

ADJUSTMENT

1) Required Test Equipment

1. Digital Multimeter

Voltage range: FS = 18V or so
Input resistance: 1M Ω or more

2. Regulated Power Supply

Supply voltage: 13.80V
Current: 15A or more

3. Oscilloscope

4. Spectrum Analyzer

Measuring range: Up to 2GHz or more

5. Tracking Generator

Output frequency: Up to 2GHz or more

6. Audio Dummy Load, Speaker

Impedance: 8 Ω

7. SSG

Output frequency: 1GHz or more
Output level: -20dB/0.1 μ V to 120dB/1V
Moduration: FM

8. Frequency Counter

Measurable frequency: Up to 500MHz

9. Power Meter

Impedance: 50 Ω , unbalanced
Measuring range: Full scale of 60W or so

10. Audio Voltmeter

Measurable frequency: 50Hz to 10kHz
Sensitivity: 1mV ~ 10V

11. Distortion Meter

Measurable frequency: 1kHz
Input level: Up to 40dB
Distortion level: 1% ~ 100%

12. Audio Generator

Output frequency: 88.5Hz and 1kHz
Output impedance: 600 Ω , unbalanced

13. Linear Detector

Measurable frequency: Up to 500MHz

Notes

SSG Mod: 1kHz +/- 3.5kHz/DEV

SP terminal is connected to 8 Ω dummy load.

RX speaker output level is 50 to 100mW.

1. Power supply voltage is 13.8V.

Power switch is off.

2. Turn the squelch and volume knobs counterclockwise.

3. Press and hold the "F" key, then turn on the power switch.

The display shows that the frequency is 433.00MHz (E) or 445.00MHz (T/TE1/TE2).

2) Adjustment Point

VR1: High Power

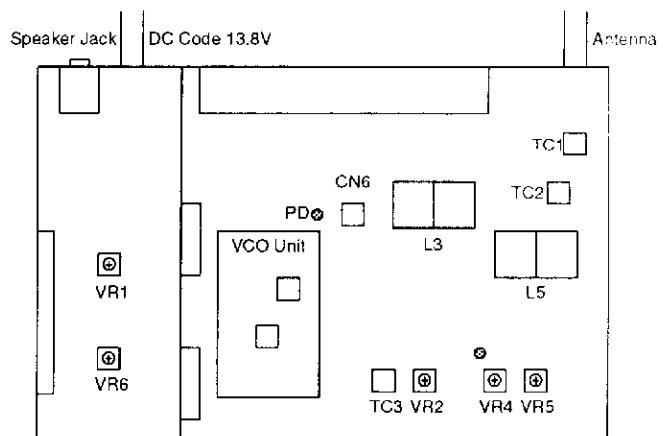
VR2: Deviation

VR3: S Meter

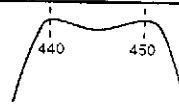
VR4: Mic Gain

VR6: Low Power

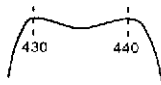
TC3: Reference Frequency



3) Adjustment for DR430T

Item	Condition	Measurement				Adjustment			Specifications
		TX/RX	Equipment	Unit	Terminal	Unit	Parts	Method	
Frequency	f=445.00MHz	TX LOW	Freq. Counter Power Meter	Back	ANT	Main	TC3	445MHz	+/- 100Hz
PLL VCO	f=420.00MHz f=480.00MHz	RX	Digital Multimeter	Main	PD			Check	1.7V < < 5.2V
Tracking Adjustment	f=445.03MHz TG OUT: -20dBm	RX	Tracking Generator	Main	CN6	Main	TC1 TC2 L3, L5		
Sensitivity	f=440.03MHz f=445.03MHz f=449.99MHz SSG OUT: -9.5dBμ	RX	SSG Dist. Meter	Main		Main			SINAD is above 12dB.
	f=420.03MHz f=470.03MHz SSG OUT: -60dBμ	RX							
S Meter	f=445.03MHz SSG OUT: 15dBμ Mod: 1kHz	RX	LCD S Meter	Front Panel		Main	VR3	"Full" Flashing	
	f=445.03MHz SSG OFF Mod: 1kHz	RX						Check	S Meter does not light.
SQL Level	f=445.03MHz SQL VR: Threshold SSG OUT: -10dBμ	RX	LCD BUSY	Front Panel		Main		Make sure that SQL is open.	BUSY ON
High Power	VR1: MAX	TX High	Power Meter	Back	ANT	Main			
	f=445.00MHz	TX High					VR1	36W	+/-1.0W below 10A
	f=420.00MHz f=470.00MHz	TX High						Check	above 5W
Low Power	f=445.00MHz	TX LOW				Main	VR6	5.0W	5+/-0.5W
DEV	f=445.00MHz AG: 1kHz -30dBm	TX	Linear Det. Oscilloscope Power Meter	Back	ANT	Main	VR2	4.7kHz/ DEV	4.7 +/-0.2kHz /DEV
Mic Gain	f=445.00MHz AG: 1kHz -47dBm	TX LOW					VR4	4.0kHz/ DEV	4.0 +/-0.2kHz /DEV
CTCSS TONE 88.5Hz	f=445.00MHz AG: OFF Tone SW: ENC	TX LOW					Check	0.6~1.2kHz /DEV	
Tone Burst	f=445.00MHz AG: OFF Tone SW: ON	TX LOW					Check	2.5~3.5kHz /DEV	

