

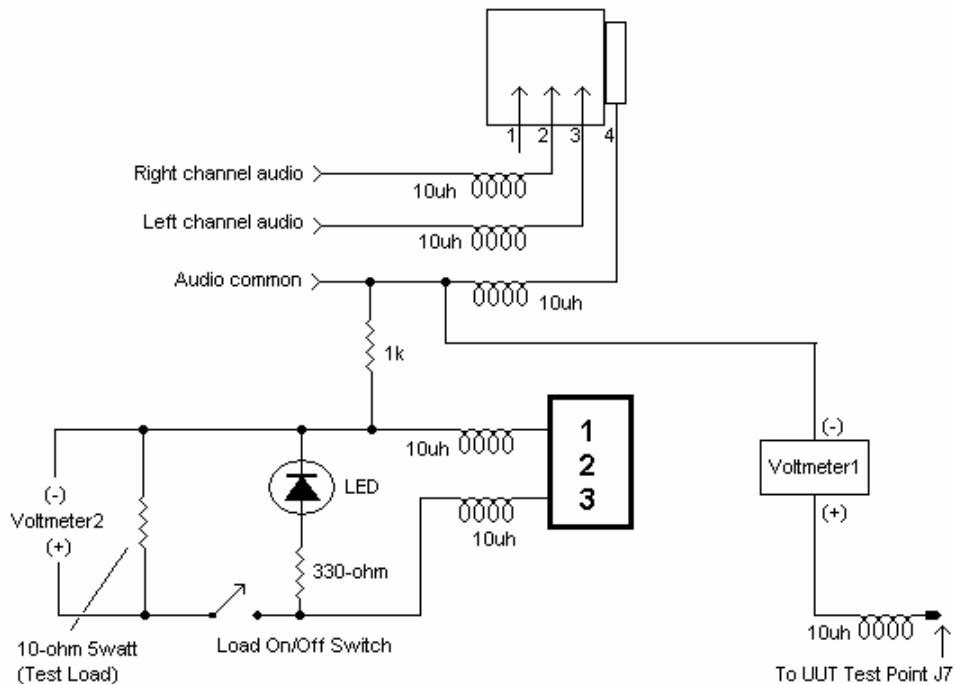
## **QC test procedure for EverWin #S2G0508 FM Transmitter**

Rev-1, Oct 17, 2005

UUT shall be fully assembled PCB with wires soldered to it. The CPU (U1) has already been pre-programmed. UUT has not yet been installed inside its plastic case.

### **Equipment needed:**

- 1) 2ea Voltmeter
- 2) 1ea CRO
- 3) 1ea Audio signal generator
- 4) 1ea 12vdc power supply
- 5) 1ea EverWin FM Tester Receiver (see Fig-2 and Fig-3)
- 6) 1ea FM Tester jig (see Fig-2)
- 7) 1ea Test adapter (see Fig-1)



**Fig.1. Schematic of test interface adapter.**

### **Test setup:**

- 1) Connect CRO ch-1 input to left audio output of EverWin test receiver.
- 2) Connect CRO ch-2 input to right audio output of EverWin test receiver.

