DNT900DK Quick Start Guide

Items Supplied in the Kit:

- Two DNT900P radios installed in DNT900 interface boards (labeled Base and Remote)
- Two 2 dBi dipole antennas with two U.FL coaxial jumper cables
- Two 9 V wall-plug power suppliers, 120/240 VAC, plus two 9 V batteries (not shown above)
- Two RJ-45/DB-9F cable assemblies, one RJ-11/DB-9F cable assembly, two A/B USB cables
- One DNT900DK documentation and software CD

Additional Items Needed:

- One PC with Microsoft Windows XP or Vista Operating System. The PC must be equipped with a USB port or a serial port capable of operation at 9.6 kb/s.

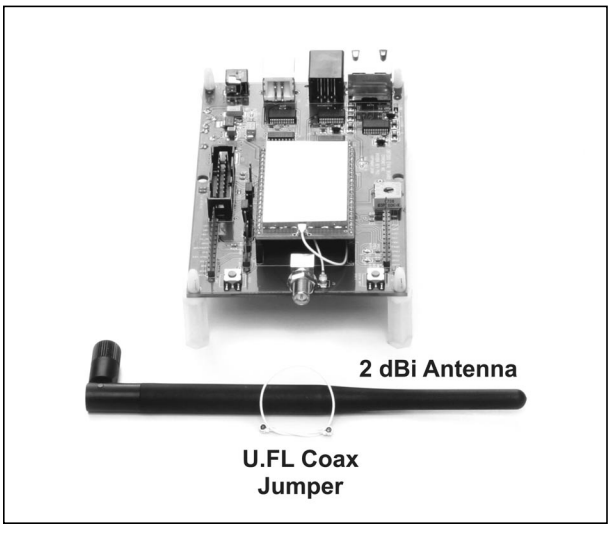

Figure 1

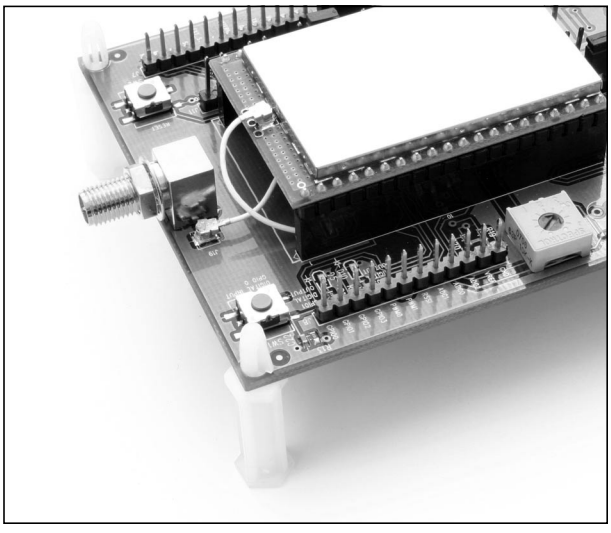

Figure 2

Development Kit Assembly:

1. Figure 1 shows a DNT900P radio installed on an interface board, a U.FL coaxial jumper cable, and a 2 dBi dipole antenna. Observe ESD precautions when handling the kit circuit boards.
2. As shown in Figure 2, confirm each DNT900P is correctly plugged into an interface board, with the radio oriented so that its U.FL connector is next to the U.FL connector on the interface board. Check each radio's alignment in the socket on the interface board. No pins should be hanging out over the ends of the connector.
3. Install the 2 dBi dipole antennas on each interface board.
4. Confirm there is a jumper on pins J14, as shown in Figure 3. The interface boards can now be powered by the 9 V wall-plug power supplies (the interface boards can also be run for a short time from the 9 V batteries for range testing, etc.).

