

Bluetooth applications

- Wireless control of and communication between a [cell phone](#) and a [hands free headset](#) or car kit. This is the most popular use.
- Wireless networking between PCs in a confined space and where little bandwidth is required.
- Wireless communications with PC input devices such as [mouses](#) and [keyboards](#) and output devices such as [printers](#).
- Transfer of files between devices via [OBEX](#).
- Transfer of contact details, calendar appointments, and reminders between devices via [OBEX](#).

Bluetooth vs. Wi-Fi in today's business environment

Bluetooth and Wi-Fi both have their places in today's offices, either setting up networks, print servers, or transferring presentations and files from PDAs to computers.

Bluetooth

Bluetooth is in a variety of new products such as phones, printers, modems, and headsets to name a few. Bluetooth is acceptable for situations when two or more devices are in close proximity with each other and doesn't require high bandwidth. Bluetooth is most commonly used with cell phones, either using a Bluetooth headset or transferring files from phones to computers. Because Bluetooth uses short range radio frequencies it is not as effective for setting up networks that can be accessed from remote locations. Wi-Fi technology is better suited for this purpose.

Wi-Fi

Wi-Fi uses the same radio frequencies as Bluetooth, but with higher power consumption resulting in a stronger connection. As mentioned earlier, Wi-Fi is sometimes called a wireless Ethernet. Although this is not entirely true it provides us with an idea of what Wi-Fi is capable of. Wi-Fi is better suited for setting up networks since it is a faster connection and has increased security over Bluetooth. Wi-Fi is popular among the computing world, virtually all new laptop computers come with Wi-Fi built in, and all desktop computers are able to be adapted to have a Wi-Fi connection. Recently a few new cell phones have come out with Wi-Fi.

Specifications and Features

The Bluetooth specification was first developed by [Ericsson](#) (now [Sony Ericsson](#) and [Ericsson Mobile Platforms](#)), and was later formalized by the [Bluetooth Special Interest Group](#) (SIG). The SIG was formally announced on [May 20, 1999](#). Today it has over 1800 companies worldwide. It was established by [Sony Ericsson](#), [IBM](#), [Intel](#), [Toshiba](#) and [Nokia](#), and later joined by many other companies as Associate or Adopter members. Bluetooth is also known as [IEEE 802.15.1](#).

Bluetooth 1.0 and 1.0B

Versions 1.0 and 1.0 B had numerous problems and the various manufacturers had great difficulties in making their products interoperable. 1.0 and 1.0B also had mandatory Bluetooth Hardware Device Address (BD_ADDR) transmission in the [handshaking](#) process, rendering anonymity impossible at a protocol level, which was a major setback for services planned to be used in Bluetooth environments, such as Consumerium.

Bluetooth 1.1

- many errata found in the 1.0B specifications were fixed.
- added support for non-encrypted channels.
- *Received Signal Strength Indicator (RSSI)*

Bluetooth 1.2

This version is backwards compatible with 1.1 and the major enhancements include

- *Adaptive [Frequency-hopping spread spectrum \(AFH\)](#)*, which improves resistance to [radio frequency interference](#) by avoiding using crowded frequencies in the hopping sequence
- *Higher transmission speeds* in practice
- *extended Synchronous Connections (eSCO)*, which improves voice quality of audio links by allowing retransmissions of corrupted packets.
- *Host Controller Interface (HCI) support for 3-wire UART*
- *HCI access to timing information* for Bluetooth applications:

Bluetooth 2.0

This version is backwards compatible with 1.x. The main enhancement is the introduction of *Enhanced Data Rate (EDR)* of 3.0 MBps. This has the following effects (Bluetooth SIG, 2004):

- 3 times faster transmission speed (up to 10 times in certain cases).
- Lower power consumption through a reduced duty cycle.
- Simplification of multi-link scenarios due to more available bandwidth.
- Further improved BER ([bit error rate](#)) performance.