### **Test procedure:**

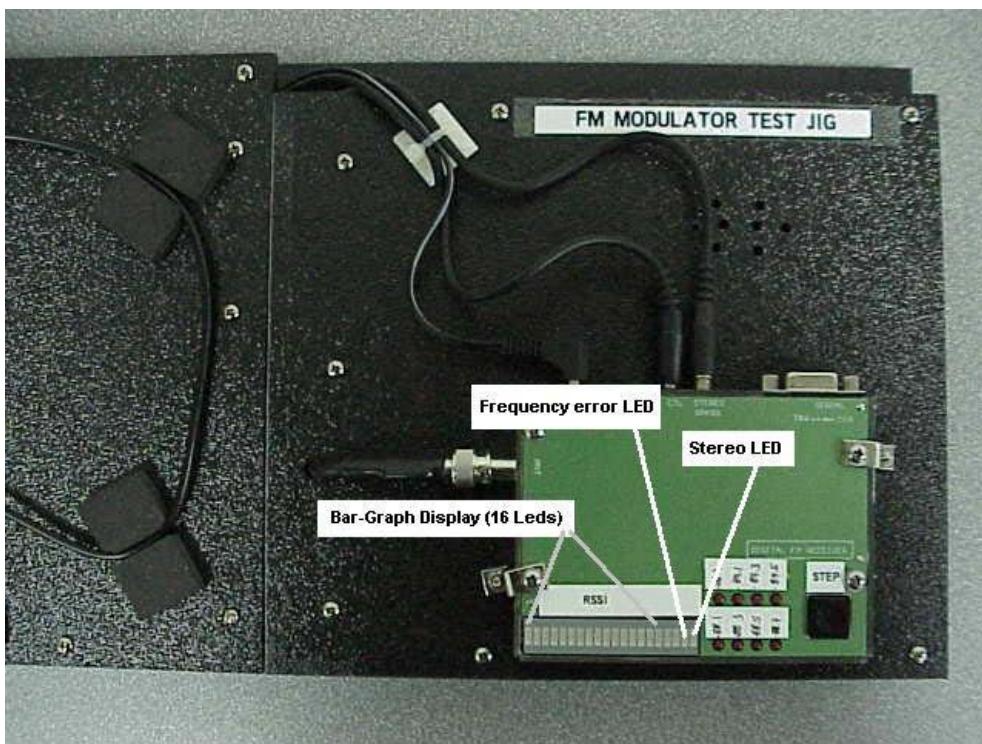
**Step 1:** Connect UUT to test adapter (Fig. 1). Connect 12v power source to UUT. When 12v power source is applied to UUT, check the following:

- a. UUT activates one of its 8 channel LED's.
- b. LED on test adapter lights up
- c. LED on UUT cigarette lighter plug goes ON
- d. UUT draws current from 12vdc supply. Expected reading is about 55ma @ 12vdc.

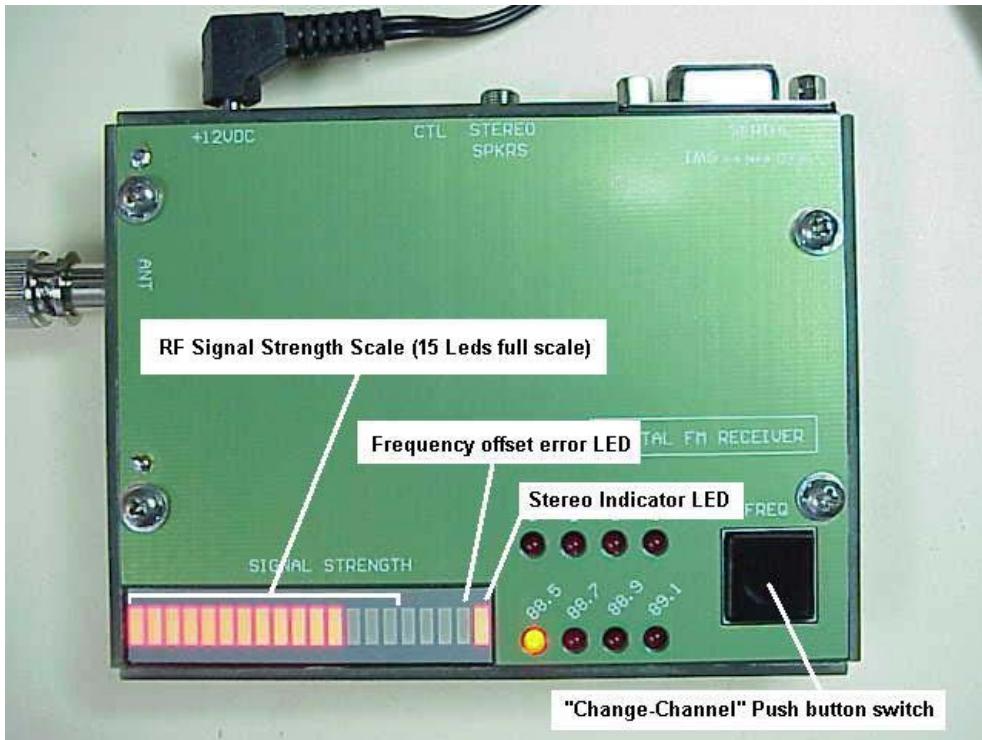
**Step 2:** Preset uut to Channel-1 (88.1Mhz). Connect Voltmeter-1 to uut test point J7 via 10uh RF choke. Please ensure that the 10uh RF choke is located as close as possible to the uut J7. Observe voltage displayed by Voltmeter-1. Pass if voltage is > 1.0v and < 4.0v.

