

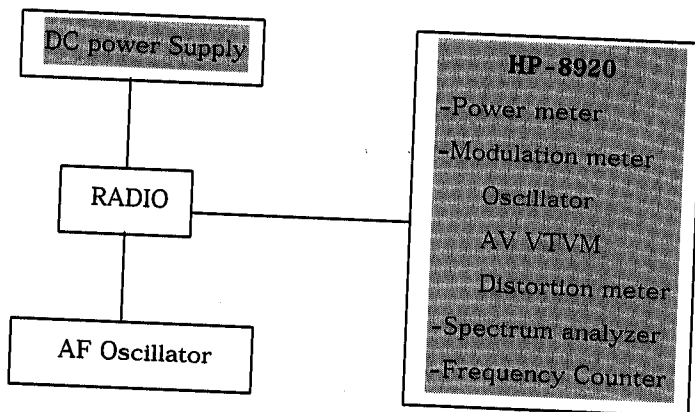
3. ADJUSTMENT

3-1. Frequency synthesizer

- After connecting the RF power meter and dummy load (50 ohm), join the antenna connector of HP8920 with above equipment.
- Check the voltage between TP and GND in digital Voltage meter.
- The set low channel(CH1, 462.56250Mhz) of HP8920 the lowest frequency.
- After pressed PTT key of HP8920, check if the lowest frequency of Tx channel to DC 1.2V in the voltage of test point (VT)
- After releasing the PTT key of HP8920, check if the highest frequency (CH15,462.72500Mhz) of Rx channel is within DC 1.2V in the voltage of test point (VT).

3-2. Transmitter

- Connect the RADIO and measure equipment according to block diagram below.



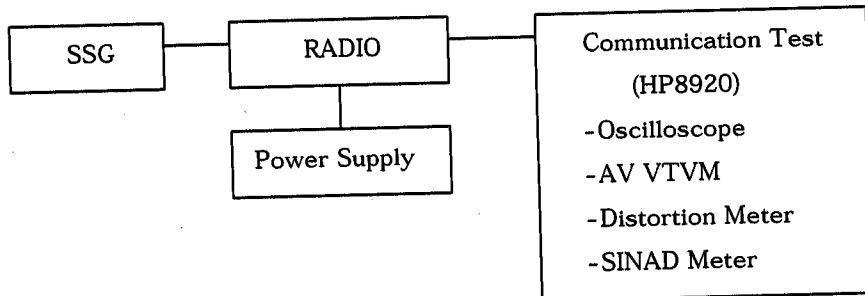
- Connect DC 6.0V voltage preset to the RADIO.
- Connect HP8920.
- Adjust Transmit frequency (CH1, 462.5625Mhz) according to trimming trimmer capacitor X201.
- Connect AF Oscillator to MIC terminal for conform modulation degree.
- Set the frequency of AF Oscillator to 1khz and adjust AF level. Should be 100mV.
- Checking Oscilloscope and Modulation meter. Max deviation should be in $\pm 2.5\text{kHz}$.

3-3. Transmitter Test

- Output RF power Test
DC Power (6.0V) should be Max. 3.25Watts (ERP) and in -50% range.
- 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~3,000hz. Check the audio level for 300hz~3,000hz based on frequency standard, 1khz.
- Modulation degree Test.
 - 1) Connect AF oscillator to the MIC terminal and then adjust the level to 100mV.
 - 2) Measure the Oscillator wave and the point needle of Modulation Meter after pressing PTT key.
 - 3) Sweep gradually the frequency of AF Oscilloscope from 300hz~3,000hz.
 - 4) At this time, the point needle of Modulation Meter should be in $\pm 2.5\text{kHz}$.
- Tx Spurious Test
 - 1) Antenna is 50 Ω and attenuation degree should be 20dB more.
 - 2) Observe the Spectrum with pressing PTT key. The hamonics should be less -27 ~ -22dBm than carrier.

3-4. Receiver

- Preparation
 - 1) Set the power supply to DC 6.0V.
 - 2) Adjust Voltage level (AF) to 0.7Vrms (8 Ω load) after power on.
- Connection method



- The Conform of Rx sensitivity
 - 1) Set SSG to 1channel(462.5625Mhz) frequency.
 - 2) Adjust modulation frequency, 1khz to modulation degree, 1.5khz.
 - 3) After adjusting the frequency of SSG to channel frequency, RF level sets to -47dBm.
- The Conform of Squelch sensitivity
 - 1) Set the standard channel (CH1, 462.5625Mhz)
 - 2) In squelch mode, SQ variable resistor VR101 must be turned counterclockwise.
 - 3) After adjusting SSG to channel frequency, the RF level of SSG is set On SINAD 12~0dB.

3-5. Receiver Test

- Rx sensitivity test

SSG should be adjusted to 12dB of SINAD point needle seeing wave of Oscilloscope as SSG sets in 1khz frequency deviation.

At this time, normal RF level is -122~-124dBm.
- Audio Distortion Test
 - 1) SSG should be adjusted like way of point "Rx sensitivity test" and RF level sets to -47dBm.
 - 2) Adjust to 0.7Vrms (8 Ω load) seeing Audio wave.
 - 3) Read the needle of Distortion Meter (Normal condition would be less than 5% Distortion)
- Squelch Test

After RF level of SSG should be set to the least