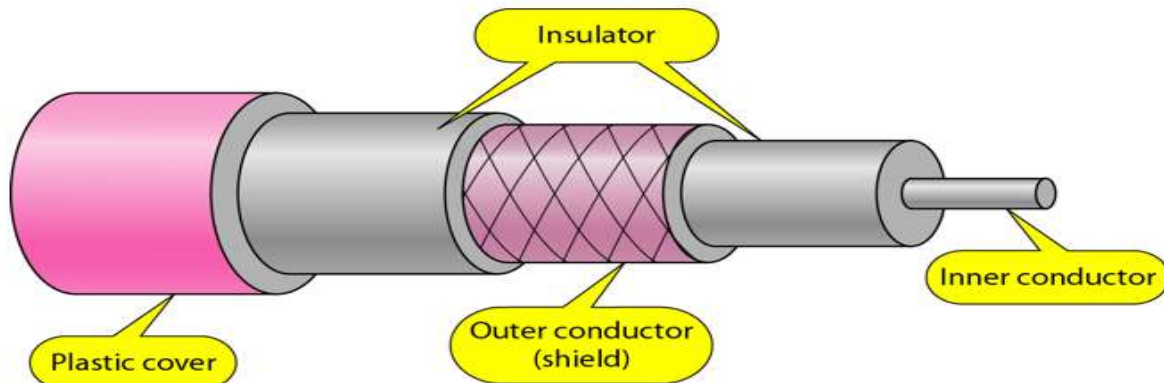


## **Coaxial cable:**

Coaxial cable (also known as coax) is used to pass radio frequency (RF) signals in the form of a transverse electromagnetic wave. Coax can transmit signals over larger distances at a higher speed as compared to twisted pair cables. The design of coaxial cable consists of an inner conductor surrounded by a dielectric layer, which is then enclosed in a cylindrical sandwich that contains additional layers of shielding as well as an outer protective jacket to prevent damage to the signal carrying components during installation or from environmental stresses. Coaxial cables are commonly used as transmission lines and can transmit high-frequency signals at low loss.



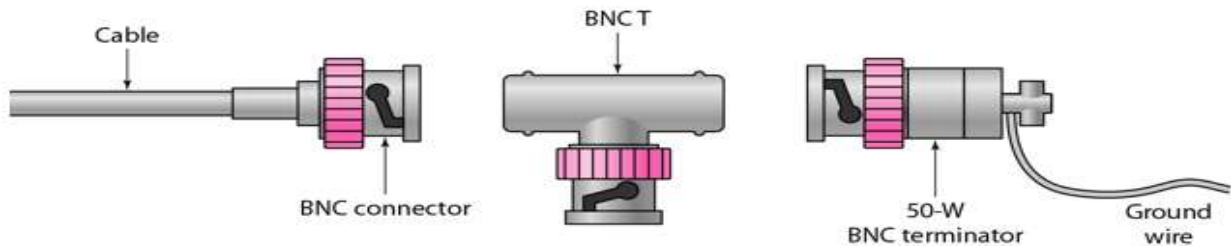
## **Coaxial Cable Standards:**

Coaxial cables are categorized by their Radio Government (RG) ratings. Each RG number denotes a unique set of physical specifications, including the wire gauge of the inner conductor, the thickness and the type of the inner insulator, the construction of the shield, and the size and type of the outer casing. Each cable defined by an RG rating is adapted for a specialized function, as shown in the table below:

<i>Category</i>	<i>Impedance</i>	<i>Use</i>
RG-59	75 $\Omega$	Cable TV
RG-58	50 $\Omega$	Thin Ethernet
RG-11	50 $\Omega$	Thick Ethernet

## Coaxial Cable Connectors:

The most common type of connector used today is the Bayonet Neill-Concelman (BNC) connector, the BNC T connector and the BNC terminator.



The **BNC connector** is used to connect the end of the cable to the device, such as a TV set. **The BNC T connector** is used in Ethernet networks to branch out to a connection to a computer or other device. **The BNC terminator** is used at the end of the cable to prevent the reflection of the signal.

### Advantages:

Bandwidth is high  
Much higher noise immunity

### Disadvantages:

Difficult to install and expensive when compared with twisted pair

### Applications of Coaxial Cable:

- Cable TV networks
- Traditional Ethernet LAN
- Live broadcast of a sport event from the stadium to a studio

### Exercise:

1. What is coaxial cable? Explain with a neat diagram.
2. Compare twisted pair cable with coaxial cable.