

AF1 CIRCUIT FUNCTION**POWER SUPPLY UNIT**

D3	1SS349	diode	DC-DC
U3	XC6371A300	IC(DC-DC)	DC-DC
U2	TK11227	IC (regulator)	power supply regulator(2.7V)
U5	XC61CN11	IC(detect)	LED driver
LED1	TLSU1008	LED	power supply indicator(LOW) & unavailable indicato

AUDIO UNIT

D2	1SS362	diode	modulation AF signal level limit
Q5	2SK879	transistor	AF mute
Q4	2SA1832	transistor	AF mute drive
U1	TK10690	IC(compander)	1/2 log compander
U4	TK17030	IC(opeamp)	pre-emphasis

RF UNIT

D1	KV1832E	diode	frequency adjustment & modulatio
Q2	FH102	transistor	OSC & buffer
Q3	2SC5231	transistor	output power amplifier

VOLTAGE AND CURRENT OF FINAL STAGE

collector voltage $V_c=2.7V$
 emitter voltage $V_e=0.38V$
 current $I_c=3.8mA$

AF1/AG1

POWER SUPPLY UNIT

D3	1SS349	diode	DC-DC
U3	XC6371A300	IC(DC-DC)	DC-DC UP Converter (1.5V - 3V)
U2	TK11227	IC (regulator)	power supply regulator(2.7V)
U5	XC61CN11	IC(detect)	LED driver
LED1	TLSU1008	LED	power supply indicator(LOW) & unavailable indicato

AUDIO UNIT

Q5	2SK662	transistor	AF Buuffer
Q4	2SA1832	transistor	AF pre-amp
Q1	2SC4116	transistor	AF pre-amp
U1	TK10690	IC(compander)	1/2 log compander
U4	TK17030	IC(opeamp)	pre-emphasis
D2	1SS362	diode	modulation AF signal level limit

RF UNIT

D1	KV1832E	diode	frequency adjustment & modulat
Q2	FH102	transistor	OSC & buffer
Q3	2SC5231	transistor	output power amplifier

VOLTAGE AND CURRENT OF FINAL STAGE

collector voltage $V_c=2.7V$
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AF1 / AG1 PCB ADJUSTMENT

	ITEMS	DETAILS	ADJUSTMENT POINTS/EQUIPMENT TO CONFIRM	SETTING / REGULATION	NOTES
1	Initial Setting	SET PCB, INITIAL SETTINGS		PCB POWER SW = ON ATT = 0dB AF INPUT SIGNAL = 1kHz Sinewave, Level = 0	
2	Powered ON	Supply power at battery terminal.		1.5V	
3	Check Consumption Current	at 1.5V		Less than 70mA	
4	Check Internal Voltage	Output voltage of DC-DC converter		3.0V	
5	Check Initial Frequency	at initial setting			
6	Frequency Adjustment	Adjust each channel to designated frequency	VR2, Spectrum Analyzer	Designated Frequency (fo+10kHz within +/-5kHz)	
7	Check RF Output Level	Check with Spectrum Analyzer		+3dBm - +10dBm	
8	Check Spurious Level	Check with Spectrum Analyzer		Less than 1uW	
9	Deviation Adjustment 1	Adjust with receiver audio output.	VR1, Audio Analyzer	Receiver Output THD3.5% +/-0.5%	Audio Generator -8 dBv
10	Deviation Adjustment 2	Adjust with receiver audio output.	VR3, Audio Analyzer	Receiver Output 10dB +/-1dB	Audio Generator -8 dBv
11	Check Input THD	Check THD at FET Source.	Audio Analyzer	Less than 1%	Audio Generator -2 dBv
12	Check Deviation - 1	Check at receiver audio output.	Audio Analyzer	Receiver Output -2dB +/-3dB	Audio Generator -20 dBv
13	Check Distortion - 1	Check at receiver audio output.	Audio Analyzer	Either one is less than 2%.	Audio Generator -20 dBv
14	Check Distortion - 2	Check at receiver audio output.	Audio Analyzer		Audio Generator -30 dBv
15	Check Frequency Response	Check at receiver audio output.	Audio Analyzer	Within +/-3.5dB to the level at 1kHz (50Hz-15kHz)	Audio Generator -50 dBv
16	Check Deviation - 2	Check at receiver audio output.	Att-20dBv/Audio Analyzer	Within +/-2dB to the receiver output level at "ITEM 2".	Audio Generator 0 dBv
17	Power SW Operation Check - 1	Measure consumption current at power switch OFF.		0mA	
18	Power SW Operation Check - 2	Check LED1 flash at power switch ON.	Check with Jig.		
19	Check Low Battery Indication - 1	Check LED1 lighting OFF.	Check with Jig.	Power Supply Voltage 1.15V	
20	Check Low Battery Indication - 2	Check LED1 lighting ON.	Check with Jig.	Power Supply Voltage 1.05V	
21	Check Low Battery Operation	Check output voltage at DC-DC converter.		Power Supply Voltage 0.9V	within 3.0V +/-0.1V

Transmitter RF Output Power Limitation

The power supply voltages to the final stage circuit is stable even though the main power supply voltage changes.

The bias resistor for base and the resistor limiting self-bias of emitter limit the current to the final stage transistor. Then the output power is limited.