UE 31 – RF EMC Antennas

- Pr(dB) = Pe– Lc+ G1+ G2– (22+20*log(d/λ))

  Pr : power received

  Pe: power emitted

  Lc: loss in cable

  G1 and G2: antenna gain

  22+20log(d/ λ) : loss in the air or path loss

total loss = G1 + G2 – path loss-Lc (dB)

- The mismatch of a load Z_L to a source Z_0 results in a reflection coefficient of:

$$R = \frac{Z_L - Z_S}{Z_L + Z_S} \qquad R = \frac{V_{incident}}{V_{refelected}}$$

- Voltage Standing wave ratio (VSWR, ROS in french) can be calculated from the magnitude of the reflection coefficient:

$$VSWR = \frac{1+|R|}{1-|R|} \qquad \mathrm{Re}\,turnloss = 20\log_{10}\left(\frac{VSWR-1}{VSWR+1}\right)$$