4) Adjustment for DR430E

Item	Condition		Measurement			Adjustment			Specifications
		TX/RX	Equipment	Unit	Terminal	Unit	Parts	Method	
Frequency	f=435.00MHz	TX LOW	Freq. Counter Power Meter	Back	ANT	Main	TC3	435MHz	+/- 100Hz
PLL VCO	f=420.00MHz f=480.00MHz	RX	Digital Multimeter	Main	PD			Check	1.7V < < 5.2V
Tracking Adjustment	f=435.03MHz TG OUT: -20dBm	RX	Tracking Generator	Main	CN6	Main	TC1 TC2 L3, L5		
Sensitivity	f=430.03MHz f=435.03MHz f=439.99MHz SSG OUT: -9.5dBμ	RX	SSG Dist. Meter	Main		Main			SINAD is above 12dB.
	f=420.03MHz f=470.03MHz SSG OUT: -60dBμ	RX							
S Meter	f=435.03MHz SSG OUT: 15dBμ Mod: 1kHz	RX	LCD S Meter	Front Panel		Main	VR3	"Full" Flashing	
	f=435.03MHz SSG OFF Mod: 1kHz	RX						Check	S Meter does not light.
SQL Level	f=435.03MHz SQL VR: Threshold SSG OUT: -10dBμ	RX	LCD BUSY	Front Panel		Main		Make sure that SQL is open.	BUSY ON
High Power	VR1: MAX	TX High	Power Meter	Back	ANT	Main			
	f=435.00MHz	TX High					VR1	36W	+/-1.0W below 10A
	f=420.00MHz f=470.00MHz	TX High						Check	above 5W
Low Power	f=435.00MHz	TX LOW				Main	VR6	5.0W	5+/-0.5W
DEV	f=435.00MHz AG: 1kHz -30dBm	TX	Linear Det. Oscilloscope Power Meter	Back	ANT	Main	VR2	4.7kHz/ DEV	4.7 +/-0.2kHz /DEV
Mic Gain	f=435.00MHz AG: 1kHz -47dBm	TX LOW					VR4	4.0kHz/ DEV	4.0 +/-0.2kHz /DEV
CTCSS TONE 88.5Hz	f=435.00MHz AG: OFF Tone SW: ENC	TX LOW					Check	0.6~1.2kHz /DEV	
Tone Burst	f=435.00MHz AG: OFF Tone SW: ON	TX LOW					Check	2.5~3.5kHz /DEV	

