Adjustment Description

Adjust the radio by programmer, PC programming software or by manual adjustment. In manual adjustment mode, the adjustment method is shown as follows: (Refer to “Software Specification” for the manual adjustment mode)

Required Test Instrument

Radio Communication Test Set 1 set
Scanner 1 set
3A/10V Power Supply 1 set
Digital Voltmeter 1 set
3A Ammeter 1 set

Adjustment

1. Adjustment in user mode

Short circuit the two SELF points, turn on the power while holding down TK for 2 seconds, then the radio enters reset mode with green LED flashing twice. Turn the channel selector knob to the selected channel and press PTT, the radio data is all reset (All clone modes will be automatically activated when reset is completed). Refer to All Reset Mode in Software Specification for more details:

VCO

Item	Condition	Measurement		Adjustment		Specification/ Remarks
		Test Instrument	Terminal	Parts	Method	
1. Setting	Power supply voltage					
2.Transmit VCO lock voltage	1. CH: TX high	Digital Voltmeter	CV	TC301	3.8V±0.1V	
	2. TX Low				Check	>0.6V
3.Receive VCO lock voltage	1. CH: RX high			TC302	3.8V±0.1V	
	2. RX low				Check	>0.6V

2. Manual Adjust Mode Description

Turn the power on while holding down TK and SK2 key simultaneously for 2 seconds, the radio enters manual adjust mode with red LED flashes twice. (TK：Top key ； SK1：Side key1； SK2：Side key2)

(1) Enter the manual adjust mode

Turn the power on while holding down TK and SK2 key simultaneously. After 2 seconds, the radio enters manual adjust mode with red LED flashes 2 times.

(2) Channel number on the channel selector knob

Each channel number on the channel selector knob is defined a setting item. The bandwidth is 25KHz and low frequency (F1) each time when the channel selector knob is rotated.

(3) SK2 key

Used to set the frequency. 1 point tuning is used to adjust center frequency, 3 point tuning adjusts F1, F3, F5 and 5 point tuning adjusts F1-F5. The frequency toggles from low frequency to high frequency. Green LED flashes one time when F1 is selected.

(4) TK key

Use to toggle the channel bandwidth among 25KHz, 20KHz and 12.5KHz. Red LED flashes one time when the bandwidth is 25KHz.

(5) PTT/SK1

PTT→Increase

SK1→Decrease

PTT/SK1 is pressed to adjust upward/downward. Red LED glows indicating the maximum adjust value and green LED indicating the minimum value. Hold down the key to increase/decrease the adjust value continuously.
Press PTT key to save the BATT LOW, SQL and VOX setting, then green LED glows one time.
(6) Select adjustment item group: The first group of adjustment item is selected when the radio enters the manual adjust mode.
Turn to CH16 and press PTT key to enter the next group. Press again to return to the first group. Orange LED flashes one time when the first group is selected. Orange LED flashes two times when the second group is selected.
(7) Frequency Setting ()
5 point tuning（MHz） TX: { TX1,TX2,TX3,TX4,TX5}
RX: { RX1,RX2,RX3,RX4,RX5}
3 point tuning（MHz） TX: { TX1, TX3, TX5}
RX: { RX1, RX3, RX5}
1 point tuning（MHz） TX: { TX3}
RX: { RX3}

3. Adjustment Method

Turn the power on while holding down TK and SK2 key simultaneously for 2 seconds, the radio enters manual adjust mode with red LED flashes twice. Refer to Manual Adjust Mode in TC700 Software Specification for more details.

(1) Transmitter

Item		Condition	Test Instrument	Method	Purpose
Group 1	Adjust a channel	Enter the adjust mode; Turn to CH1; TX mode.	Radio Communication Test Set; TX Test	Adjust VR1	Frequency Error≤100Hz
	1. TX power Low	Enter the adjust mode. Turn to CH1. Adjust at 5 point (wideband).	Radio Communication Test Set TX TEST HPF：20HZ LPF：300HZ	PTT key (increase) SK1 key (decrease)	Adjust power to: 1W±0.1W
	2. CDCSS balance	Enter the adjust mode. Turn to CH3. Adjust at 3 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		PTT key (increase) SK1 key (decrease)	No adjustment
	3. CDCSS deviation	Enter the adjust mode. Turn to CH3. Adjust at 3 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		PTT key (increase) SK1 key (decrease)	Adjust deviation to 750Hz (wideband), 600Hz (medium band) and 400Hz (narrowband) respectively.
	4. CTCSS (67.0Hz) deviation Low	Enter the adjust mode. Turn to CH4. Adjust at 3 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		PTT key (increase) SK1 key (decrease)	

