

Timco Engineering Inc.
849 NW State Road 45
Newberry FL 32669

From: Mario de Aranzeta
mario@timcoengr.com

To: Joe Dichoso
jdichoso@fcc.gov
FCC Application Processing Branch

Re: FCC ID OTVGMRS1100

Applicant: SB Telecom Co. Ltd.
Correspondence Reference Number: 22708, 22710
731 Confirmation Number: EA479274

1) The previous tune up procedure indicated 2W conducted for GMRS frequencies and 0.5 W for FRS frequencies. This produced an ERP of .8 W for GMRS and .23 W for FRS.

The last tune up procedure now indicates only .78 W conducted for GMRS and NO procedure for the FRS.

Please submit a corrected tune up procedure for both GMRS and FRS.

2) Since you lowered the tune up procedure from 2 W to .78 W on the GMRS channel, new radiated and ERP measurements are required.

Based on radiated ERP measurement of .8 W when the device was tuned at 2 W conducted output, the ERP for the GMRS should be about .312 W. Please confirm with measurements after the device output on the GMRS frequency is tuned to the .78 W.

Joe, I've talked to the customer and after a lot of interpreting have come to the understanding from them that they misunderstood the previous email questions. I've taken on the responsibility of answering the questions on the tune up procedure here.

On 3/28/02 in correspondence 22462.

1) The tune up procedure indicates only 2 W conducted output power. The circuit description indicates 2 Watts conducted output power for GMRS and .5W FRS.

How is the output power properly tuned (or fixed) on the FRS channels? (The output power in the FRS channels must not be tuned to GMRS output power levels).

Yes the tune up procedure and user's manual did indicate that a conducted power of 2 Watts may be possible on a GMRS channel.

The tune up procedure enclosed as page 2 now includes a procedure for both GMRS and FRS channels. In this procedure, we have limited the output power to 1.9 Watts conducted. This should not change the radiated as reported in the test report by any significant amount.

We are also uploading a revised user's manual that contains the correct output power information.

Based on these measurements, this indicates that the gain of the antenna is negative which is supported by the ERP power of 0.78 Watts for the GMRS and 0.23 Watts for the FRS.

Regards,
Mario de Aranzeta
Engineer

- b. Connect DC 6.0, Voltage preset to EUT.
- c. Connect "power meter" and "dummy load" (50 ohm).
- d. Adjust Tx frequency by adjusting trimmer CT201.
- e. Connect AF oscillator to mic terminals.
- f. Adjust the frequency of the AF oscillator to 1 kHz and adjust AF level for 70 mV.
- g. Check using an oscilloscope and modulation meter for a max. frequency deviation of +/- 2.5 kHz.

c) Transmitter Test

a. Output Power Test

The RF power output with 6.0 V dc applied should be Max. 1.9 Watts on a GMRS frequency. Reject any unit that exceeds 1.9 Watts output.

The RF power output with 6.0 V dc applied should be Max. 0.5 Watts on a FRS frequency. This can be set using RV301.

b. Audio Response

Connect AF oscillator to Mic terminals and confirm that the audio level isn't distorted using an oscilloscope (300 Hz to 3 kHz). Use a 1 kHz tone as the basis.

c. Degree of Modulation Test.

1. Connect AF oscillator to the mic terminals and then adjust the level to 140 mV.
2. Using an oscilloscope monitor the waveform and using a modulation meter ensure that the deviation doesn't exceed +/- 2.5 kHz while sweeping the audio frequency from 300 Hz to 3 kHz. The PTT switch should be depressed during this test.

d. Spectrum Test

1. Pad the RF output of the radio with attenuators sufficient to keep from overloading or harming a spectrum analyzer input.
2. Connect a spectrum analyzer and push the PTT button.
3. Observe the spectrum from 400 MHz to 5000 MHz. The harmonics should be 60 dBc below the carrier.

d) Receiver

a. Preparation

1. Adjust the power supply for 6.0 Vdc.
2. Adjust the audio voltage level to 0.8Vrms into an 8 ohm load after power on.

b. Connection method