Effect of Environment on Electromagnetic wave Lecture-16

TDC PART -1

PAPER 1(GROUP B)

Chapter -6

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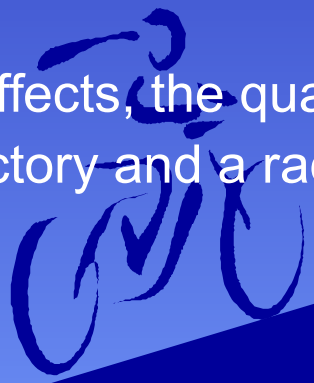
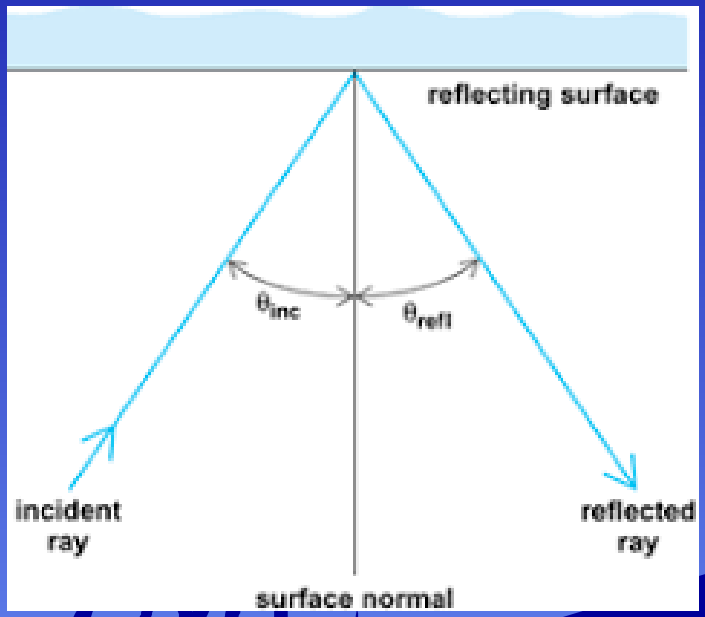
Effects of Environment on Electromagnetic wave

- Electromagnetic waves on the road are exposed to various environmental influences causing phenomena such as bending, reflection, refraction, absorption and multiple propagation.
- Note: Due to these environmental effects, the quality of information transmission is not satisfactory and a radio-relay link is not reliable.



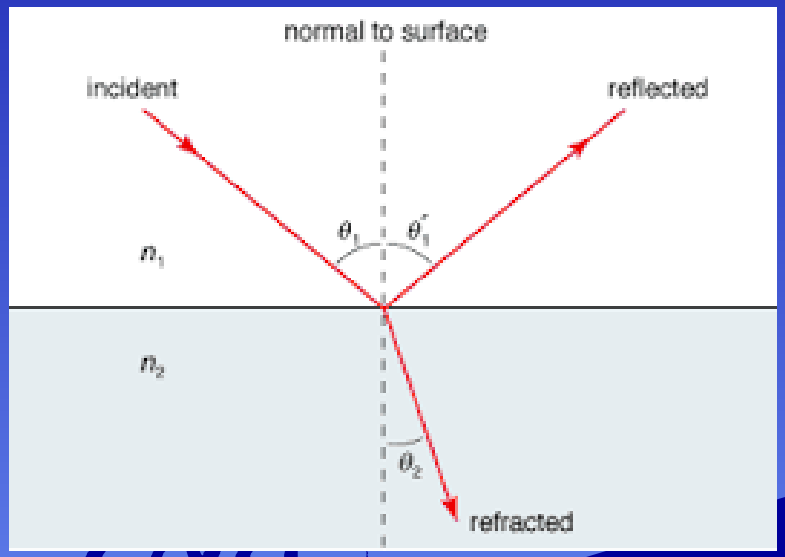
Reflection of electromagnetic wave

- The reflection of electromagnetic radiation involves the returning or throwing back of the radiation by a surface upon which the radiation is incident. A reflecting surface is generally the boundary between two materials of different electromagnetic properties.



Refraction of Electromagnetic waves

- When an electromagnetic wave hits a boundary between different materials, some of the wave's energy is reflected back while the rest continues on through the second material, although the direction of the continuing wave may be somewhat different from the original wave's;



Absorption of electromagnetic waves

- Electromagnetic radiation can be absorbed by any particle that carries electric charge.
- The absorption of electromagnetic radiation helps determine the visible appearance of objects.

- Absorption of electromagnetic radiation can occur only in quantized amounts.

- Heating, ionization, fluorescence, and other effects are triggered by the absorption of electromagnetic radiation.