

Hopping Information

Frequency hopping spread spectrum (FHSS) is a radio transmission process where a message or voice communications is sent on a radio channel that regularly changes frequency (hops) according to a predetermined code. The receiver of the message or voice information must also receive on the same frequencies using the same frequency hopping sequence. Frequency hopping was first used for military electronic countermeasures. Because radio communication occurs only for brief periods on a radio channel and the frequency hop channel numbers are only known to authorized receivers of the information, transmitted signals that use frequency hopping are difficult to detect and monitor.

The following figure shows a simplified diagram of how the Bluetooth system uses frequency hopping to transfer information (data) from a transmitter to a receiver using 79 communication channels. This diagram shows a transmitter that has a preprogrammed frequency tuning sequence and this frequency sequence occurs by hopping from channel frequency to channel frequency. To receive information from the transmitter, the receiver uses the exact same hopping sequence. When the transmitter and receiver frequency hopping sequences occur exactly at the same time, information can transfer from the transmitter to the receiver. This diagram shows that after the transmitter hops to a new frequency, it transmits a burst of information (packet of data). Because the receiver hops to the same frequency, it can receive the packet of data each time.

