**What is Spread Spectrum?**

Spread Spectrum is telecommunications techniques in which a signal is transmitted in a bandwidth considerably greater than the frequency content of the original information.

**Advantage of spread spectrum?**

* Cross-talk elimination
* Better output with data integrity
* Reduced effect of multipath fading
* Better security
* Reduction in noise
* Co-existence with other systems
* Longer operative distances
* Hard to detect
* Not easy to demodulate/decode
* Difficult to jam the signals

**What is FHSS?**

Frequency-hopping spread spectrum (FHSS) transmission is the repeated switching of the carrier [frequency](https://www.techtarget.com/whatis/definition/frequency) during radio transmission to reduce interference and avoid interception.

FHSS is useful to counter eavesdropping, as well as to obstruct the [frequency jamming](https://www.techtarget.com/whatis/definition/frequency-jammer) of telecommunications and to enable [code-division multiple access](https://www.techtarget.com/searchnetworking/definition/CDMA-Code-Division-Multiple-Access) communications. It can also minimize the effects of unintentional interference.

**How does FHSS work?**

In FHSS, the transmitter hops between available narrowband frequencies within a specified broad [channel](https://www.techtarget.com/searchdatacenter/definition/channel) in a pseudo-random sequence known to both sender and receiver.

A short burst of data is transmitted on the current narrowband channel, and then the transmitter and receiver tune to the next frequency in the sequence for the next burst of data. In most systems, the transmitter will hop to a new frequency more than twice per second.

**What are the benefits of using FHSS?**

This wideband or broadband strategy provides a few benefits over fixed analog transmissions:

* As stated previously, it is resistant to narrowband interference.
* Data [signals](https://www.techtarget.com/searchnetworking/definition/signal) are difficult to intercept if the frequency-hopping pattern is not known.
* Jamming is difficult if the frequency channel or hopping [algorithm](https://www.techtarget.com/whatis/definition/algorithm) is unknown.
* An FHSS transmitted radio signal can share frequency bands with conventional transmissions without significant interference.

**How is FHSS regulated?**

**What are the variations of FHSS?**