CHAPTER 2

Bluetooth 1.1

The main focus of this chapter is to describe the inner workings of Bluetooth. The most current revision of the protocol is version 1.1. Almost every device on the market today is compliant with Bluetooth version 1.1, although you might be able to find some devices that use the 1.0B version of Bluetooth. The differences between Bluetooth 1.0B and 1.1 are beyond the scope of this book. The differences are minimal, and they really don't apply to Java programmers.

What can you expect for future versions of Bluetooth like 1.2 and 2.0? Whenever the Bluetooth SIG (the group of companies that developed the Bluetooth spec) plans to release later revisions of the spec, you can expect some things like higher speeds, more profiles, and backward compatibility with 1.1. We wouldn't expect the newer versions to try to compete with 802.11 speeds, but you might see data rates of 4, 8, or even 12 Mb/s. Bluetooth's niche is as a low-power wireless communication protocol, so don't expect Bluetooth 2.0 to be a power hog.

CROSS-REFERENCE See Chapter 1 for a discussion of Bluetooth versus 802.11b.

This chapter is all about Bluetooth. We'll give you brief history on how it began and how it got its name. Next, we'll show you the radio spectrum and where Bluetooth fits in with devices that you probably already know about. Afterwards, we'll describe the anatomy of a Bluetooth-enabled device by giving a description of Bluetooth hardware, the Bluetooth stack, and Bluetooth profiles. For the remainder of this book, when we refer to Bluetooth, we are referring to the 1.1 version of the spec. Now, let's dig in to Bluetooth!

A Brief History of Bluetooth

Bluetooth got its name from King Harald Blatand (Bluetooth) of Denmark. His most notable accomplishment was that he united Denmark and Norway under Christianity in the 10th century. In 1994, Ericsson conducted the first research
studies of a wireless technology to link mobile phones and accessories. Years later in 1997, Ericsson formed the Bluetooth Special Interest Group (Bluetooth SIG) so that other companies could use and promote the technology. At that time, the Bluetooth SIG consisted of the following promoter companies:

- Ericsson
- IBM
- Intel
- Nokia
- Toshiba

Later on, in 1999 after the 1.0 specification was released, the Bluetooth SIG added four more members:

- 3Com
- Agere
- Microsoft
- Motorola

Today, the Bluetooth SIG has well over 2,000 members that are all interested in promoting and improving the Bluetooth standard.

The Radio Spectrum

Wireless communication between computers is either in the form of light or radio signals. Infrared technology is the common way to conduct short range wireless communications and obviously uses light. Conversely, Bluetooth technology uses radio signals. Table 2-1 gives a list of common everyday items that rely on radio signals for communication. As you can see, Bluetooth, cordless phones, 802.11b, and 802.11g fall in the 2.4 GHz range. Hopefully, this will demystify the Bluetooth concept if you are new to all this; it’s just a radio.