**Step 3:** Preset EWC FM test receiver to 88.1Mhz. Check the following:

- S-meter reading on FM test receiver should be between 9 and 13 bars as shown in picture of FM Test receiver in Fig. 3.
- Frequency Error LED should not be flashing
- Stereo LED should be ON.



**Fig.2 - Test jig for testing FM transmitter. The EWC FM Test receiver is shown on lower right.**



**Fig 3 - EWC FM Test receiver showing typical S-meter reading from good uut.**

**Step 4:** Press SW1 of UUT several times until frequency selected is 89.5Mhz.

**Step 5:** Observe voltage measured by Voltmeter1. Wait for voltage reading to stabilize. Pass if voltage is  $> 1.0v$  and  $< 4.0v$ .

**Step 5:** Preset EWC FM test receiver to 89.5Mhz. Check the following:

- S-meter reading on FM test receiver should be between 9 and 13 bars as shown in picture of FM Test receiver in Fig. 3.
- Frequency Error LED should not be flashing
- Stereo LED should be ON.

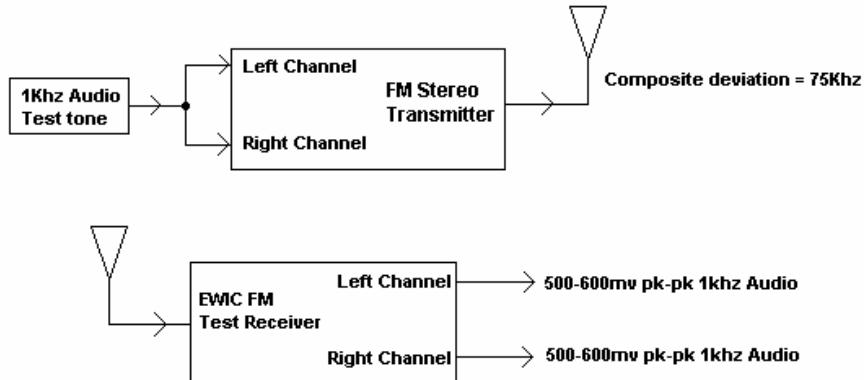
**Step 6:** Connect 1khz triangular waveform audio to Left audio channel input of UUT.

Observe waveform displayed by CRO for Left channel output of FM Test receiver:

Check that there is no audio on Right channel.

Check that triangular waveform is not clipped or distorted.

Check that peak-peak audio level is within 500 - 600mv pk-pk  $\pm 10\%$ . Fail if audio level is outside of this range.



**Fig 4 - Showing Audio test setup.**

**Step 7:** Disconnect 1khz triangular waveform audio connection from left audio channel input of UUT. Connect 1khz triangular waveform audio to Right audio channel input of UUT. Observe waveform displayed by CRO for Right channel output of FM Test receiver. Check that there is no audio on Left channel. Check that level is the same as level observed from Left channel in the last step. Check that triangular waveform is not clipped or distorted.

**Step 8:** Check Voltmeter-2 reading on test adapter. Pass if voltage  $> 4.40v < 5.0v$ .

**Step 9:** Turn ON load switch of Test adapter. Check Voltmeter-2 reading on test adapter. Pass if voltage  $> 4.20v < 4.80v$ .

**Step 10:** Check that all 8 LED's of uut are working. Repeatedly press SW1 and observe the frequency LED's light up from Channel-1 thru Channel-8.

#### **Final QC Check:**

For assembled UUT in plastic case:

- 1) Connect to +12v supply
- 2) Check that frequency readout comes ON normally.
- 3) Observe current draw from 12v power supply. Check that LED of uut CLA Plug is ON.
- 4) Connect UUT to MP3 player/cell-phone
- 5) Activate MP3 player to play music. Set UUT to 88.1 Mhz.
- 6) Listen for music with an FM radio tuned to 88.1 Mhz. Observe quality of music: check for clean audio on both Left and Right channels operating in stereo. Check that FM radio "STEREO" indicator is ON.

7) Tune FM radio to 89.5 Mhz. Preset UUT to 89.5 Mhz. Observe how long it takes for UUT to stabilize at 89.5 Mhz. Observe quality of music.

8) Check mechanical operation of push-button switch SW1. Check that all LED's from Channel-1 thru Channel-8 all work.