Select the tuning item “QT Fine Deviation(Narrow)” and transmit the radio.
Then adjust the Deviation 0.35 ± 0.05kHz. Adjustment point is 1.

4-2-12 Select the tuning item “DQT Fine Deviation(Wide)” and transmit the radio.
Then adjust the Deviation 0.75 ± 0.05kHz. Adjustment point is 1.

4-2-13 Select the tuning item “DQT Fine Deviation(Narrow)” and transmit the radio.
Then adjust the Deviation 0.35 ± 0.05kHz. Adjustment point is 1.

4-2-14 Select the tuning item “LTR Fine Deviation(Wide)” and transmit the radio.
Then adjust the Deviation 1.00 ± 0.05kHz. Adjustment point is 1.

4-2-15 Select the tuning item “LTR Fine Deviation(Narrow)” and transmit the radio.
Then adjust the Deviation 0.75 ± 0.05kHz. Adjustment point is 1.

4-2-16 Select the tuning item “DTMF Fine Deviation(Wide)” and transmit the radio.
Then adjust the Deviation 3.0 ± 0.2kHz. Adjustment point is 1.

4-2-17 Select the tuning item “DTMF Fine Deviation(Narrow)” and transmit the radio.
Then adjust the Deviation 1.5 ± 0.1kHz. Adjustment point is 1.

4-2-18 Select the tuning item “MSK Fine Deviation(Wide)” and transmit the radio.
Then adjust the Deviation 3.0 ± 0.2kHz. Adjustment point is 1.

4-2-19 Select the tuning item “MSK Fine Deviation(Narrow)” and transmit the radio.
Then adjust the Deviation 1.5 ± 0.1kHz. Adjustment point is 1.

4-2-20 Select the tuning item “TONE Fine Deviation(Wide)” and transmit the radio.
Then adjust the Deviation 3.0 ± 0.2kHz. Adjustment point is 1.

4-2-21 Select the tuning item “TON Fine Deviation(Narrow)” and transmit the radio.
Then adjust the Deviation 1.5 ± 0.1kHz. Adjustment point is 1.

4-3 Receiver tuning

4-3-1 Connect the tracking generator to CN202.
Connect the spectrum analyzer to CN201.
Tune L205,L207,L209 (wide) L206,L208,L210 (narrow)
to make gain maximum and make the band flat.

4-3-2 Tune L201 for maximum audio level at narrow.

4-3-3 Select the tuning item “Sensitivity”.
Then adjust the receiver sensitivity maximum. Adjustment point is 5.

4-3-4 Select the tuning item “Squelch(Tight) (Wide)”.
Then adjust the squelch(Tight)
Opening level when 5dB is added from the sensitivity value of 12dB SINAD.
Adjustment point is 1.

4-3-5 Select the tuning item “Squelch(Tight) (Narrow)”.
Then adjust the squelch(Tight)
Opening level when 5dB is added from the sensitivity value of 12dB SINAD.
Adjustment point is 1.

4-3-6 Select the tuning item “Squelch(Open) (Wide)”.
Then adjust the squelch(Open)
Opening level when 3dB is subtracted from the sensitivity value of 12dB SINAD.
Adjustment point is 1.

4-3-7 Select the tuning item “Squelch(Open) (Narrow)”.
Then adjust the squelch(Open)
Opening level when 3dB is subtracted from the sensitivity value of 12dB SINAD.
Adjustment point is 1.