

The a, b, g's of 802.11

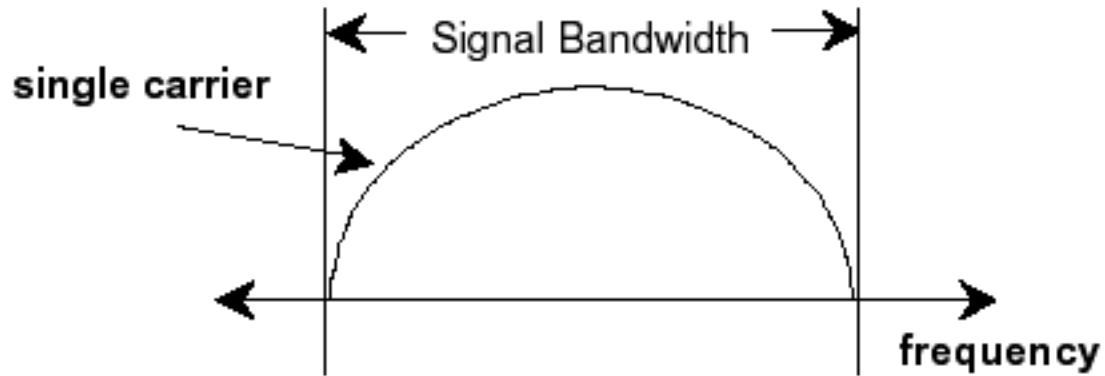
802.11

- The base specification defines:
 - media access control (MAC)
 - physical layer (PHY)
 - Direct Sequence Spread Spectrum (DSSS)
 - Frequency Hopped Spread Spectrum (FHSS)

802.11b

- Frequency: 2.4 GHz ISM band
- Channels: 11, 3 non-overlapping
- Speed: 11, 5.5, 2, 1 Mbps
- Channel Access: CSMA/CA
- Transmit Power: 1 Watt (30mW typical)
- Carrier: DSSS

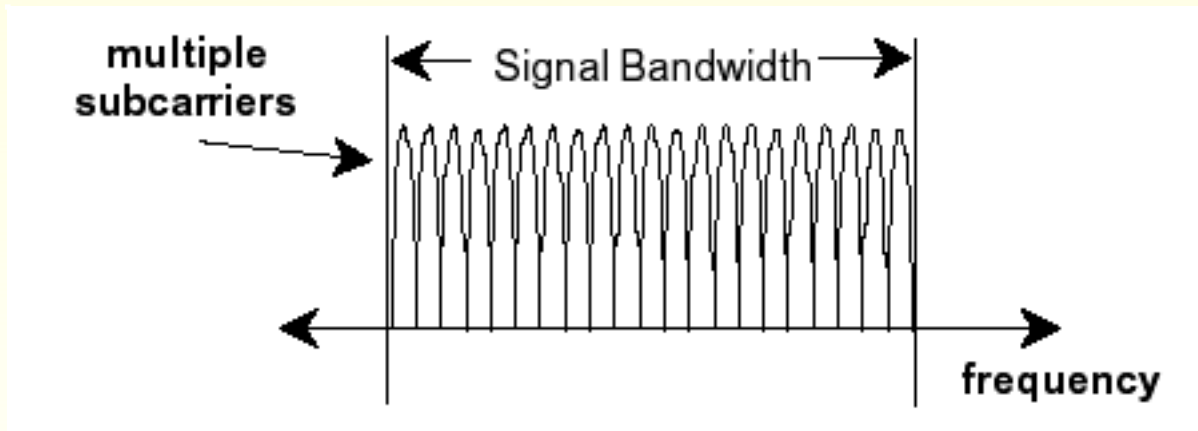
Complimentary Code Key (CCK)



802.11a

- Frequency: 5 GHz UNII band
- Channels: 12, 12 non-overlapping
- Speed: 24, 12, 6 Mbps mandatory, 54, 36, 18, 9 Mbps optional
- Channel Access: CSMA/CA
- Transmit Power: 800mW max
- Carrier: OFDM (Orthogonal Frequency Division Multiplexing)

OFDM (Orthogonal Frequency Division Multiplexing)



802.11g

- Frequency: 2.4 GHz ISM band
- Speed: up to 54 Mbps
- Channels: 11, 3 non-overlapping (1, 6, 11)
- Channel Access: CSMA/CA
- Transmit Power, 1 Watt (30mW typical)
- Carrier: OFDM
- Backwards compatible with 802.11b
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Comparison

Feature	802.11a	802.11b	802.11g
Speed	54 Mbps	11 Mbps	54 Mbps
Encoding	OFDM	CCK/DSSS	OFDM
Frequency	5 GHz	2.4 GHz	2.4 GHz
Bandwidth	300 MHz	83.5 MHz	83.5 MHz
Channels	12	11 (3)	11 (3)
Range	25 - 75 ft	100 - 150 ft	100 - 150 ft
Nodes	64	32	50
Cost	Most Exp.	Least Exp.	Mod. Exp.

Who Uses What

Chip Manufacturer	Used by
Broadcom	Apple, Belkin, Buffalo, Linksys
Intersil	Actiontec, NETGEAR, Corega Int, D-Link, USI
Atheros	HP, NETGEAR (tri-mode), TRENDnet
Texas Instruments	TNETW1130 Announced 4/03
Agere Systems	Chipset announced

More Information

- medstat.med.utah.edu/wireless/
- www.smallnetbuilder.com
- www.wi-fi.org
- www.oreillynet.com/wireless
- www.80211-planet.com
- www.wirelessnewsfactor.com