	5. CTCSS (136.5Hz) deviation Center	Enter the adjust mode. Turn to CH5. Adjust at 3 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		PTT key (increase) SK1 key (decrease)	
	6. CTCSS (254.1Hz) deviation High	Enter the adjust mode. Turn to CH6. Adjust at 3 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		PTT key (increase) SK1 key (decrease)	
	7. AK2346 Transmit Audio Deviation	Enter the adjust mode. Turn to CH7. Adjust at 3 point (wideband), 1 point (medium band), 1 point (narrow band).	Radio Communication Test Set HPF: 20Hz LPF: 15KHz 1KHz 120mV	PTT key (increase) SK1 key (decrease)	Adjust deviation to 4KHz (wideband), 3.2KHz (medium band) and 2KHz (narrowband) respectively.
	8. 2 Tone deviation	Enter the adjust mode. Turn to CH8. Adjust at 1 point (wideband), 1 point (medium band), 1 point (narrow band).	Radio Communication Test Set TX Test HPF: 20Hz LPF: 15KHz No modulation signal.	PTT key (increase) SK1 key (decrease)	Adjust deviation to 3.2KHz (wideband), 2.5KHz (medium band) and 1.8KHz (narrowband) respectively.
	9. DTMF deviation	Enter the adjust mode. Turn to CH9. Adjust at 1 point (wideband), 1 point (medium band), 1 point (narrow band).		PTT key (increase) SK1 key (decrease)	Adjust deviation to 3.2KHz (wideband), 2.5KHz (medium band) and 1.8KHz (narrowband) respectively.
	10. MSK deviation	Enter the adjust mode. Turn to CH10. Adjust at 3 point (wideband), 1 point (medium band), 1 point (narrow band).		PTT key (increase) SK1 key (decrease)	Adjust deviation to 3.2KHz (wideband), 2.5KHz (medium band) and 1.8KHz (narrowband) respectively.
	11. VOX GAIN1	Enter the adjust mode. Turn to CH11. Adjust at 1 point (wideband).	Radio Communication Test Set TX TEST HPF：20HZ LPF：15KHZ	Save	Modulation signal: 1KHz, 25mv Press PTT to save;
	12. VOX GAIN5	Enter the adjust mode. Turn to CH12. Adjust at 1 point (wideband).		Save	Modulation signal: 1KHz, 6mv Press PTT to save;
	13. TX power HIGH	Enter the adjust mode. Turn to CH13. Adjust at 5 point (wideband).	Radio Communication Test Set TX TEST	PTT key (increase) SK1 key (decrease)	Adjust power to 5W(4W)±0.1W VHF: 5W, UHF: 4W
	14. TX voltage Low	Enter the adjust mode. Turn to CH14. Adjust at 1 point (wideband).		Save	Adjust voltage to 5.8V,press PTT to save

Receiver

Item	Condition	Test Instrument	Method	Purpose

Group 2	1. RX sensitivity	Enter the adjust mode. Turn to CH1. Adjust at 5 point (wideband).	Radio Communication Test Set RX TEST HPF：300HZ LPF：3KHZ	PTT key SK1 key	Adjust level to 119dBm. SINAD≥12dB
	2. AK2346 RX volume	Enter the adjust mode. Turn to CH2. Adjust 1 point at wideband, medium band and narrowband respectively.		PTT key (Increase) SK1 key (Decrease	When Max. volume is set, adjust AC level to 1W (16Ω), single input 2.5V, dual input 5V
	3. Squelch Level 3 (OPEN)	Enter the adjust mode. Turn to CH3. Adjust at 5 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		Save	Adjust level to -123dBm, press PTT to save
	4. Squelch Level 3 (SQUELCH)	Enter the adjust mode. Turn to CH4. Adjust at 5 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		Save	Adjust level to -125dBm, press PTT to save
	5. Squelch Level 9 (OPEN)	Enter the adjust mode. Turn to CH5. Adjust at 5 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		Save	Adjust level to -117dBm, press PTT to save
	6. Squelch Level 9 (SQUELCH)	Enter the adjust mode. Turn to CH6. Adjust at 5 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		Save	Adjust level to -119dBm, press PTT to save
	7. RX voltage Low	Enter the adjust mode. Turn to CH7. Adjust at 1 point (wideband).		Save	Adjust power supply voltage to 6.3V, press PTT to save

Note: AF deviation of the receiver is 3KHz (wideband), 2.5KHz(medium band) and 1.5KHz (narrowband)