

Write the difference between 802.11a and 802.11b

### Frequency Band

- **802.11a** operates on the **5 GHz** band, which reduces interference from other devices.
- **802.11b** operates on the **2.4 GHz** band, which has a longer range but is more prone to interference from household devices (e.g., microwaves, Bluetooth).

### Speed

- **802.11a** offers a maximum speed of **54 Mbps**, making it much faster.
- **802.11b** has a lower maximum speed of **11 Mbps**, suitable for basic internet use.

### Range

- **802.11a** has a **shorter range** due to higher frequency signals that are absorbed more easily by walls.
- **802.11b** has a **longer range** because lower-frequency signals travel farther.

### Interference & Reliability

- **802.11a** faces **less interference** since it operates on the **less crowded 5 GHz band**.
- **802.11b** is more **prone to interference** from devices like cordless phones, Bluetooth devices, and microwaves.

### Compatibility

- **802.11a** is **not compatible** with 802.11b networks unless using dual-band access points.
- **802.11b** was widely adopted due to its compatibility and affordability.