

LPR2430 Series Developer's Kits Quick Start Guide



Items Supplied in a Kit:

- Four LPR2430, LPR2430A, LPR2430ER, or LPR2430ERA radios, two of which are installed on developer boards, labeled Base and Remote
- Two patch antennas, and two dipole antennas with MMCX to SMA-R adaptor cables, LPR2430 and LPR2430ER only (antennas are built into the LPR2430A and LPR2430ERA radios)
- Two 9 V wall-plug power suppliers, 120/240 VAC, plus two 9 V batteries
- Two RJ-11 cables with DB-9F adaptors, LPR2430 and LPR2430ER kits
- Two Cat 5 Ethernet cables with RJ-45/DB-9F adaptors, LPR2430A and LPR2430ERA kits
- Two A/B USB cables
- One LPR2430DK/LPR2430ADK/LPR2430ERDK/LPR2430ERADK documentation and software CD



Figure 1





Additional Items Needed:

One PC with Microsoft Windows XP or Vista Operating System

Developer Kit Setup and Testing:

- Observe ESD precautions when handling the LPR2430 series developer boards. The developer boards can be powered with either the 9 V wall-plug power supplies or the 9 V batteries. If using the wall-plug power supplies, install an AC plug on each supply and connect the power supplies to the developer boards. See Figure 1 for the location of the power connector. Do not plug in the power supplies at this time. If using the batteries, do not install them yet.
- 2. For the LPR2430 and LPR2430ER kits, referring to Figures 1 and 2, install a patch antenna on each developer board antenna connector. The antenna "snaps" onto the connector with moderate pressure. Antennas are built into the radio modules for the LPR2430A and LPR2430ERA kits.
- 3. As shown in Figure 1, there are two serial connectors on the developer boards. The RJ-45 or RJ-11 connector provides an RS232 interface. The USB connector provides an optional interface. Labels on the bottom of the boards indicate which board is the Base and which is the Remote.
- 4a. If the PC has a serial port, use one of the Cat 5 cables with an RJ-45/DB-9F adaptor or one of the RJ-11 cables to make a connection to the Base. Then power up the Base by plugging in the power supply or installing the battery. If using a USB connection, follow step 4b instead of 4a.
- 4b. The USB interface is based on an FT232RL serial-to-USB converter IC manufactured by FTDI. The FT232RL driver files are located in the *i*386 and *AMD64* folders on the kit CD, and the latest version of the drivers can be downloaded from the FTDI website, www.ftdichip.com. The drivers create a virtual COM port on the PC. Power up the Base by plugging in its power supply or installing a battery.

IPRDemo 2.0	_				
<u>File View Options H</u> elp					
Current Settings	Serial Poll I/D Events Wincom				
Device Mode PAN ID Channel Network Addr	Nework Addr LQI	-			
MAL Address Firmware Ver Link Status Encryption					
Refresh	Hex Mode Scroll RealTime Clear Screen Packet Builder				
Upgrade Connect	Network Addr Interval (sec) Data to Transmit TX Status ACK LQI ✓ 0 This is a test ✓ Data in ASCII Append CR				
Not Connected to Device					

Figure 3



Then connect the Base to the PC with one of the USB A/B cables. The PC will find the new USB hardware and open a driver installation window. Enter the letter of the PC drive holding the kit CD and click *Continue*. The installation dialog will run *twice* to complete the driver installations.

5. Copy LPRDemo2 from the *Programs* folder on the kit CD to a convenient folder on the PC. This program runs using ordinary Window's resources and does not require any framework installations, registry entries, etc., to run. Start LPRDemo2. The start-up window is shown in Figure 3 above.

na Comm Port Settings	×			
Comm Port COM1-0K				
Baudrate 9600				
Parity NONE	-			
Stop Bits 1	•			
Auto Detect FALSE				
ОК	Cancel			
Select Settings				
— ; (



6. Click on the *Connect* button in the lower left of the main LPRDemo2 window to open the *Comm Port Settings* dialog window, as shown in Figure 4. Set the *Baudrate* to 9600 b/s. Set the *Comm Port* to match the serial port connected to the Base, either the RS232 serial port or the USB virtual serial port. Then click *OK* to activate the serial connection.

nak LPRDemo 2.0		×		
<u>File View Options H</u> elp				
Current Settings	Serial Poll I/D Events Wincom Nework Addr Received Data LQI			
Device Mode Base	×			
PAN ID 0x19DC				
Channel 0x19 (2475 MHz)				
Network Addr 0x0000				
MAC Address 00:30:66:41:00:00:19:DC				
Firmware Ver 2.5				
Link Status Linked				
Encryption Disabled				
Refresh	I Hex Mode			
	Packet Builder			
	Network Addr Interval (sec) Data to Transmit TX Status ACK LQI Image: Comparison of the section of the s			
Disconnect	Data in ASCII Append CR Transmit			
Connected to local radio on COM1 at 9600				

Figure 5



7. At this point the program will collect and display data from the Base under *Current Settings* on the left side of the main window, as shown in Figure 5.



Figure 6

- 8. Next power up the Remote by plugging in its power supply or installing a battery. Click on the *Poll I/O* tab. Figure 6 shows the Poll I/O screen. Select the Remote's network address, 0001, in the *Network Address* drop-down box for *Radio 1*. If the address is not present, wait a few seconds to give the remote time to register with the base.
- Click on the *Start* button. Data from the Remote will be displayed under *Radio 1*, including bar graphs of received signal strength (*RSSI*), and percent of successful requests-replies (%). Note that turning the pot on the Remote developer board will change the *Potentiometer (ADC1)* reading, and holding Switch 0 down will change the *Switch 0 (GPIO0)* state to 0. Setting *LED 0 (GPIO2)* to a 1 state will turn on LED 0. The developer kit is now ready for use.
- If any difficulty is encountered in setting up your LPR2430 series developer kit, 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 for module technical support is tech_sup@rfm.com.

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