

## Disadvantages of Optical Fibre Cable:-

- ⇒ • The cable is more expensive than copper cable.
- It is difficult to install.

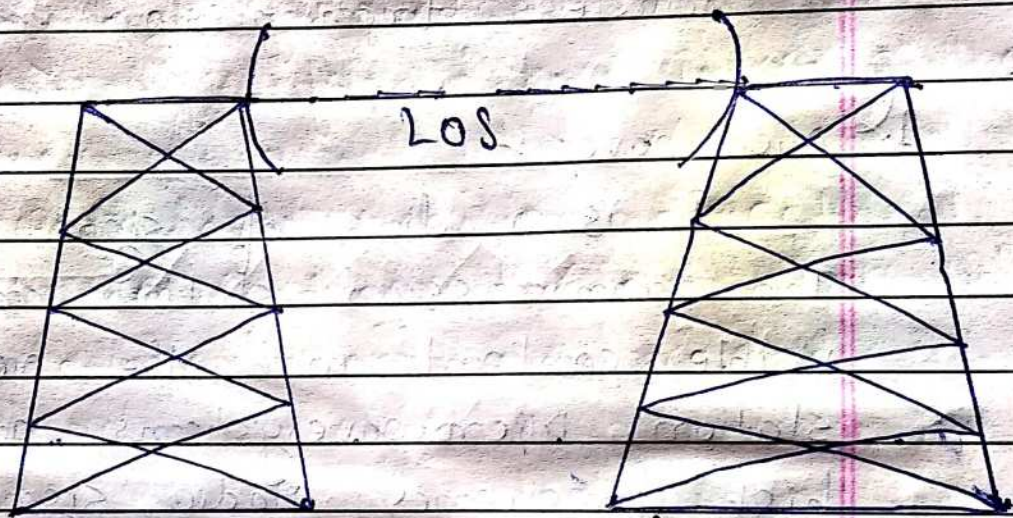
Topic:- Unguided or, unbound or, wireless transmission media

### 1) Microwaves :-

It is a line of sight transmission. The transmission station must be visible content with the receiver station. Microwave systems are used high frequency radio signal to transmit data through space. However at microwave frequency electromagnetic waves can't pass like tall building or hills. Hence, transfer & receiver of a microwave system mounted on very high tower. Should be in line of sight and power amplification. Microwave system use repeater & interval of about 25km to 30km in b/w transmitting and receiving system. First repeater is placed in line of sight of receiving



station. Data signal are received, amplified and transmitted by each of these station. Microwave system have speed of 16 Gbps & they can support about 2,50,000 voice simultaneously.



Transmitting  
End

Receiving  
End

Advantage of Microwaves

- Microwave spectrum has large bandwidth and hence, large amount of information can be transmitted.
- It has ability to communicate over ocean.
- Microwave communication is in use since earlier days as one of the line



of sight communication in hill station or remote area where other means of wire communication is not possible to be installed. Microwaves communication are perfect for this places.

## Disadvantage of Microwaves:-

- Microwave communication is insecure communication.
- Microwave propagation is affected by weather like rains & thunderstorm etc.
- Bandwidth allocation is streamly limited.
- The cost of design, implementation of microwave is high.

## 2) Radiowave:-

A radiowave is generated by a transmitter and then detected by a receiver. An antenna allow a radio transmitter to send energy into space & a receiver to pick up



energy from space. Transmitter & receiver are typically designed to operate over a limited range of frequencies. Radiowaves has frequency b/w 10KHz to 1GHz. Radiowaves include the following types -

- a) Shortwave
- b) Very high frequency, TV & Radio. F.M.
- c) Ultra high frequency, TV & Radio.

Radiowaves are omnidirectional that means they travel in all direction from the source.

### Satellite:-

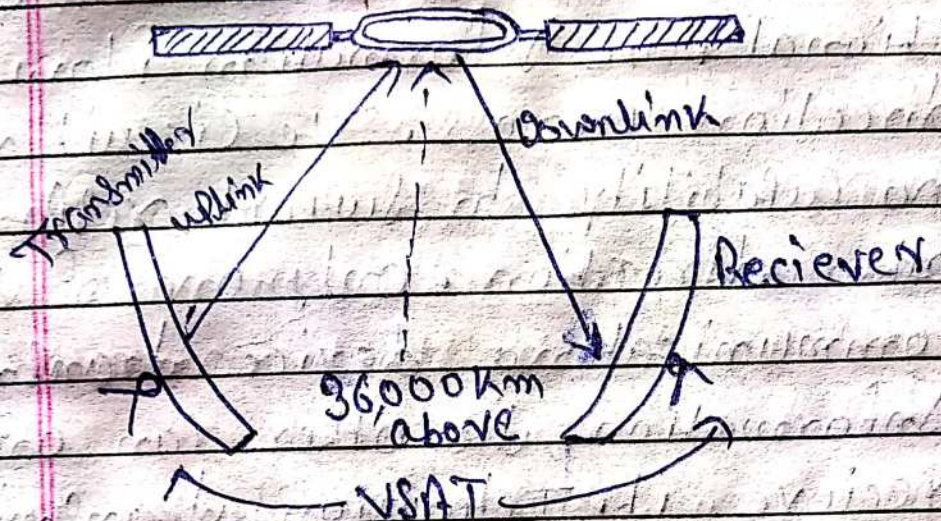
⇒ Satellite transmission is also a kind of line of sight transmission. Satellite is in stationary orbit directly often the equator. which rotate in synchronization to earth hence, look stationary from any point of earth. The orbit are placed 36000km above the earth surface.

The communication is carried through uplink and downlink and are also called earth station because they located



On the earth, uplink transmits the data to the satellite and downlink receives the data from the satellite.

Satellite in space (transponder)



(Very Small Aperture Terminal)

VSAT:-

⇒ VSAT is a satellite communication that serves home and business users. A VSAT end user needs a box that interfaces between the user's computer and an outside antenna with a transceiver.

~~Point~~ - Data Transmission Mode.

⇒ The transmission of data between source to destination is called data transmission.

Data transmission mode refers to the direction of signal flow between two link devices. There are