

4.6. Relation between field theory and circuit theory

Circuit Theory:

- 1) This analysis is originated by its own.
- 2) Applicable only for portion of radiofrequency range.
- 3) It is dependent and independent parameter, I and V are directly obtained from the given circuit.
- 4) Parameters of medium are not involved.
- 5) Laplace Transform is employed.
- 6) Z, Y and H parameters are used.
- 7) Low power is involved.
- 8) Simple to understand.
- 9) 2 Dimensional analysis.
- 10) Frequency is used for reference.
- 11) Lumped components are used.

Field Theory:

- 1) Evolved from transmission ratio.
- 2) Not applicable for portion of radiofrequency range.
- 3) Not directly obtained from E and H.
- 4) Parameters (Permeability and Permittivity) are analysed in the medium.
- 5) Maxwell's equation is used.
- 6) S parameter is used.

- 7) High Power is involved.
- 8) Needs visualisation effect.
- 9) 3 Dimensional analysis.
- 10) Wavelength is used as reference.
- 11) Distributed components are used.

