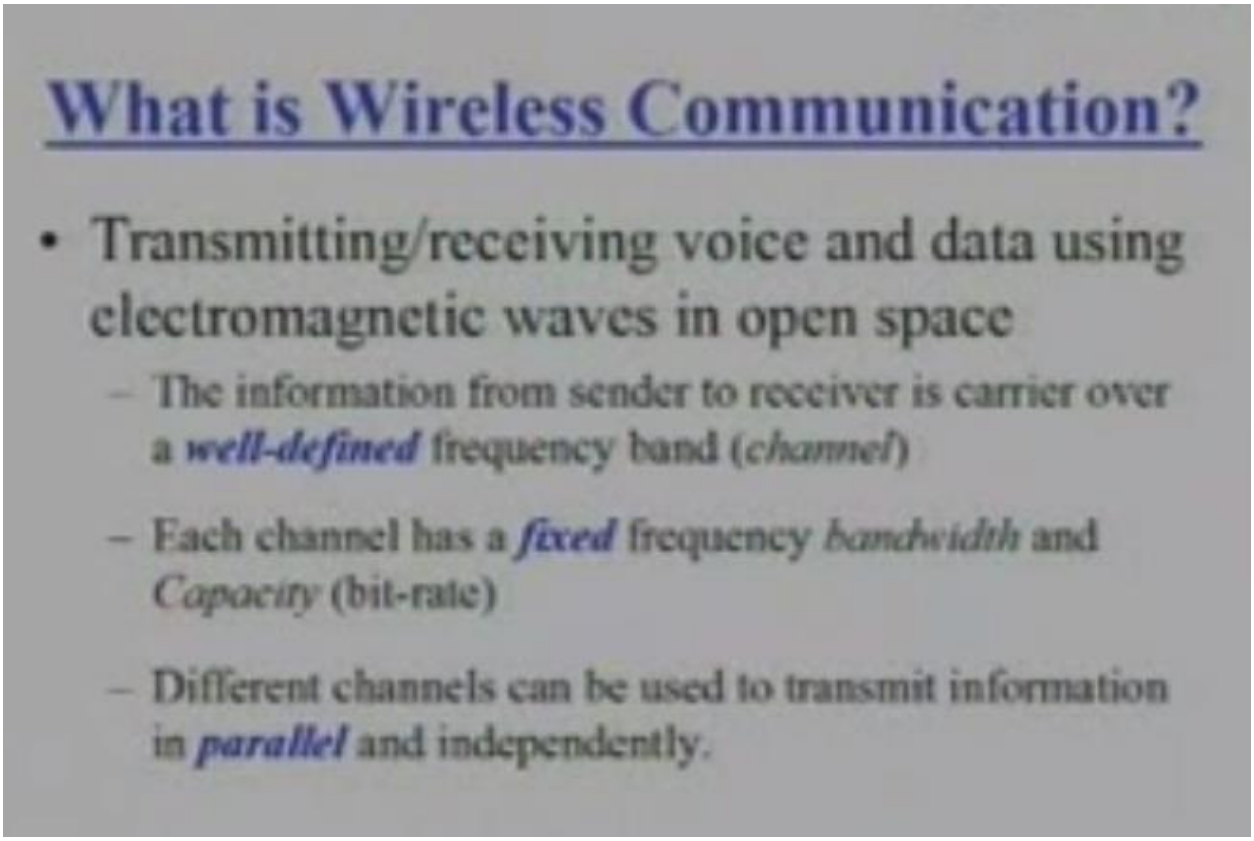
Lecture 1

Wireless Communication



Q: What is Medium

Q: What is Wireless Communicate

Not only voice

But data : Cricket email Sms

Q: Frequency Band and its issue

The information from sender to receiver is usually carried down over a well defined frequency band

