RI-D PCB LEVEL, TEST PROCEDURE

1.0   OVERVIEW
This is a bench test for the RI-D PCB assembly. This test should be completed before the PCB is used in higher assemblies.

2.0   EQUIPMENT REQUIRED
Note: Equivalent equipment may be substituted.

MODEL	MANUFACTURER	DESCRIPTION
N/A	Any	9 Volt DC Power Supply 300 mA
87	Fluke	DVM
8640B	Hewlett Packard	RF Signal Generator
8590A	Hewlett Packard	Spectrum Analyzer
5386A	Hewlett Packard	RF Frequency Counter
RI-C	Linear Corp	Completed RF Intercom Console (See Appendix 1)

3.0   PCB ASSEMBLY TEST CONNECTIONS
Connect TP1 to ground (factory test mode). Connect 9 volt power to one of the battery connectors using the same polarity as a 9 volt battery. Press S1 (DOORBELL/TALK) button to power up the unit under test in the test mode.

4.0   RF ALIGNMENT

4.1   Connect the frequency counter to E1 (Antenna connection).
Note: Make sure that the frequency counter can accept +20 dBm of input power. If not, place an attenuator on the input of the frequency counter to bring the power level within the tolerance of the counter.

4.2   Place S3 (DOOR SELECT) in the FRONT position (switch toward S4). Place S4 (FREQUENCY) in the "A" position (Switch toward S3).

4.3   Power up unit in test mode (TP1 grounded) by pressing S1 (DOORBELL/TALK). Note: The unit under test will come up in the transmit mode while S1 (DOORBELL/TALK) is pressed.

4.4   Verify that the current from the 9 VDC power supply is between 75 and 125 mA while S1 (DOORBELL/TALK) is pressed.

4.5   Adjust L12 until the voltage at TP2 is 3.5 volts DC (+/- 0.2 volts) while S1 (DOORBELL/TALK) is pressed.

4.6 Adjust C76 until the frequency at E1 is 467.6875 MHz (+/- 0.00025MHz) on the frequency counter while S1 (DOORBELL/TALK) is pressed. Release S1 (DOORBELL/TALK) when finished.

4.7 Press and release S2 (PROGRAM) to perform the EEPROM test and set the house code to factory default. The speaker will beep once if the EEPROM is OK. The speaker will beep 5 times if the EEPROM test has failed.

4.8 Place S4 (FREQUENCY) in the "B" position (away from S3).

4.9 Press S1 (DOORBELL/TALK) and verify that the frequency counter now reads 467.5625 MHz (+/- 0.00025 MHz).

4.10 Release S1 (DOORBELL/TALK) and place S4 (FREQUENCY) in the "A" position (Switch toward S3).

4.11 Disconnect the frequency counter and connect the spectrum analyzer to E1 (Antenna connection). Set the spectrum analyzer to a center frequency of 467.6875 MHz and a span of 100 KHz.

4.12 Press S1 (DOORBELL/TALK) and verify that the bandwidth of the signal on the spectrum analyzer is less than 12.5 KHz and greater than 6 KHz.

4.13 Release S1 (DOORBELL/TALK) and verify that the current from the 9 VDC power supply is between 30 and 75 mA.

4.14 Verify that the voltage at TP4 is between 1 and 4 volts DC.

4.15 Remove the spectrum analyzer from E1 (Antenna). Connect the signal generator to E1 (Antenna).

4.16 Set the signal generator to 467.6875 MHz (+/- 0.0005 MHz) at -67 dBm.

4.17 Adjust L18 until the voltage at TP9 is 2.5 volts DC (+/- 0.1 volt).

4.18 Turn the RF output of the signal generator OFF.

4.19 Turn R75 fully counter-clockwise.

4.20 Adjust the R66 (VOLUME) so that the hissing noise from the test fixture speaker can be heard.

4.21 Adjust R75 clockwise to the point where the hissing noise stops.

4.22 Turn ON the signal generator and set its output to -87 dBm with 2 KHz deviation of FM modulation at 400Hz.
Note: The 400Hz tone should be heard on the speaker.

4.23   Adjust R75 clockwise until the 400 Hz tone can no longer be heard.

4.24   Set R75 half way between its current position and the position it was in after step 6.20. The squelch will now be at the optimal setting.

4.25   Turn ON the RI-C test console.

4.26   Press S1 (DOORBELL/TALK) and verify that the RF Intercomm test console beeps while S1 (DOORBELL/TALK) is pressed. (Data encode test.)

4.27   Press the TALK button on the RF Intercom test console and verify that the speaker of the unit under test beeps. (Data decode test.)

4.28   Remove the ground from TP1.

4.29   Remove power from the PCB.

4.30   Secure L12 and L15 with wax (Item 121).

This concludes the test procedure.

APPENDIX 1

A completed RF Intercom console unit is used to perform the data communications test. This unit is modified by soldering a 1K resistor from TP1 to GROUND. This resistor will cause the unit to power on in the data test mode.