Whitepaper
Wireless-LAN

This document will show you the technical standard of Wireless-LAN.

1997 the IEEE (Institute of Electrical and Electronics Engineers) created the 802.11 Wireless-LAN standard.
These standards provide the basis for wireless network products using the Wi-Fi brand.

An Overview of this WLAN Standard you can find on Wikipedia: http://en.wikipedia.org/wiki/IEEE_802.11
The complete technical details you can find on https://mentor.ieee.org/802.11/documents.

Here you can find a short overview about the history of this standard: (Source: Wikipedia)

802.11 orginal standard, 1997 released
- Data transfer: total 1 or 2 MBit/s
- Frequency: 2,400 to 2,485 GHz
- Modulation: FHSS (Frequency Hopping Spread Spectrum) or DSSS (Direct Sequence Spread Spectrum)
- Acceptance: obsoletely, not in use

802.11a Enlargement of physical layer, 1999
- Data transfer: total 54 MBit/s (net maximal 50 %)
- Frequency: 5 GHz
- Modulation: OFDM (Orthogonal Frequency Division Multiplexing)
- Acceptance: lower compatibility rate, same speed like 802.11g

802.11b Enlargement of physical layer, 1999
- Data transfer: total 11 MBit/s (net maximal 50 %)
- Frequency: 2,400 bis 2,4835 GHz
- Modulation: DSSS (Direct Sequence Spread Spectrum)
- Acceptance: widespread

802.11g Enlargement of physical layer, 2003
- Data transfer: total 54 MBit/s (net maximal 40 %)
- Frequency:: 2,400 to 2,4835 GHz
- Modulation: DSSS (Direct Sequence Spread Spectrum) – used for lower traffic, OFDM (Orthogonal Frequency Division Multiplexing)
- Acceptance: high proliferation, is repressed by 802.11n

802.11n Ratification on 11. September 2009
- Data transfer: total 600 MBit/s
- Frequency: 2,400 to 2,4835 GHz, optional extension by 5 GHz
- Acceptance: New device normally support 802.11n, this repressed older standard

802.11p Enlargement of 802.11a for Car to Car Communication
- Data transfer: total 27 MBit/s
- Frequency: planned 5,850–5,925 GHz
- Acceptance: favorite Technologies of Car to Car-Communication.

802.11ac geplante Erweiterung zu 802.11n
- Data transfer: total 1 GBit/s
- Frequency: planned < 6 GHz