Bandwidth – Price-

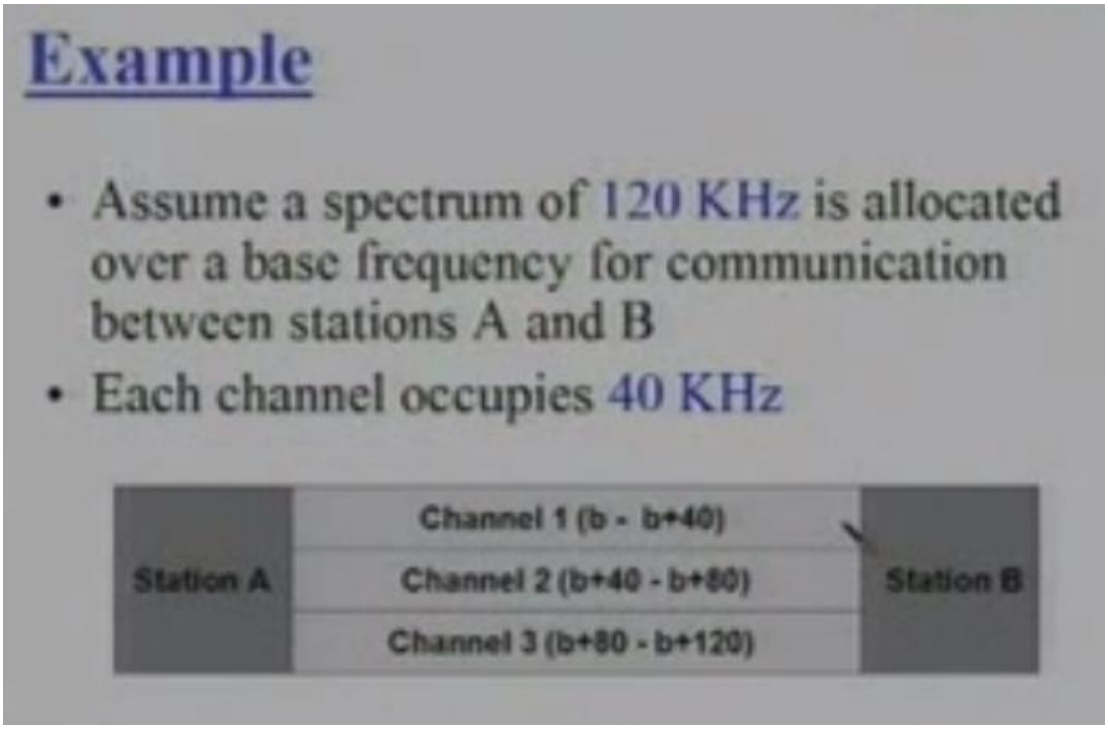
P roblem ? Frequency and Bandwidth is pricey.

<u>Each channel has a fixed frequency band width and capacity</u>

<u>Providing services to more than one users</u>

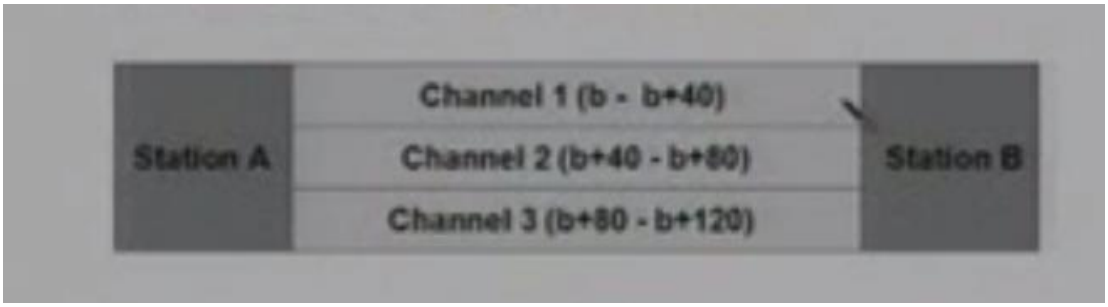
Different channels can be formed , as it is a multi user system , so we can accommodate more than one users at one time . Can be sent independently or Parallel

Defining Terminologies: A Simple Example



We have a allocation of 120 KHz bandwidth. We need to require transmit data from station A to B

<u>A Ideal Situation</u>



- Each channel occupies 40 KHZ
- Not practical possible to have sharp cut off
- Receiver will have filter

A lot of frequency will overlap in real life scenario , because of noise , and can cause interference .

