

Transmission Impairment

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Analog signals while travelling through the transmission media, (say copper wire), tends to deteriorate in the quality, hence the received signal varies from the original one. This phenomena is called transmission impairment.

There are many causes of impairment. These are

→ Attenuation - It is simply the loss of strength or energy of the travelling signals. The travelling signals tend to lose over long distances. The use of amplifiers at the regular intervals gives the necessary boost-up to the signals.

→ Distortion - The phenomena of change of signals in shape is called distortion of signals.

→ Noise - Random or unwanted signals that mixes up with the original signal is called noise. The noise can be further of four types.

(a). Induced noise : It comes from motor

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and other appliances.

(b) Thermal noise : It is caused due to the movement of electrons in wires.

(c) Crosstalk : It is the phenomena in which one wire affects other.

(d) Impulse : It is a signal with high energy that comes from lightning or power lines.

Various mechanisms like the use of amplifiers, proper shielding of the transmission media, use of insulating materials and mesh structures over the copper wire and proper distance between two conducting wires is maintained to do away with transmission impairment. Although it is impossible to cut down on impairment hundred per cent yet a considerable amount of reduction is achieved with proper mechanism.

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