5) Adjustment for DR430TE1

Item	Condition	Measurement				Adjustment			Specifications			
		TX/RX	Equipment	Unit	Terminal	Unit	Parts	Method				
Frequency	f=410.00MHz	TX LOW	Freq. Counter Power Meter	Back	ANT	Main	TC3	410MHz	+/- 100Hz			
PLL VCO	f=400.00MHz f=450.00MHz	RX	Digital Multimeter	Main	PD			Check	1.7V < < 7.0V			
Tracking Adjustment	f=410.03MHz TG OUT: -20dBm	RX	Tracking Generator	Main	CN6	Main	TC1 TC2 L3, L5	TC1, TC2: signal MAX L3, L5: To get Band-width				
Sensitivity	f=400.03MHz f=410.03MHz f=419.99MHz SSG OUT: -9.5dBμ	RX	SSG Dist. Meter	Main		Main			SINAD is above 12dB.			
	f=450.03MHz SSG OUT: -60dBμ	RX										
S Meter	f=410.03MHz SSG OUT: 15dBμ Mod: 1kHz	RX	LCD S Meter	Front Panel		Main	VR3	"Full" Flashing	S Meter does not light.			
	f=410.03MHz SSG OFF Mod: 1kHz	RX						Check				
SQL Level	f=410.03MHz SQL VR: Threshold SSG OUT: -10dBμ	RX	LCD BUSY	Front Panel		Main		Make sure that SQL is open.	BUSY ON			
High Power	VR1: MAX	TX High	Power Meter	Back	ANT	Main						
	f=410.00MHz	TX High								VR1	36W	+/-1.0W below 10A
	f=450.00MHz	TX High									Check	above 5W
Low Power	f=410.00MHz	TX LOW					VR6	5.0W	5+/-0.5W			
DEV	f=410.00MHz AG: 1kHz -30dBm	TX	Linear Det. Oscilloscope Power Meter	Back	ANT	Main		VR2	4.7kHz/ DEV	4.7 +/-0.2kHz /DEV		
Mic Gain	f=410.00MHz AG: 1kHz -47dBm	TX LOW						VR4	4.0kHz/ DEV	4.0 +/-0.2kHz /DEV		
CTCSS TONE 88.5Hz	f=410.00MHz AG: OFF Tone SW: ENC	TX LOW						Check	0.6~1.2kHz /DEV			
Tone Burst	f=410.00MHz AG: OFF Tone SW: ON	TX LOW						Check	2.5~3.5kHz /DEV			

6) Adjustment for DR430TE2

Item	Condition		Measurement			Adjustment			Specifications			
		TX/RX	Equipment	Unit	Terminal	Unit	Parts	Method				
Frequency	f=460.00MHz	TX LOW	Freq. Counter Power Meter	Back	ANT	Main	TC3	460MHz	+/- 100Hz			
PLL VCO	f=430.00MHz f=490.00MHz	RX	Digital Multimeter	Main	PD			Check	1.0V < < 5.7V			
Tracking Adjustment	f=460.05MHz TG OUT: -20dBm	RX	Tracking Generator	Main	CN6	Main	TC1 TC2 L3, L5	TC1, TC2: signal MAX L3, L5: To get Band-width				
Sensitivity	f=450.03MHz f=460.03MHz f=469.99MHz SSG OUT: -9.5dBμ	RX	SSG Dist. Meter	Main		Main			SINAD is above 12dB.			
	f=430.03MHz f=490.03MHz SSG OUT: -60dBμ	RX										
S Meter	f=460.03MHz SSG OUT: 15dBμ Mod: 1kHz	RX	LCD S Meter	Front Panel		Main	VR3	"Full" Flashing	S Meter does not light.			
	f=460.03MHz SSG OFF Mod: 1kHz	RX						Check				
SQL Level	f=460.03MHz SQL VR: Threshold SSG OUT: -10dBμ	RX	LCD BUSY	Front Panel		Main		Make sure that SQL is open.	BUSY ON			
High Power	VR1: MAX	TX High	Power Meter	Back	ANT	Main						
	f=460.00MHz	TX High								VR1	36W	+/-1.0W below 10A
	f=430.00MHz f=490.00MHz	TX High									Check	above 5W
Low Power	f=460.00MHz	TX LOW					VR6	5.0W	5+/-0.5W			
DEV	f=460.00MHz AG: 1kHz -30dBm	TX	Linear Det. Oscilloscope Power Meter	Back	ANT	Main	VR2	4.7kHz/ DEV	4.7 +/-0.2kHz /DEV			
Mic Gain	f=460.00MHz AG: 1kHz -47dBm	TX LOW						VR4	4.0kHz/ DEV	4.0 +/-0.2kHz /DEV		
CTCSS TONE 88.5Hz	f=460.00MHz AG: OFF Tone SW: ENC	TX LOW						Check	0.6~1.2kHz /DEV			
Tone Burst	f=460.00MHz AG: OFF Tone SW: ON	TX LOW						Check	2.5~3.5kHz /DEV			