

Topic:- Co-axial Cable.

⇒ Co-axial cable has a single central conduction which is made up of solid wire. This conduction is surrounded by an insulation over which sleeve of is or woven to block any outside interference. This is again shielded by and outer covering of a thick material known as Jacket. Although Co-axial cable is difficult to install, it is highly resistance to signal interference. It can support greater cable length between network devices than twisted pair cable. It also offer higher bandwidth. A Co-axial cable is capable of transmission data rate of 10 mbps. It is more expensive per foot but cheaper per byte of data are transferred in a record. Co-axial cable is used in cable T.V. Network.

Categories of Co-axial Cable:-

Category

RG-59

RG-58

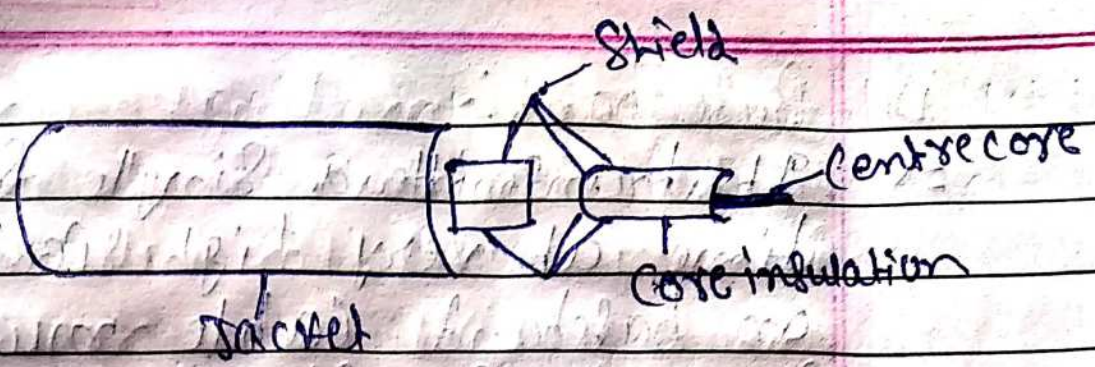
RG-11

Use

Cable TV

Thin Ethernet

Thick " " "



Advantage of Co-axial Cable

- ⇒ • It can be longer distance than shield pair cable and unshield pair cable without the need of repeater.
- Co-axial cable is less expensive than fibre optic cable.
- It has greater capacity than UTP cables.
- It has higher bandwidth upto 400 mbps.

Disadvantage of Co-axial Cable

- ⇒ • Co-axial cable is more expensive to install than Twisted Pair cable.
- It has a limited number of connection that can be made to it.
- It is limited in its distance.

Type of Co-axial Cable

- ⇒ There are two types of Co-axial cable —

i) Base band:-

⇒ It transmits a single signal at a time at very high speed. The signal on baseband cable must be amplified at a specified distance. It is used for local area network.

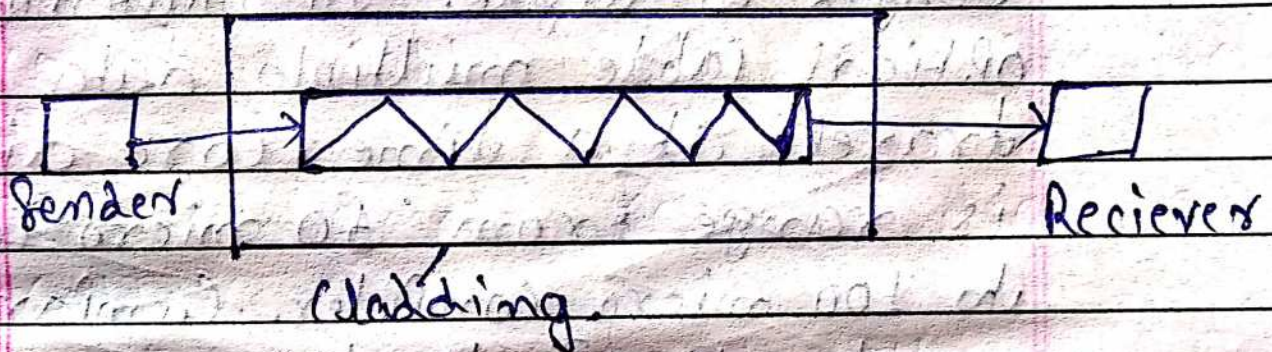
ii) Broad band:-

⇒ It can transmit many signals simultaneously at a time using different frequencies.

Topic:- Optical Fibre Cable:-

⇒ Optical fibre cable is used in high speed and longer distance network. It uses light wave data and control signal transmission. Their light waves are converted into electrical waves using some device within a network. Fibre optical cable is made up of fibre or glass material that is coated with reflecting material known as cladding. Finally, their whole structure is encapsulated into plastic jacket. Fibre or glass is used for travelling data or control signals. It is

used to reflect back to the fibre. The light wave is transmitted through fibre is based on total internal reflection principle as source of light it uses monochromatization and coherent ultra diode ultra transistor responsible for optical signal into electrical signal. The speed of internet services are 100 mbps.



Types of Optical Fibre/Cable

There are two types of optical fibre/cable —

- i) Single mode fibre
- ⇒ Single mode fibre is used for inter building backbone cable, at a distance upto 3km in single mode fibre optical cable transmits single data ray at a time. Single mode fibre will deliver data rates upto 10 Gb/s with a bandwidth 20 GHz. It

Operating wavelength are 1310 nm and 1550 nm. Single mode fibre Primary used for full motion video and any application requiring streaming high bandwidth.

(ii) ~~Mult~~ Multi mode fibre:-

⇒ In this case the core diameter relatively large compare to wavelength of light. In multimode fibre optical cable multiple data ray travel at a time. Core diameter is range from 50 micro computer to 100 micro computer. Compare to wavelength of the light out 1 micro meter this means that the light can propagate through the fibre in different ~~but~~ ray path modes.

Advantages of optical fibre cable:-

- ⇒ • It operate at high speed.
- It has a large carrying speed.
- It is ~~imm~~ immune to interface cause by electromagnetic such as radio, motors or other cables.
- It is cheaper to maintain.

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