

IC-M87/M88 ADJUSTMENT PROCEDURES

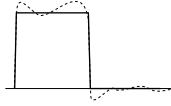
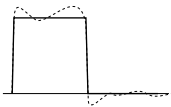
1 PREPARATION

When adjusting IC-M87/M88, optional OPC-966 cloning cable, adjustment software are required.

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
DC power supply	Output voltage : 7.2 V DC Current capacity : 3 A or more	FM deviation meter	Frequency range : 30–300 MHz Measuring range : 0 to ± 10 kHz
RF power meter (terminated type)	Measuring range : 0.1–10 W Frequency range : 100–300 MHz Impedance : 50 Ω SWR : Less than 1.2 : 1	Audio generator	Frequency range : 300–3000 Hz Measuring range : 1–500 mV
Frequency counter	Frequency range : 0.1–300 MHz Frequency accuracy : ± 1 ppm or better Sensitivity : 100 mV or better	Standard signal generator (SSG)	Frequency range : 100–300 MHz Output level : 0.1 μ V–32 mV (–127 to –17 dBm)
Digital multimeter	Input impedance : 10 M Ω /DC or better	Attenuator	Power attenuation : 40 dB or more Capacity : 10 W or more

2 PLL AND TRANSMITTER ADJUSTMENTS

Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard.

ADJUSTMENT		ADJUSTMENT CONDITION	MEASUREMENT		VALUE
			UNIT	LOCATION	
PLL LOCK VOLTAGE	1	- Operating channel : center frequency - Receiving	MAIN	Connect the digital multimeter to the check point LV.	1.7–2.7 V (Verify)
	2	- Operating channel : center frequency - Connect the RF power meter or 50 Ω dummy load to the antenna connector. - Transmitting			2.0–3.0 V (Verify)
REFERENCE FREQUENCY	1	- Operating channel : center frequency - Connect the RF power meter or 50 Ω dummy load to the antenna connector. - Transmitting	Top panel	Loosely couple the frequency counter to the antenna connector.	160.000000 MHz
OUTPUT POWER	1	- Operating channel : center frequency [H/L] switch : High - Transmitting	Top panel	Connect the RF power meter to the antenna connector.	5.0 W
	2	[H/L] switch : Mid - Transmitting			3.0 W
	3	[H/L] switch : Low - Transmitting			0.75 W
	4	[H/L] switch : Extra low - Transmitting			0.45 W
FM DEVIATION (Wide)	1	- Operating channel : center frequency - Channel spacing : Wide [H/L] switch : High - Connect the audio generator to the [MIC] jack and set as: 1.0 kHz/200 mV rms. - Set the FM deviation meter as: HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P–P)/2 - Transmitting	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±4.15–4.25 kHz
(Narrow)	2	- Channel spacing : Narrow - Transmitting			±2.05–2.15 kHz
MODULATION BARANCE (Wide)	1	- Operating channel : center frequency - Channel spacing : Wide [H/L] switch : High - Set the DTCS as : Code 007 - Transmitting	Top panel	Connect the FM deviation meter with an oscilloscope to the antenna connector through the attenuator.	Set to flat wave form 
(Narrow)	2	- Channel spacing : Narrow - Transmitting			Set to flat wave form 

SOFTWARE ADJUSTMENT – continued

Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard.

ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE
		UNIT	LOCATION	
RX SENSITIVITY [BPF T1]–[BPF T4]	1	Top panel	Connect a SINAD meter with an 8 Ω load to the [SP] jack.	Minimum distortion level
	• Operating frequency: center frequency • Channel spacing : Wide • Connect a standard signal generator to the antenna connector and set as: - Level : 10 μV* (–87 dBm) - Modulation : OFF - Deviation : ±3.5 kHz • Receiving			
CONVENIENT: The BPF T1–BPF T4 can be adjusted automatically. ①-1: Set the cursor to “BPF ALL” on the adjustment program and then push [ENTER] key. ①-2: The connected PC tunes BPF T1–BPF T4 to peak levels. or ②-1: Set the cursor to one of BPF T1, T2, T3, or T4 as desired. ②-2: Push [ENTER] key to start tuning. ②-3: Repeat ②-1 and ②-2 to perform additional BPF tuning.				
SQUELCH LEVEL [SQL]	1	Top panel	The “SQUELCH LEVEL” adjustment is adjusted by “ADJUSTMENT SOFTWARE”, automatically.	

*The output level of the standard signal generator (SSG) is indicated as the SSG's open circuit.