

# TUNE-UP PROCEDURE

## FRS216/FRS316

### **1. TRANSMITTING**

#### **1.1 TX VCO ADJUSTMENT**

- a) Connect the DC voltmeter to the test point 1 (TP1).
- b) Press the PTT Button.
- c) Adjust L18.
- d) Specification: 0.9Vdc +/- 0.3 V @ CH 1

#### **1.2 FREQUENCY ADJUSTMENT**

- a) Connect the frequency counter to ANT point.
- b) Adjust CV1.
- c) Specification: Tx Frequency +/- 200Hz

#### **1.3 TX POWER CHECK**

- a) Connect the RF level meter to the ANT point (RF impedance: 50Ω)
- b) Press the PTT button.
- c) Check the TX Power
- d) Specification: CH4: 0.21Watt (ERP); CH11: 0.09Watt (ERP)

#### **1.4 MAX. DEVIATION ADJUSTMENT**

- a) Connect the deviation meter to the ANT point.
- b) Apply the audio signal 1KHz, 4mVrms to the test point 7 (TP7 - MIC input)
- c) Observe the clipped signal on the scope.
- d) Adjust SVR1.
- e) Specification: 2.5KHz Dev +/- 0.15KHz

#### **1.5 MODULATION SENSITIVITY ADJUSTMENT**

- a) Connect the deviation meter to the ANT point.
- b) Apply the audio signal 1KHz, 8mVrms to the test point (TP7 - MIC input).
- c) Adjust SVR1.
- d) Specification: 0.9-1.0KHz Dev

#### **1.6 CALL DATA MODULATION SENSITIVITY CHECK**

- a) Press the Call Button and observe the deviation meter to check the deviation.
- b) Specification: 1.8KHz +/- 0.5KHz

### **2. RECEIVING**

#### **2.1 RX VCO CHECK**

- a) Connect the DC voltmeter to test point 1 (TP1).
- b) Check the DC voltage.
- c) Specification: 0.9Vdc +/- 0.6V @ CH 1

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### **2.2 QUAD COIL ADJUSTMENT**

- a) Connect the DC voltmeter to the test point 3 (TP3).
- b) Adjust the IFT1.
- c) Specification: 1.5Vdc +/- 0.2V

### **2.3 SENSITIVITY CHECK**

- a) Connect the Sinnader meter to test point 5 (TP5).
- b) Reduce the RF output level of signal generator to get the 12dB of Sinnader.
- c) Specification: <-112dBm

### **2.4 SQUELCH THRESHOLD POINT ADJUSTMENT**

- a) Connect the DC voltmeter to test point 16.
- b) Same setup as the Sensitivity Check.
- c) Adjust the SVR1 to get the DC changing point.
- d) Specification: 7dB +/- 1dB

### **2.5 SPEAKER OUTPUT LEVEL CHECK**

- a) Connect the Audio level meter to test point 5 (TP5).
- b) Connect the 8Ω load to test point 5 (TP5).
- c) Press the volume button till its maximum level.
- d) Adjust the modulation deviation of RF signal generator.
- e) Check the clipping start deviation & level.
- f) Specification: Clipping start deviation = >0.6KHz  
Level = -2 +/- 4 dBm

#### NOTE:

- 1. Press PTT button continuously when checking TRANSMITTING parameters.
- 2. Press the Monitor button to disable the RX power saving when the RX is not stable.

## **3. OTHER PARAMETER CHECKING**

### **3.1 LOW BATTERY DETECT VOLTAGE CHECK**

- a) Change the voltage until the Battery icon is flashing on the LCD.
- b) Check the voltage.
- c) Specification: 4.2Vdc +/- 0.3V