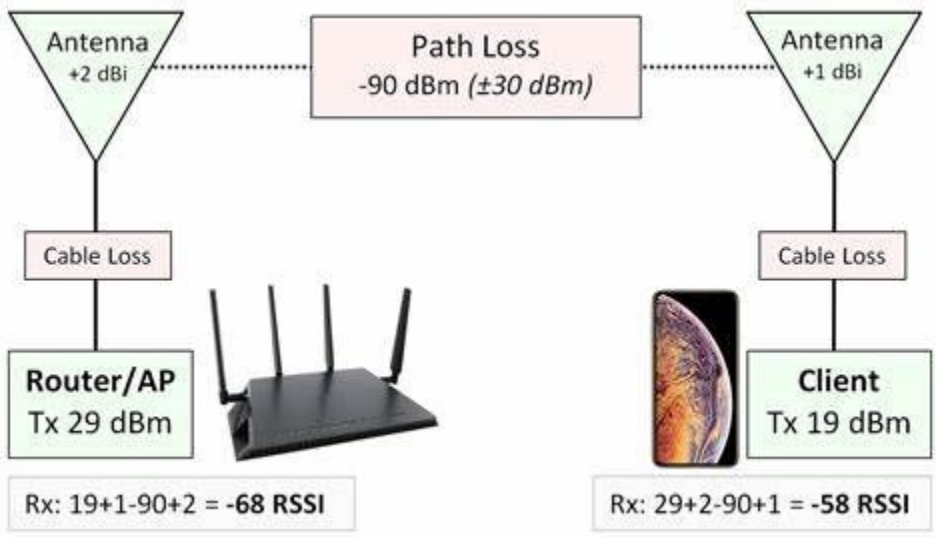
🎉📻 Happy World Radio Day 2/13/2025 🎙️

1️⃣ Who invented the radio? 🦹‍♀️

2️⃣ How long can standard Wi-Fi signals (2.4GHz and 5GHz) be transmitted indoors and outdoors? 📶🏠🌎

3️⃣ How can you calculate the Wi-Fi signal distance? 🧮

#WorldRadioDay #TechTrivia #RadioHistory #WiFi



1️⃣ Who invented the radio? 🦹‍♀️

Guglielmo Marconi, an Italian physicist

2️⃣ How long can standard Wi-Fi signals (2.4GHz and 5GHz) be transmitted indoors and outdoors? 📶🏠🌎

2.4GHz Wi-Fi:

- *Indoors:* Typically covers around 150 feet (45 meters). It has better penetration through walls and obstacles compared to 5GHz.
- *Outdoors:* Can reach up to about 300 feet (90 meters) in an open area.

5GHz Wi-Fi:

- *Indoors:* Generally covers around 50 feet (15 meters). It offers faster speeds but has a shorter range and poorer penetration through walls and obstacles compared to 2.4GHz.
- *Outdoors:* Can reach up to about 200 feet (60 meters) in an open area.

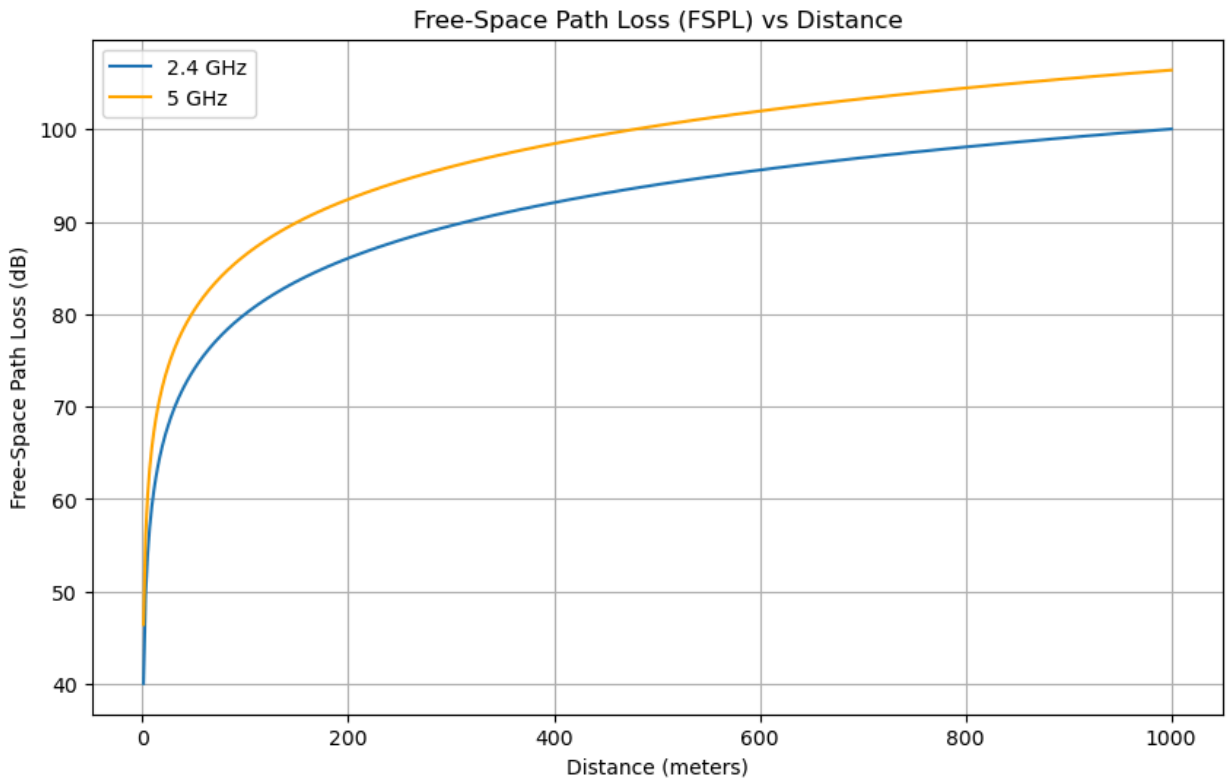
3️⃣ How can you calculate the Wi-Fi signal distance? 🧮

Friis transmission equation (Reference: Free Space Path Loss Calculator)

$$\frac{P_r}{P_t} = G_t G_r \left(\frac{\lambda}{4\pi d}\right)^2$$

where:

- P_r is the power at the receiving antenna;
- P_t is the transmitted power;
- G_r is the receiver antenna's gain;
- G_t is the transmitter antenna's gain;
- λ is the wavelength of the signal; and
- d is the distance between the antennas.



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