



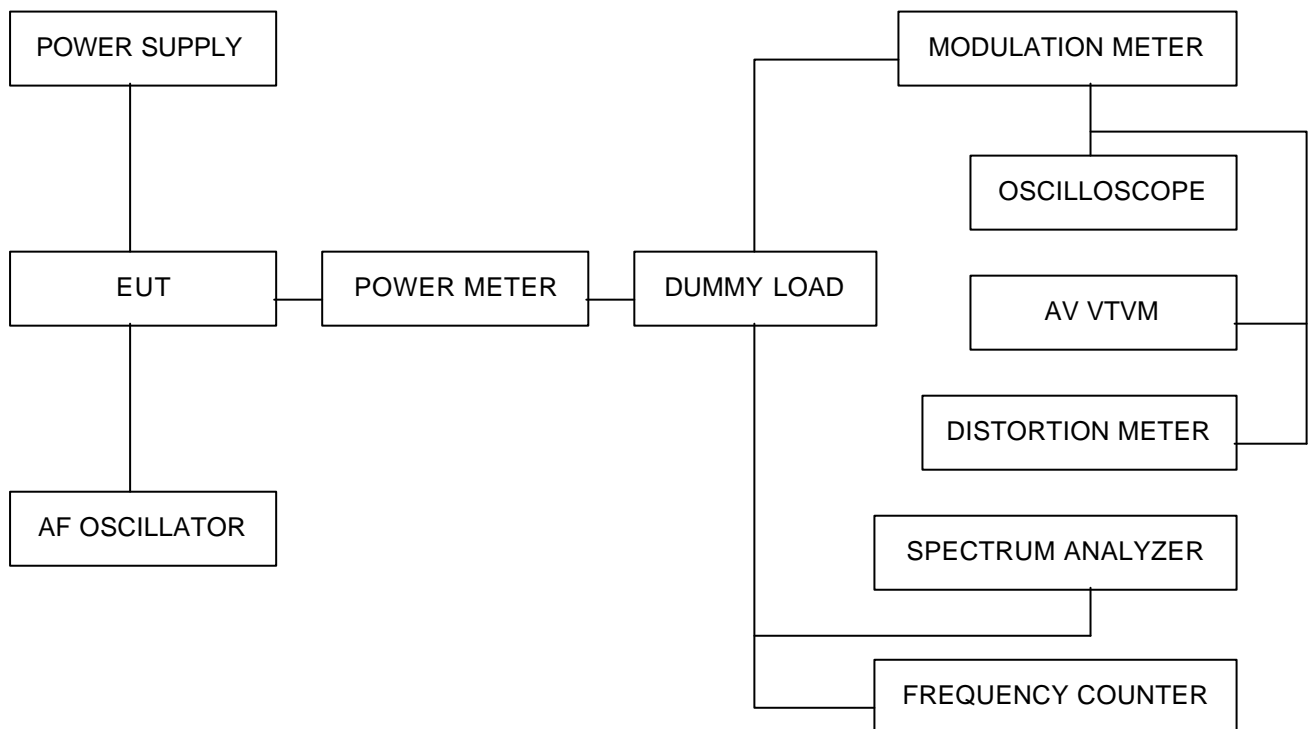
5) Adjustment

a) Frequency synthesizer (PLL)

- After connecting the power meter and dummy load(50), join the antenna connector of MURS with above equipment.
- Check the voltage between TP1 & GND in digital volt meter.
- Then set the low channel of MURS the lowest frequency.
- After pressed PTT key of MURS, Air coil L202 for adjusting the lowest frequency of Tx channel to DC 1.5V in the voltage of TP1.
- After releasing the PTT key, And then check if the highest frequency of Rx channel is range DC 1.0~2.0V in the voltage of TP,

b) Transmitter

- Connect EUT & measure equipment according to block diagram below.



- b. Connect DC 6.0V, voltage preset to EUT.
- c. Connect "power meter" & "dummy load(50 Ω)".
- d. Adjust Tx frequency according to trimming trimmer CT201.
- e. Connect AF oscillator to mic terminal for conform modulation degree.
- f. Adjust the frequency of AF oscillator to 1KHz and adjust AF level should be 100mV.
- g. Checking oscilloscope and modulation meter. max. frequency deviation should be in ± 2.5 KHz.

c) Transmitter Test

a. Output Power Test

Power(6.0V DC) should be Max.2.0W and in $\pm 10\%$ range.

b. Audio Response

Connect AF oscillator to Mic terminal and then firm the audio level that doesn't distortion the wave of oscilloscope in the frequency range, 300Hz~3kHz. Check the audio level for 300Hz~3kHz based on frequency standard, 1kHz.

c. Modulation Degree Test

1. Connect AF oscillator to the MIC terminal and then adjust the level to 100mV
2. Measure the oscilloscope wave and the point needle of modulation meter after pressing PTT key.
3. Sweep gradually the frequency of AF oscilloscope from 300Hz to 3kHz.
4. At this time, the point needle of modulation meter should be in ± 2.5 KHz.

