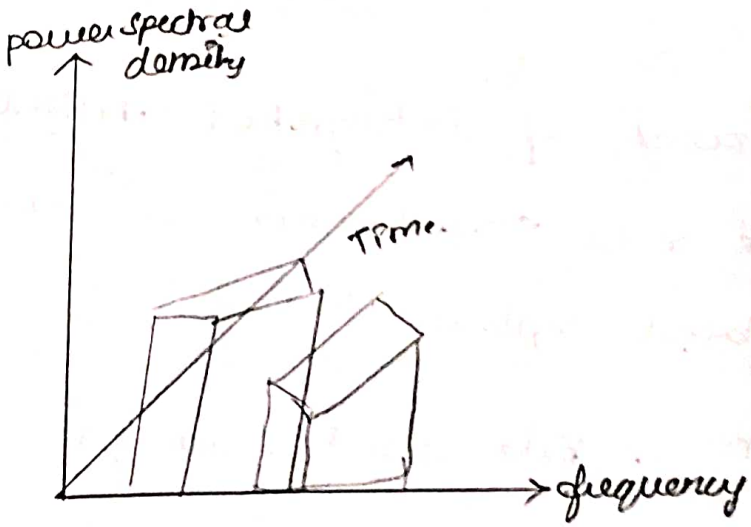
5 explain FDMA in detail and explain also enumerate the interference in FDMA.

FDMA:

⇒ It assign individual channel to individual users.

⇒ The channel are assigned on demand to users who request service

⇒ During the period of the call, no other user can share the same frequency band.



Jealous of FDMA:/

⇒ The FDMA channel carries only one phone circuit at a time

⇒ If an FDMA channel is not in use, then it cannot be used by other users to increase capacity.

⇒ After the assignment of a channel, the BS and the mobile transmit simultaneously and continuously.

⇒ Since FDMA is a continuous transmission scheme, fewer bits are needed for overhead purposes.

⇒ FDMA is usually implemented in narrowband system

⇒ The amount of inter-symbol in narrowband system.

⇒ The amount of intersymbol interference is low. So little or no equalization is required in FDMA narrowband system.

⇒ The FDMA mobile unit uses duplexers.

⇒ FDMA requires tight RF filtering to minimise adjacent channel interference.

Advantages:

⇒ Tx and Rx are little digital signal processing

⇒ Temporal synchronization is simple

⇒ It's easy to maintain.

Disadvantages:

⇒ frequency synchronization and stability are difficult

⇒ sensitivity to fading

⇒ sensitivity to random frequency modulation

⇒ Intermodulation.

Non - linear effect in FDMA:

⇒ Spreading of the spectrum results in adjacent - channel interference.

⇒ It cause signal spreading in frequency domain and generate IM.

Discuss the service the following system with its usage. i) Intelsat ii) Insat series iii) VSAT.

Intelsat Series:

⇒ Intelsat stands for International Telecommunication Satellite.

⇒ The organization was created in 1964 and currently over 140 member countries.

⇒ Intelsat became a private company and in may 2002 the company began providing end to end solution through a network of teleports, leased fiber and points of presence around the globe.

ii) Insat series:-

⇒ It is a series of multipurpose geostationary satellite launched by ISRO.

⇒ It's largest domestic communication system in Asia pacific region.

purpose:-

⇒ Telecommunication, Broadcasting.

Series :-

i) Insat -1 series:-

⇒ It is used to expand the TV & modern telecommunication facilities to all remote areas.

ii) Insat -2 series :-

⇒ It is used to provide zonal and global coverage with an EIRP of 36dBW

iii) Insat -3 Series:-

⇒ Insat 3D, Insat 3D, Insat 3E.

⇒ Kalpana -1, edusat, Gsat-2.

iii) VSAT :-

⇒ very small Aperature terminal system

⇒ feature: smaller size (i.e) not more than 1.8 m in diameter

ex:- Small TVRO terminals for direct broadcast satellite as VSAT.

Vsat Communication Network :/

Hub Station :/

⇒ It is operated by the service provider

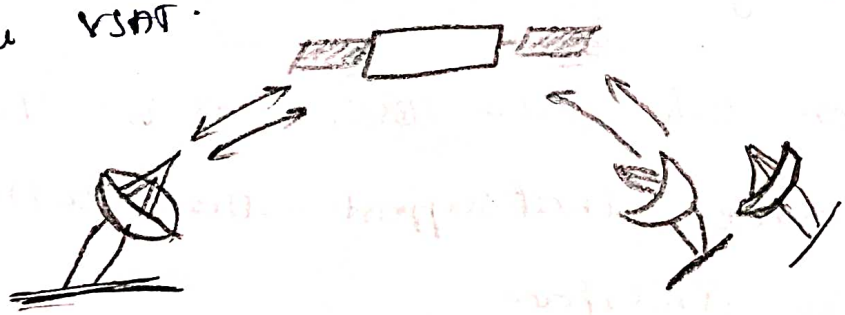
⇒ It may be shared among a multiple and users.

VSATs :/

⇒ each user has an exclusive access to its own vsat Network.

⇒ end users :- small office with many users, supermarket shops etc...

⇒ Address coding method is used to select particular VSAT.



Application :/

⇒ Supermarket shop

⇒ Atm machines, chemist shop

⇒ Banking & financial Institution.

3) Main features offered by mobile satellite system:/

Mobile Satellite Service:/

⇒ Initially developed to support a standardized approach to digital cellular communication in europe

⇒ The Global System for mobile communication protocol are rapidly being adopted to the next generation of wireless telecommunication system.

⇒ Mobile station: Those digital telephone, portable and hand held terminal. A device can be Subscriber Identity Module.

⇒ Base station sub-system (BSS) – It is the collection of devices that support the switching network radio interface.

⇒ It consist of radio modem and antenna equipment.

⇒ The Network and switching system – The NSS provide the switching between the GSM Subsystem and external work along with the database used for additional subscriber and mobility management.

The operation Sub-system:/

The OSS provide the support function responsible for the management of network maintenance and services.

Advantage:/

⇒ It include secure network & extensive coverage

⇒ Its broad range of accessories and handset.

Disadvantage:/

⇒ Lag of Bandwidth

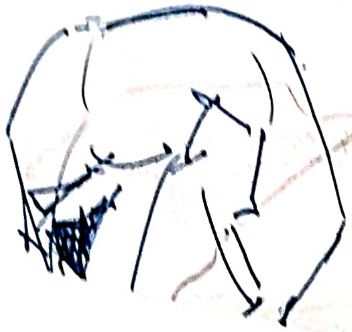
⇒ Limited rate of data transfer

⇒ Repeater

⇒ It's not flexible

⇒ It cannot be located anywhere due to messy wire.

R. MOHAN RAJ.



~~ROJA~~
~~BE(ECE)~~
C.Nithiyasri

Application:

- ⇒ digital cellular technology
- ⇒ medical service
- ⇒ GSM and data security
- ⇒ It's computer based SMS and MMS services