

# Transmission Media

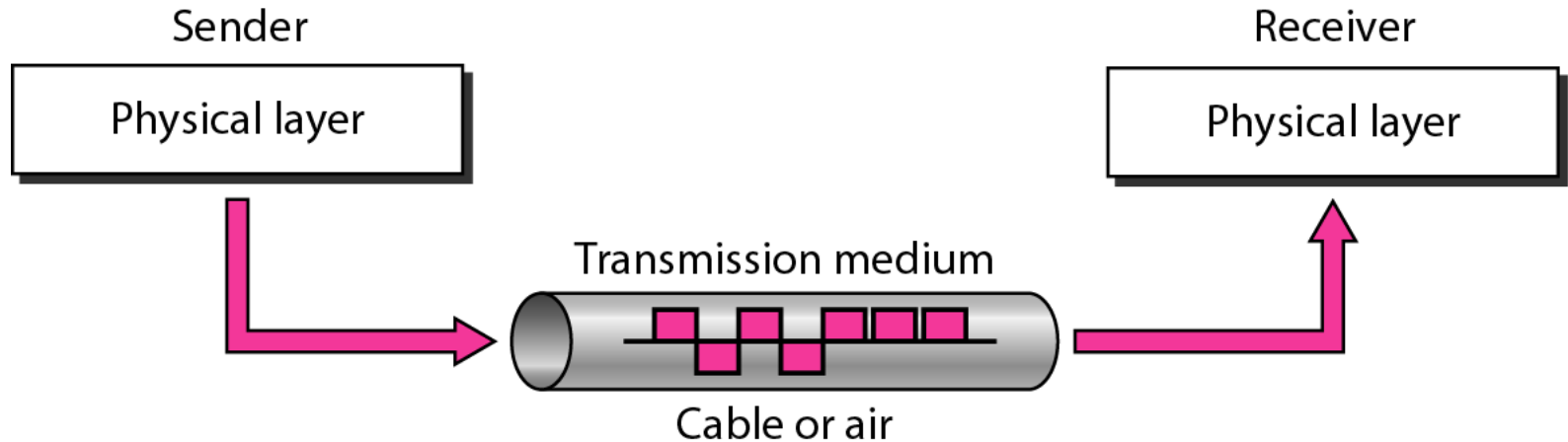


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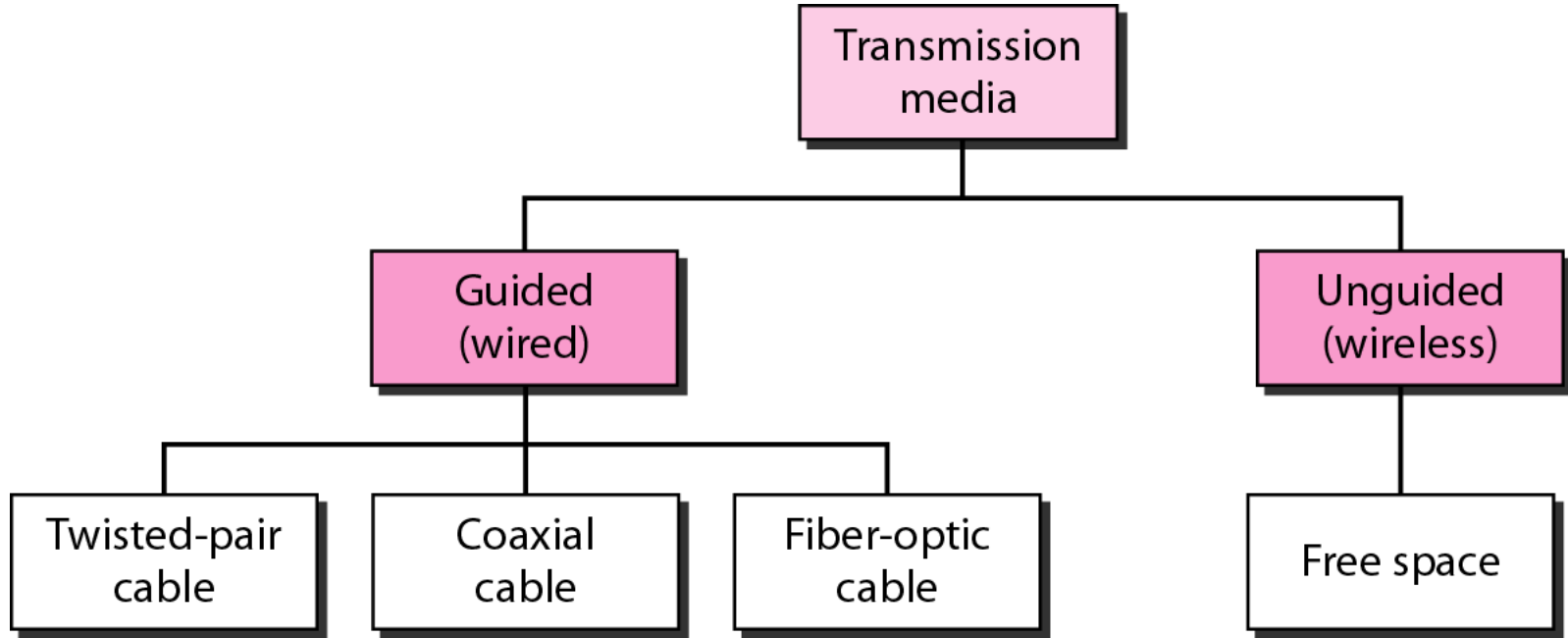
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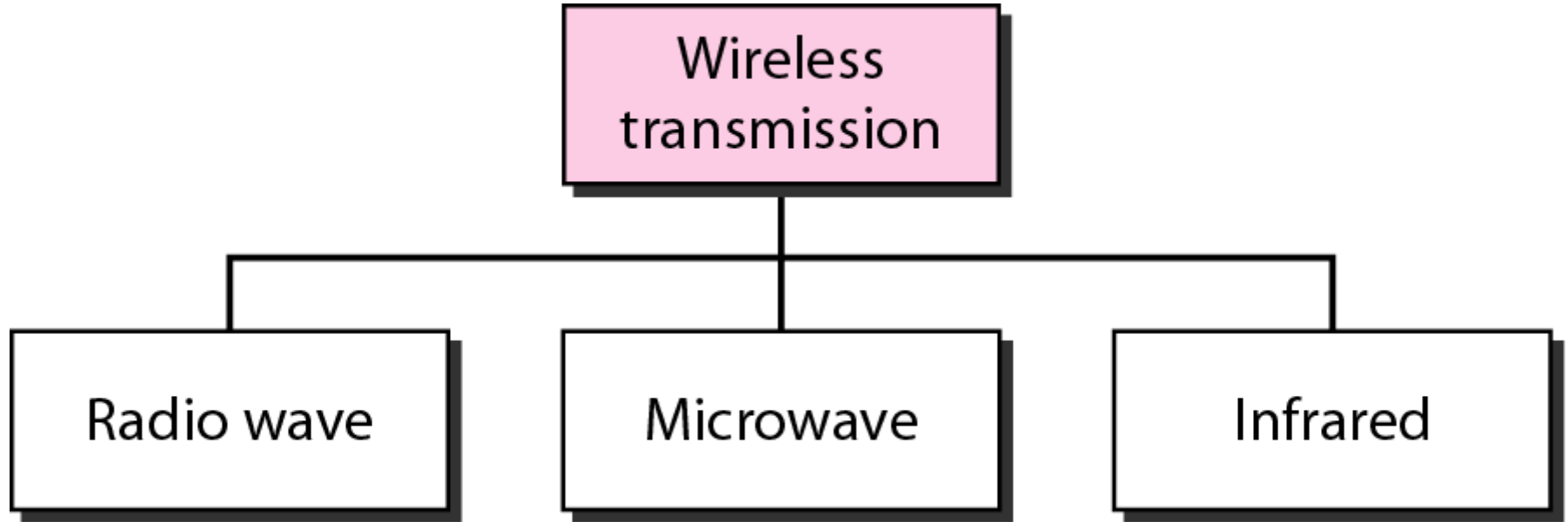
# What is a Transmission Media ?



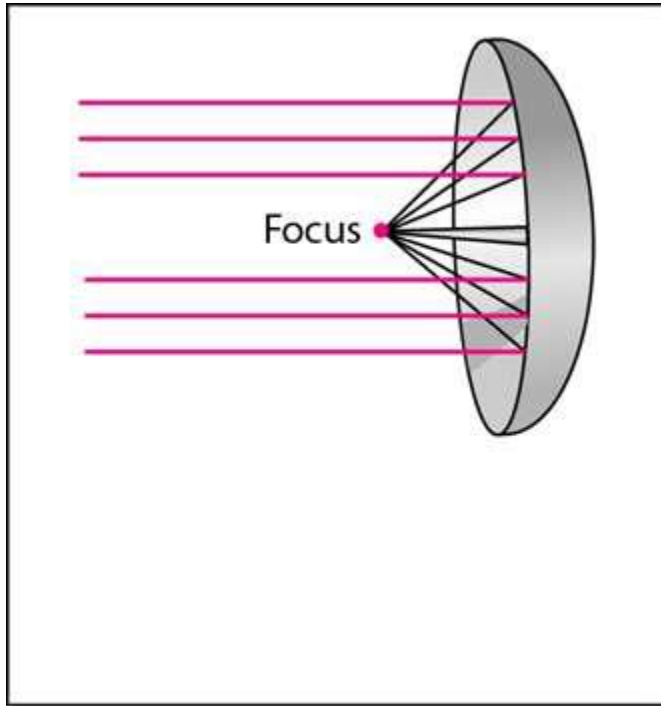
# Classification of Transmission Media



# Wireless Transmission Waves



# Unguided Media – Antennas



Dish antenna

- ✓ An Antenna is a structure that is generally a metallic object may be a wire or group of wires, used to convert high frequency current into electromagnetic waves

