

Operational description

Bluetooth technology operates in the unlicensed industrial, scientific and medical (ISM) band at 2.4 to 2.485 GHz, using a spread spectrum, frequency hopping, full-duplex signal at a nominal rate of 1600 hops/sec. Bluetooth uses Gaussian Frequency Shift Keying. The signal hops among 79 frequencies at 1 MHz intervals to give a high degree of interference immunity. The physical channel is sub-divided into time units known as slots. A slot is 625usec. Data is transmitted between Bluetooth enabled devices in packets that are positioned in these slots.

To operate Bluetooth communication, there must be at least two Bluetooth devices. One device provides the synchronization reference and is known as the master. All other devices are known as slaves. A group of devices synchronized in this fashion form a piconet.

Any time a Bluetooth wireless link is formed, it is within the context of a piconet. A piconet consists of two or more devices that occupy the same physical channel (which means that they are synchronized to a common clock and hopping sequence). The common (piconet) clock is identical to the Bluetooth clock of one of the devices in the piconet, known as the master of the piconet, and the hopping sequence is derived from the master's clock and the master's Bluetooth device address. All other synchronized devices are referred to as slaves in the piconet. A Bluetooth enabled device that is a member of two or more piconets is said to be involved in a scatternet.

Within a common location a number of independent piconets may exist. Each piconet has a different physical channel (that is a different master device and an independent piconet clock and hopping sequence).

A Bluetooth enabled device may participate concurrently in two or more piconets. It does this on a time-division multiplexing basis. A Bluetooth enabled device can never be a master of more than one piconet. (Since the piconet is defined by synchronization to the master's Bluetooth clock it is impossible to be the master of two or more piconets.) A Bluetooth enabled device may be a slave in many independent piconets.

DUT(Device under Test) uses DC 5V supplied by a power adapter which converts 110~220V to 5V. The supplied power (5V) is in turn converted into 3.0 and 1.8V using a Low Dropout Regulator located inside the device to supply the various part of the circuit board. The regulator uses MIC5205-3.0YM and MIC5247-1.8YM. The antenna used by DUT is a SMD type Multilayer chip.
