

Tutorial 4 - Signal Transmission

1. A radio transmitter is connected to an antenna by a length of cable. If the wavelength of the signal on the cable is 0.8 times the wavelength in free space, determine the velocity of the signal along the cable.
2. GSM 900 uses carrier frequency from 890 MHz to 915 MHz to send information from the mobile phone to the base station (uplink). Calculate the minimum antenna length for efficient transmission.
3.
 - (a) Define modulating signal and modulation.
 - (b) Name the input and output signals of a modulator.
 - (c) Give 3 reasons for the need of modulation.
 - (d) Name three examples of analog modulation.
Name three examples of digital modulation.
4.
 - (a) Give the frequency range for frequency bands MF, VHF, and UHF..
 - (b) Name one application for each of these frequency bands.
5. Describe briefly transmission impairments.