

Wireless Without the Wires: Bluetooth Cellular Phone

Article Rating: NA

Submitted by: articlediner on 2006-10-03 and viewed 39 times.

Total Word Count: 975

Author Rating:

Sample of Content:

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They may call it a wireless phone, but standard cellular phones still require wires at some point. Besides the clunky charger, you also have to fumble with cords to use a headset and to transfer data between your phone and other gadgets. But there is an answer for anyone looking to cut the cord almost completely. With a Bluetooth cellular phone, you can chat on a wireless headset, transfer data magically through the air to a handheld, or connect with a Bluetooth-enabled car. But take care, as each Bluetooth cellular phone is

not created in the same manner. While some carriers let you use a Bluetooth cellular phone for almost any means, others restrict it to a headset only.

Bluetooth is a standard developed by a group of electronics manufacturers that allows any sort of electronic equipment -- from computers and Bluetooth cellular phones to keyboards and headphones -- to make its own connections, without wires, cables or any direct action from a user. A Bluetooth cellular phone works at two levels: It provides agreement at the physical level -- Bluetooth is a radio-frequency standard. It also provides agreement at the next level up, where Bluetooth cellular phones have to agree on when bits are sent, how many will be sent at a time and how the parties in a conversation can be sure that the message received is the same as the message sent.

While it may sound complicated, a Bluetooth cellular phone works in a simple manner. A Bluetooth cellular phone communicates with different devices by sending data via a secure, low-cost short-range radio frequency. Using the technology, a Bluetooth cellular phone can connect to headsets, PCs can connect to printers or keyboards, and handhelds can connect to each other without any wires. Up to seven connections can be made at one time, at a speed of 1Mbps. All that's needed for any Bluetooth cellular phone to connect to another Bluetooth-enabled device is for them to be paired--normally, a hassle-free "handshaking" process for establishing a connection that takes seconds and can be found in most wireless connectivity menus.

What's in a Name?

In case you were wondering, what's "Bluetooth" in the term "Bluetooth cellular phone", Bluetooth gets its name from a 10th-century Danish king, Harald Blatand (or Bluetooth) who unified Denmark, Norway, and Sweden. According to legend, he had an affinity for teeth-staining blueberries.

Bluetooth Frequency

A Bluetooth cellular phone communicates on a frequency of 2.45 gigahertz, which has been set aside by international agreement for the use of industrial, scientific and medical devices (ISM).

A number of devices that you may already use take advantage of this same radio-frequency band. Baby monitors, garage-door openers and the newest generation of cordless phones all make use of frequencies in the ISM band. Making sure that a Bluetooth cellular phone and these other devices don't interfere with one another has been a crucial part of the design process.

Pairing up

Before you start talking on a Bluetooth cellular phone, you do need to know a few facts. A Bluetooth cellular phone has a range of 30 feet (10 meters), and the devices in question must use compatible versions of Bluetooth. The majority of Bluetooth cellular phones currently in the marketplace works on Bluetooth 1.1. (Two previous versions, 1.0 and 1.0B, were plagued with compatibility issues and have since been discontinued.) The Bluetooth Special Interest Group (SIG), a trade association and development group, is releasing newer versions that promise several upgrades and backward compatibility. Bluetooth 1.2, includes the addition of an anonymity mode, which masks the hardware address of the device to protect from identity snooping and tracking, and adaptive frequency hopping, which cuts interference by avoiding crowded frequencies. Bluetooth 2.0 has some enhancements among them are narrowband channels, which will enable messages to be broadcast to a high number of devices without the pairing process, and higher connection speeds of up to 12Mbps.

When no other means of connecting to the Internet is available, mobile workers can use their Blue tooth cellular phone as a modem. An advantage of using a Bluetooth cellular phone is that it can remain in your laptop carrying case or pocket, and a Bluetooth cellular phone does not require a direct line of sight connection. If your laptop is not already Bluetooth enabled, you can purchase a USB Bluetooth adapter. A Bluetooth cellular phone makes it easy to transfer or receive information from other Bluetooth-enabled devices, eliminating the need for extra cables. A Bluetooth cellular phone can be used with a Bluetooth-enabled headset allowing for handsfree operation. You can put the Bluetooth cellular phone in your pocket or carrying case and still take calls. This is especially useful if you need to use your Bluetooth cellular phone while driving.

Be secure

As with any wireless device, a Bluetooth cellular phone has some minor security concerns. The SIG has admitted that bluebugging, where a hacker secretly accesses a phone's commands (such as eavesdropping on conversations), and bluesnarfing, where a hacker can access a phone's data--such as the contacts--are possible, yet the group downplays both actions. While they work through Bluetooth, they also require the hacker to use a PC and to be within range of the victim's Bluetooth cellular phone (10 meters). Still, Nokia and Sony have said these issues affect only older handsets that are available mainly outside of the United States, and Nokia is promising a software upgrade. To help combat both, a Bluetooth cellular phone can be locked with a code or simply turned off or put in hidden mode when not in use. Another concern, depending on how you look at it, is bluejacking. This often involves creating a flirtatious introductory message, then sending it to another Bluetooth cellular phone (that is discoverable) nearby as a text message.

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