# Unguided Media – Antenna Types

## **Transmission antenna**

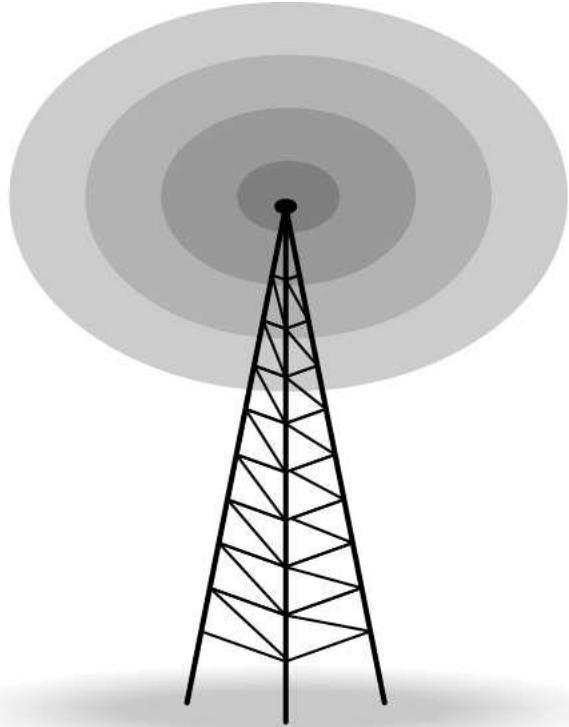
- ✓ Transmitter transmits Radio frequency
- ✓ Antenna converts Radio frequency into Electromagnetic energy
- ✓ Antenna radiates Electromagnetic energy in the surrounding area

## **Reception antenna**

- ✓ Electromagnetic energy is received by Antenna
- ✓ Antenna converts Electromagnetic energy to
- ✓ Antenna converts Radio frequency to electrical energy
- ✓ Receiver receives the Radio frequency

**Same antenna can be used for both purposes**

# Unguided Media – Radio Waves

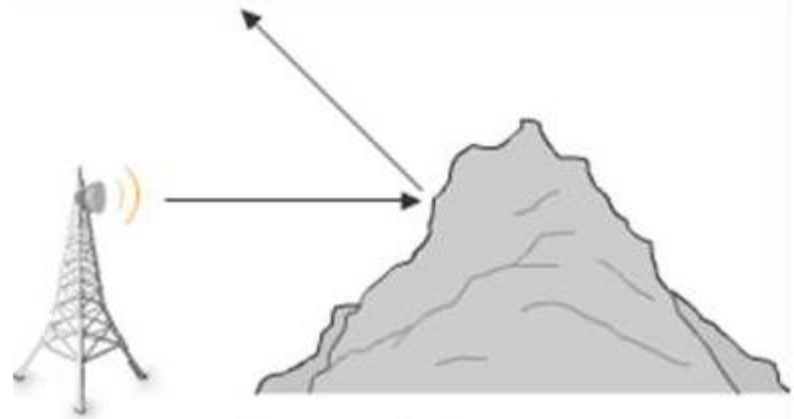


- ✓ Omni directional Antenna
- ✓ Frequencies between 3 KHz and 1 GHz
- ✓ Used for multiple way communications, such as radio and television, and paging system
- ✓ Radio waves can penetrate buildings easily, so that widely use for indoors & outdoors communication

# Unguided Media – Microwaves



**Line of Sight Propagation**



**Ground Reflected Path**

- ✓ Microwaves are ideal when large areas need to be covered and there are no obstacles in the path



# Unguided Media –Micro waves Transmission



- ✓ Microwaves are unidirectional
- ✓ Micro waves having frequency between 1 GHZ and 300 GHZ
- ✓ There are two types of micro waves for data communication system  
1. Terrestrial 2. satellite
- ✓ Micro waves are widely used for one to one communication between sender and receiver
- ✓ Example:  
Cellular phone, Satellite networks and in Wireless LANs(wifi), WiMAX, GPS

# Unguided Media – Infrared Transmission



- ✓ Frequencies between 300 GHz to 400 THz
- ✓ Used for short-range communication
- ✓ Example: Night Vision Camera, Remote control, File sharing between two phones, Communication between a PC and peripheral device

# References

- ✓ Book: Data communication and Networking  
Fourth edition  
By : BEHROUZ A FOROUZAN
- ✓ various relevant websites

Thank You