ALIGNMENT PROCEDURE

FC401-2

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Ⅰ.VCO Alignment			
No.	Item	Alignment Method	Remarks
1.1	**Check connection**	Power On the FC401-2 radio, Connect the serial port and run the testing software, Set the base frequency to be 450MHz, Channel 1 to frequency 453.325MHz and channel 2 to 468MHz.	
1.2	**Tx VCO**	1).To check the voltage VT at the resistor R15, Adjust the voltage VT of channel 1 to be $0.9\pm0.2V$, the Oscillation frequency to be 453.325MHz. Adjust the voltage VT of channel 2 to be $3.6\pm0.2V$, the Oscillation frequency to be 468MHz.	
		2).Adjust the capacitor VC2 to make the adjacent channel rejection to be greater than 65dB and **Oscillation amplitude** to be $0\pm3dB$.	
1.3	**Rx VCO**	1).To check the voltage VT at the resistor R4, Adjust the voltage VT of channel 1 to be $0.9\pm0.2V$ and the **Oscillation** frequency to be 428.6MHz. Adjust the voltage VT of channel 2 to be $3.6\pm0.2V$, the **Oscillation** frequency to be 446.6 MHz.	
		2).Adjust the capacitor VC1 to make the adjacent channel rejection to be greater than 65dB and **Oscillation amplitude** to be $0\pm3dB$.	
Ⅱ.Single Board Alignment			
2.1	**Tx alignment**	1). Adjust VC3 to make the frequency error to be within $\pm150Hz$.	
		2).Adjust VR1 to make the power at capacitor C220 to be greater than 100 mW.	
		3).Adjust VRC1 to make the MSK frequency deviation to be 3.0+0.2KHZ.	
2.2	**Rx alignment**	1).Adjust L105 and L106 to assure AF **amplitude** to be 210+20mV, Distortion to be $\leqslant3\%$ and the LED of the radio is green.	
		2).Check if AF **amplitude** is less than 20% of the amplitude in normal test.	
		3).Adjust L101－L106 to make Sinad $\geqslant12dB$.	

		4).Adjust VR3, make the SQ open (Sinad ≥ 12dB), SQ close (Sinad <12dB).	
III.The Radio Alignment			
3.1	**Tx alignment**	1). Adjust VC3 to make the frequency error to be within ±150Hz.	
		2).Adjust VR1 and L202 to make the power ≤ 4W(between 3.8W to 4W.	
		3).Adjust VRC1 to make the MSK frequency deviation to be 3.0+0.2KHZ.	
3.2	**Rx alignment**	1). Adjust L105 and L106 to assure AF amplitude to be 210+20mV, Distortion to be ≤3% and the LED of the radio is green.	
		2).Check if AF amplitude is less than 20% of the amplitude in normal test.	
		3).Adjust L101—L106 to make Sinad ≥12dB.	
		4).Adjust VR3, make the SQ open (Sinad ≥ 12dB), SQ close (Sinad <12dB).	