

Small Receiver Transmitter (SmaRT)  
LOBSRF305 RT Module  
Radio Transceiver SAR Testing  
2013 December 11  
V0.0

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## Overview

### **Introduction**

This document describes in detail SAR testing of the LOBSRF305 RF transceiver (RT) module for use in host applications. An HH-2H06 is provided to control the RT module in a typical way. It is assumed that the reader has some hardware and software background related to microprocessor based embedded systems and RF transmitting and receiving devices.

### **Equipment provided**

Several exhibits are provided to facilitate the emissions testing of the LOBSRF305 RT module:

- 1: LOBSRF305 attached to HH-2H06 host application, U.FL antenna fitting  
LOBSRF305 has an attached fixed internal dipole antenna with a U.FL connector
- 2: External 9 dBi omni antenna, RP-TNC
- 3: RG-316 adapter cable, U.FL<->RP-TNC
- 4: Spare AAA alkaline batteries

Typical operational firmware is provided in the HH-2H06 device controlling Exhibit 1.

### **Setup - General**

Set up a demonstration by attaching an antenna to the LOBSRF305 and installing the batteries in the HH-2H06 device to be tested. If the HH-2H06 doesn't turn on immediately then briefly press any button 1-5 to turn on power. It is OK to operate an HH-2H06 without an antenna. No damage will occur, but RF performance will be limited to leakage signals.

Exhibit 1 is mechanically fragile. Handle with care and do not bend the wires too much.

### **Operational and SAR testing of LOBSRF305**

Exhibits 1, 2, and 3 are provided to demonstrate and test normal operation of a host application that uses an LOBSRF305 RT module. All devices have typical application firmware installed.

### **Setup for internal fixed antenna**

The LOBSRF305 internal antenna may be connected to the U.FL connector on the PCB by carefully snapping the U.FL plug into the U.FL socket.

### **Setup for external replaceable antenna**

Setup of the LOBSRF305, exhibit 1, requires installation of the batteries. If the unit does not immediately start operation briefly press any button 1-5. Press and hold button 6 for several seconds to turn the unit off. Normal operation is indicated by the green TX LED blinking every 100 ms. Pressing any button 1-5 will cause the TX LED to become brighter.

The LOBSRF305 external antenna, exhibit 2, may be connected to the U.FL connector on the PCB by carefully snapping the U.FL plug of exhibit 3 into the U.FL socket. Connect the external antenna, exhibit 2, to the RP-TNC connector of exhibit 3. The RP-TNC connector should be finger tight.

### **Normal Operation**

The equipment provided for these test has typical production firmware installed, as would be used in a typical host application. The TX RF duty cycle of the HH-2H06 is approximately 1% and the conducted RF power is approximately +19.94 dBm. Every 100 mS, indicated by the green TX LED blinking, the HH-2H06 will transmit a message. Whenever a button on the HH-2H06 is pressed, the TX LED will blink longer and appear brighter.

Press any button 1-5 to turn the HH-2H06 on. The TX LED will start blinking.

Press and hold button 6 to turn the HH-2H06 off. The unit will be off when the LEDs are off.

### **SAR Testing**

SAR testing may be performed on the LOBSRF305 RT module portion of exhibit 1.