The 802.11 Physical Layer

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IEEE 802.11 standard, popularly known as WiFi, lays down the architecture and specifications of wireless LANs (WLANs). WiFi or WLAN uses high frequency radio waves instead of cables for connecting the devices in LAN. Users connected by WLANs can move around within the area of network coverage.

IEEE 802.11 Architecture

The physical layer architecture of IEEE 802.11 has the following components –

- Stations (STA) – Stations comprises of all devices and equipment that are connected to the wireless LAN. A station can be of two types –
    - Wireless Access Point (WAP) – WAPs or simply access points (AP) are generally wireless routers that form the base stations or access.
    - Client. Clients are workstations, computers, laptops, printers, smart phones etc.
- Each station has a wireless network interface controller.
- Basic Service Set (BSS) – A basic service set is a group of stations communicating at physical layer level. BSS can be of two categories depending upon mode of operation –
    - Infrastructure BSS – Here, the devices communicate with other devices through access points.
    - Independent BSS – Here, the devices communicate in peer-to-peer basis in an ad hoc manner.
- Extended Service Set (ESS) – It is a set of all connected BSS.
- Distribution System (DS) – It connects access points in ESS.