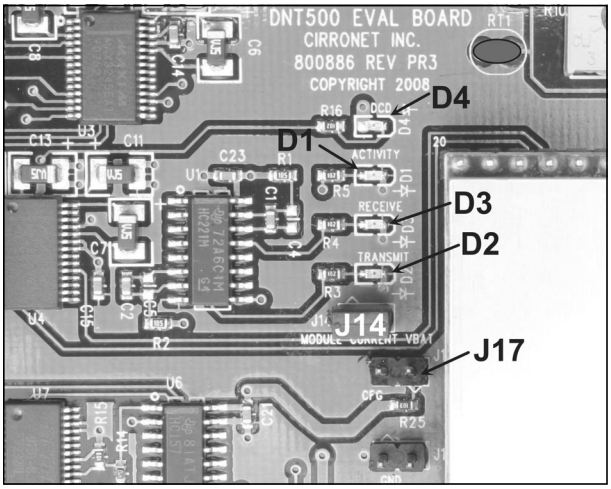

Figure 3

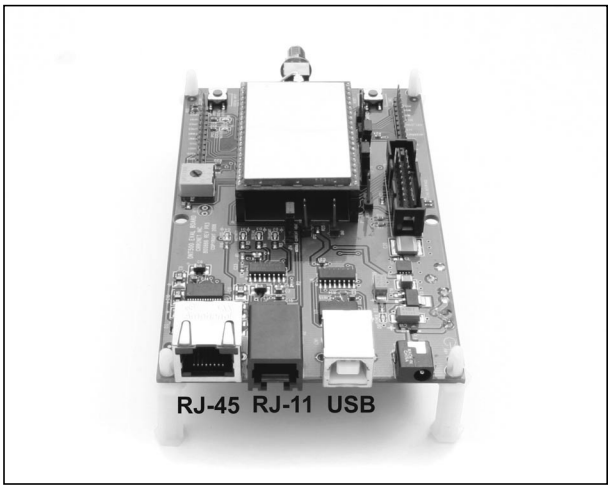

Figure 4

5. As shown in Figure 4, there are three serial connectors on the interface boards. The RJ-45 connector provides a high-speed RS232 interface to the DNT900P's main serial port. The USB connector provides an optional interface to the radio's main serial port. The RJ-11 connector provides a high-speed RS232 interface to the radio's diagnostic port.
6. The DNT Demo utility program runs on the radio's main port. Many desktop PCs have a built-in serial port capable of operation at 9.6 kb/s. The kit runs satisfactorily at the 9.6 kb/s data rate, but not at its fastest throughput. Use the RJ-45/DB-9F cable assemblies for serial port operation. Connect the Base interface board to the PC. Labels on the bottom of the interface boards specify Base or Remote. Then power the Base and the Remote with the supplied wall-plug power supplies.

6a. Optionally, the DNT Demo can be run from the USB port. Plugging in the USB cable automatically switches operation to the USB connector. The USB interface is based on an FT232RL serial-to-USB converter IC manufactured by FTDI. The FT232RL driver files are located in the i386 and AMD64 folders on the CD, and the latest version of the drivers can downloaded from the FTDI website, www.ftdichip.com. The drivers create a virtual COM port on the PC. Power the Base using one of the supplied wall-plug power supplies. Next connect the Base to the PC with a USB cable. The PC

will find the new USB hardware and open a driver installation dialog box. Enter the letter of the drive holding the kit CD and click *Continue*. The installation dialog will run *twice* to complete the driver installation. Next power the Remote using the other wall-plug power supply.

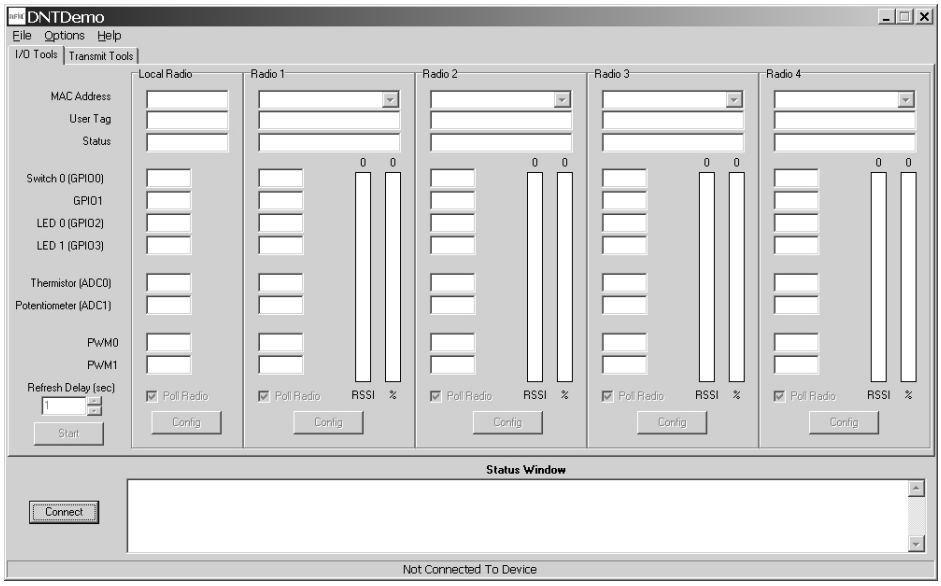

Figure 5

7. The DNT Demo utility program is located in the *PC Programs* folder on the kit CD. The DNT Demo requires no installation and can be simply copied to the PC and run. Start the Demo on the PC. The Demo start-up window is shown in Figure 5.

