

DSSS

Direct Sequence
Spread Spectrum

Spread Spectrum Communication

using more RF
bandwidth than
necessary in exchange
for some benefit

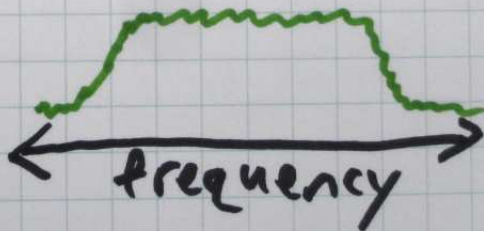
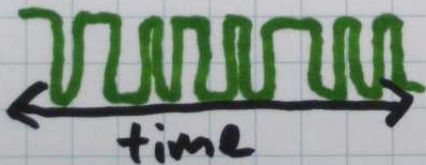
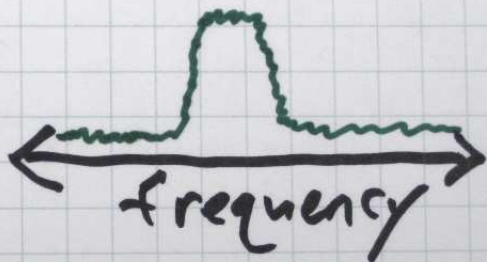
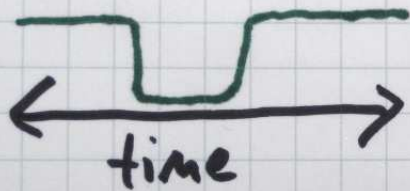
FHSS

~~DSSS~~

DSSS

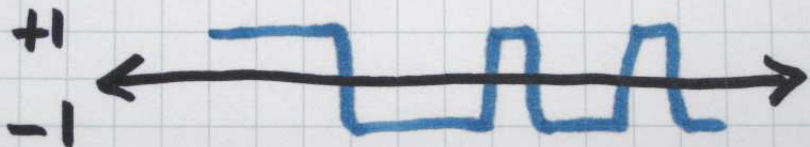
Direct Sequence
Spread Spectrum

More bps \rightarrow Wider Bandwidth

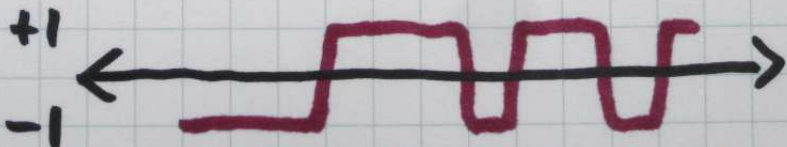


A Bunch of Chips for Every Bit

to send 1:



to send 0:



1 Mbps \rightarrow 11 M chips/s

Correlation



x



=



multiply

accumulate

(11)

DSSS Examples

802.11 b/g (especially
management frames)

802.15.4 (ZigBee)

GPS

proprietary systems

Weak Signal Detection

"below the
noise floor"

directional
antennas

math

multiple antennas

