

About Bluetooth Wireless Technology

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The Bluetooth Special Interest Group (SIG) was founded in 1998 to manage and promote a new wireless communications standard for connecting devices. The intent was to create a global and open technology standard for a short-range, cable-replacement, radio technology. The Bluetooth SIG is led by a nine-company promoter group including 3Com Corporation, Agere Corporation, Ericsson, IBM Corporation, Intel Corporation, Microsoft Corporation, Motorola, Inc., Nokia and Toshiba Corporation.

The heart of the Bluetooth® brand identity is in the name, which was inspired by the Danish King Harald Bluetooth who unified Denmark and Norway in the 10th century.

Bluetooth wireless technology is aimed at allowing users to make effortless, fast connections between various devices. The sophisticated mode of transmission adopted in the Bluetooth Specification ensures protection from interference and seeks to ensure security of data. The radio with Bluetooth wireless technology is built into a small microchip and operates in a globally available frequency band intended to ensure communication compatibility worldwide. The Specification has two power levels defined: a lower power level that covers the shorter personal proximity range within a room, and a higher power level that can cover a medium range, such as within a home. Software controls and identity coding built into each microchip ensure that only those units preset by their owners can communicate.

Bluetooth wireless technology supports both point-to-point and point-to-multipoint connections for up to eight simultaneous sessions.

General description

The Bluetooth Specification defines a low cost, low-power global radio standard for connecting devices. Using an efficient time-sharing architecture designed with advanced frequency-hopping and small packet sizes, the technology is able to maintain high transmission speeds while operating in the unlicensed 2.4GHz radio spectrum. The Bluetooth Specification defines a Core and many Profiles. The Core describes the radio link and connection setup, also known as the protocol stack. The Profiles describe how the wireless protocol can be used for specific user applications.

Members of the Bluetooth SIG are granted a royalty-free non-exclusive license to incorporate the technology in their products and are normally also able to use Bluetooth trademarks in connection with marketing such. The Bluetooth SIG maintains a Qualification program to certify product compliance to its specifications.

Performance

The overall performance of a radio system is measured by more than its raw data rate. Bluetooth wireless technology is specifically designed to maintain exceptionally high transmission speeds in high-noise environments, efficiently manage power both in sleep and operating modes, and do this in a small and affordable package. Providing even more value to developers is the utility of the Specification, which supports using one single radio to service many use cases and applications.

Power

Bluetooth wireless technology limits the radio microchip's output power exactly to that actually required. If, for instance, the receiving radio indicates that it is only a few meters away, the transmitter immediately modifies its signal strength to suit the exact range.

This feature dramatically reduces the radio's power consumption, as well as its radio signal interference.

Furthermore, the radio chip automatically shifts to a low-power mode as soon as traffic volume becomes low or stops. The low power mode is only interrupted by very short signals with the purpose of verifying the established connection.

The radio with Bluetooth wireless technology consumes less than a few percent of the power compared with a modern mobile phone. The transmission mode is only used as necessary, and always for the shortest possible period of time.

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