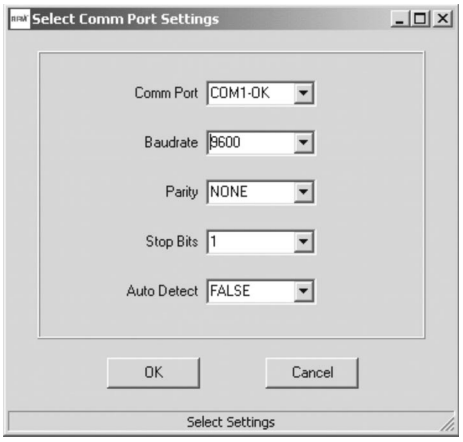

Figure 6

8. Click on *Connect* to open the *Select Comm Port Settings* dialog box, as shown in Figure 6. Set the baud rate to 9.6 kb/s. Set the *CommPort* to match the serial port connected to the Base, either the hardware port or the USB virtual serial port. Then click *OK* to activate the serial connection.

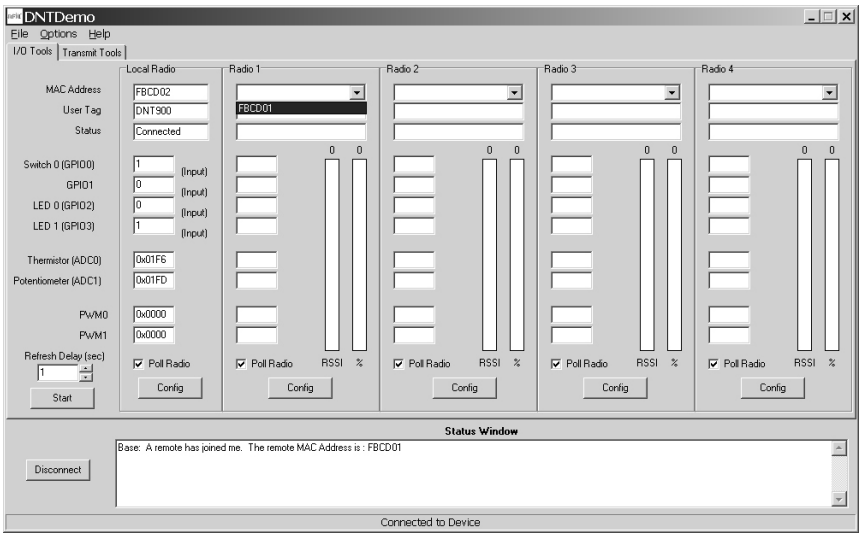

Figure 7

9. At this point the Demo will collect data from the Base, filling in data in the *Local Radio* column on the Demo window as shown in Figure 7. The *Status Window* should also show that the Remote has joined the Base. Click on the drop down box at the top of the *Radio 1* column and select the *MAC Address* for the Remote. Next press the *Start* button using the default 1 s *Refresh Delay*.

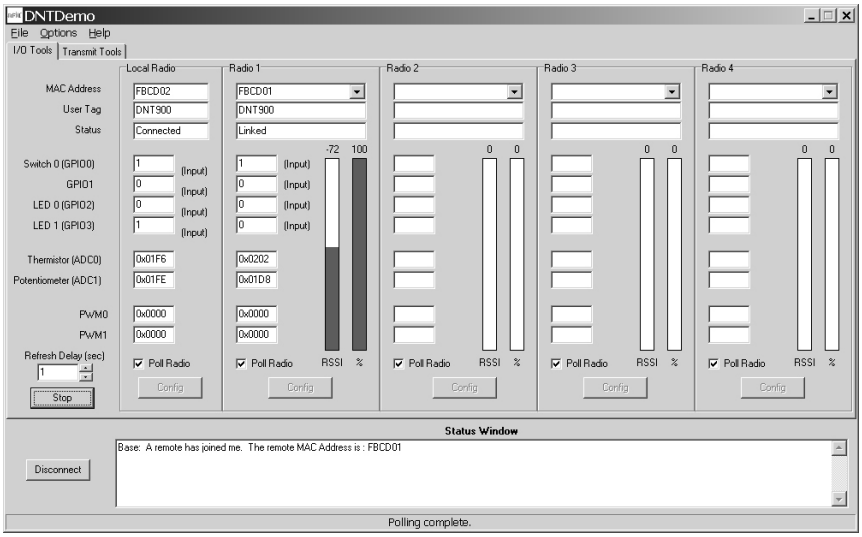

Figure 8

10. The Demo will display updated data on the Remote in the *Radio 1* column, including bar graphs of *RSSI* (signal strength) and percent packet success rate, as shown in Figure 8. Adjusting the pot on the Remote can be observed on the *Potentiometer (ADC1)* row. See the *DNT900 Integration Guide* for information on other DNT900 utility programs.

11. If any difficulty is encountered in setting up your DNT900DK, contact RFM's module technical support group. The phone number is +1.678.684.2000. Phone support is available from 8:30 AM to 5:30 PM US Eastern Time Zone, Monday through Friday. The E-mail address is tech_sup@rfm.com.