So in this scenario, User A may start receiving or interacting with data b user

<u>Solution : Add Guard Band</u>

We have both type of guard bands, depending on the technique

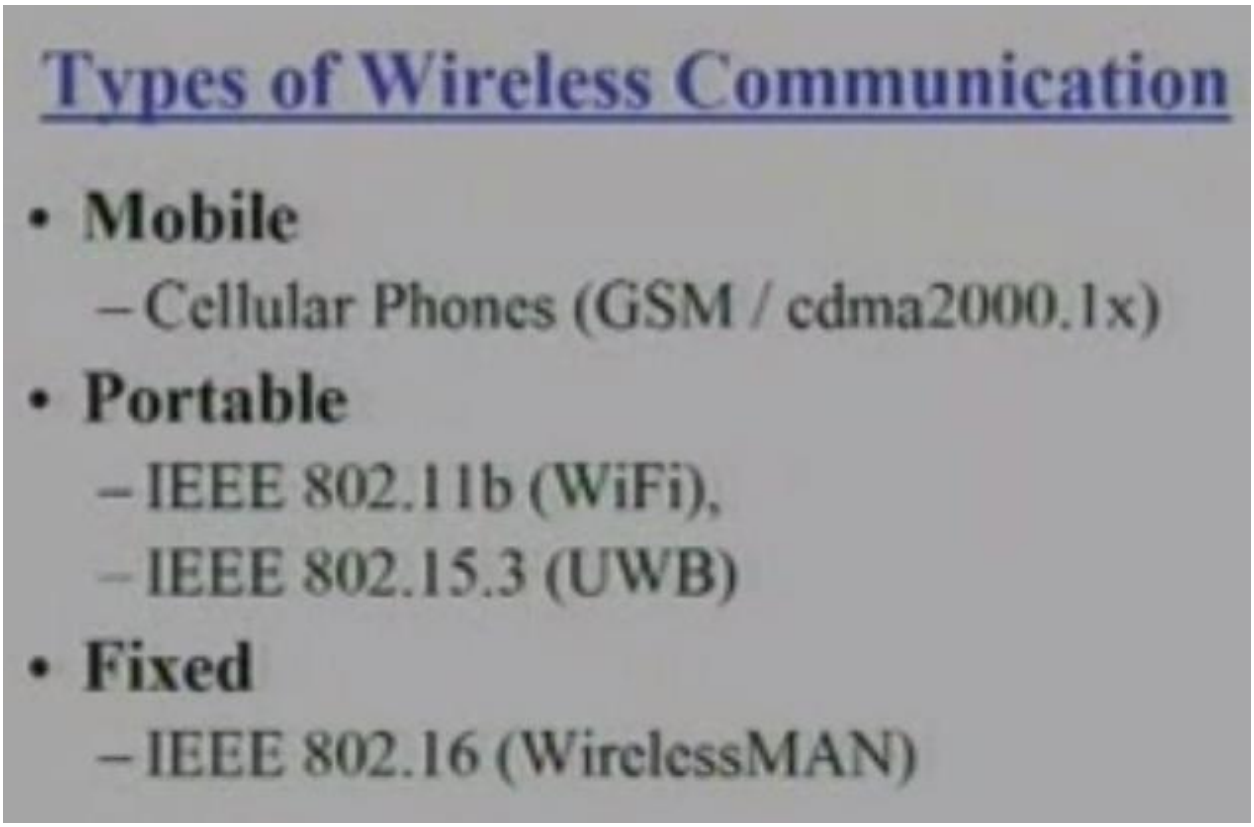
Frequency Guard Band

Time Guard Band

In this example we are having FDMA technique

- Guard band is a trait off between money and Filters
- Can not contain any data

Basic Wireless



Difference between Mobile and Portable and Fixed

- Objection : Fixed Wireless
- Advantages : Freedom of wires
  - Less installation time
  - Less hardware Requirements