d. Spectrum Test

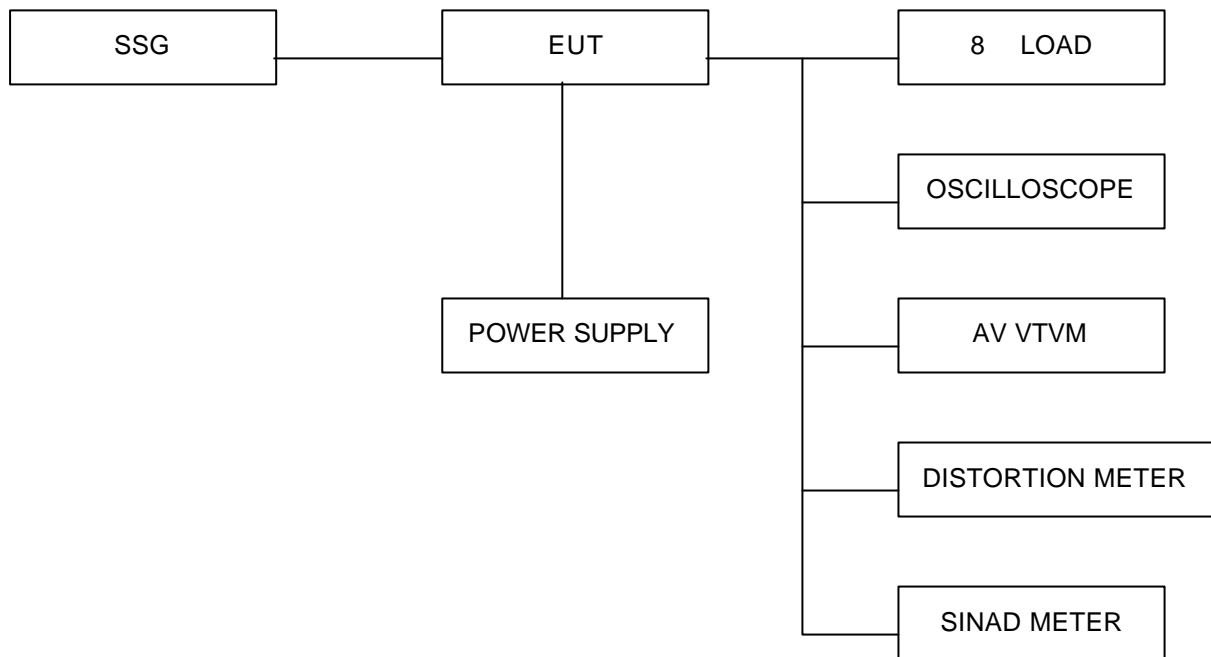
1. Antenna is 50 Ω and attenuator degree should be 20dB more.
2. observe the spectrum with pressing PTT key. The harmonics should be less 60 dBc than carrier.

d) Receiver

a. Preparation

1. Adjust the power supply to DC 6.0V
2. Adjust Voltage level to 0.8Vrms(8 Ω load) after power on.

b. Connection method



c. The Confirm of Rx sensitivity

1. Adjust SSG to channel frequency.
2. Adjust modulation frequency, 1KHz to modulation degree, 1.5 KHz.
3. After adjusting the frequency of SSG to channel frequency, RF level sets to -47dBm.

d. The Conform of Squelch sensitivity

1. Set the standard channel.
2. In squelch mode, SQ volume RV101 must be turned counterclockwise.
3. After adjusting SSG to channel frequency, the RF level of SSG is set on SINAD 8 6dB.

e) Receiver Test

a. Rx sensitivity test

SSG should be adjusted to 12dB of SINAD's point needle seeing wave of oscilloscope as SSG sets in 1kHz with 1.5 KHz frequency deviation. At this time, normal RF level is -118dBm.

b. Audio Distortion Test

1. SSG should be adjusted like way of point a) and RF level sets to -47dBm.
2. Adjust to 0.8Vrms(8 load) seeing Audio wave.
3. Read the needle of distortion meter(normal condition would be less than 5% distortion.)

c. Squelch Test

After RF level of SSG should be set to the least level, RF level should be gradually increased until speaker makes audio sound. At this point, check RF level(Check if the SINAD is 8 6dB)

f) Symptoms, Check point & Correction

a. Diagnosis method

1. Check each switch to work well.
2. Check voltage of battery.
3. Problem develops from transmitter or receiver?

b. Troubleshooting

1. Transmitter

Power key is on condition but does not work.

Battery could completely discharge.

Battery cell twist..

Touch problem come between Battery and Radio.

Fail to transmit

Run out of battery or charge problem.

Fault of PTT key.

Fault of Q301,302,303.

Transmitter works but frequency is unmatched

Out of order in frequency synthesizer.

Out of order in X-tal(X201).

Audio does not sound(Tx power and Tx frequency are normal)

Problem of microphone or mic connector.

IC503 problem.

Tx is set when switch is on.

Tx switch problem

2. Receiver

Rx does not work

Speaker line open problem or connector problem.

Receiver power circuit problem.

Audio amplifier Base band IC103 problem.

Only noise sound

IC101 problem.

VCO problem.

Rx sensitivity is weak

Antenna mounting problem.

Front-End circuit problem.

Local oscillation frequency deviation.

SF1 saw filter fail.

VCO problem.

Squelch does not work

IC101 problem.

Control logic problem.