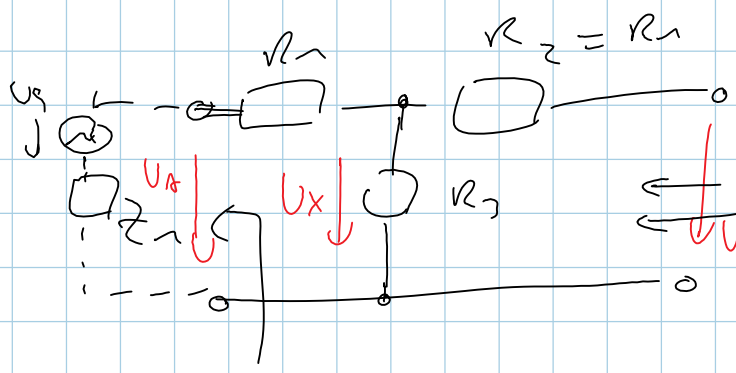
GGÜ 7

Dienstag, 17. Mai 2011
14:01



$$r_1' = \frac{Z_1 - Z_L}{Z_1 + Z_L}$$

$$r_1 = r_1' \cdot a$$

$$r_1' = \frac{Z_{in} - Z_L}{Z_{in} + Z_L} = 0$$

1.) $Z_1 = Z_L \Rightarrow r_1' = 0$

2.) $Z_1 = Z_L \Rightarrow 10 \log \left| \frac{U_B}{U_A} \right|^2 = a \underset{z.B.}{=} 20 dB$

1.) $(Z_L + R_1) \parallel R_3 + R_2 = Z_L$

2.) $\frac{U_B}{U_A} = \frac{U_A}{U_X} \cdot \frac{U_X}{U_B} = \frac{Z_L}{(R_1 + Z_L)} \cdot \frac{(Z_L + R_1) \parallel R_3}{(Z_L + R_1) \parallel R_3 + R_2}$

3.) $R_1 = R_2$

2.3.3 breitbandige Messtechnik (EMV)

Quiz 1.2.3

$\tan \alpha_1 = \sqrt{\frac{\varepsilon_{r2}}{\varepsilon_{r1}}}$

$\frac{\varepsilon_{r1}}{\varepsilon_{r2}} = 2{,}25$

$\Rightarrow \alpha_1 = 56{,}9°$

$\frac{\varepsilon_{r2}}{\varepsilon_{r1}} = \frac{1}{2{,}25}$

$\Rightarrow \alpha_1 = 33{,}7°$

1.2.4 ... $a_{1,0}$

1.2.4 $\Rightarrow \alpha = 90°$

1.2.5 $\sqrt{\varepsilon_{r1}} \sin\alpha_1 = \sqrt{\varepsilon_{r2}} \cdot \sin\alpha_2$

formal $\alpha_2 = 90°$

$\Rightarrow \sin\alpha_1 = \sqrt{\frac{\varepsilon_{r2}}{\varepsilon_{r1}}}$

$\frac{\varepsilon_{r2}}{\varepsilon_{r1}} = 2{,}25$

↳ kein α_{1T}

$\frac{\varepsilon_{r2}}{\varepsilon_{r1}} = \frac{1}{2{,}25}$

↳ $\alpha_{1T} = 41°$

1.2.6

$\frac{\varepsilon_{r2}}{\varepsilon_{r1}} = 2{,}25$

$r(\alpha_1 = 0) = \frac{Z_{F2} - Z_{F1}}{Z_{F2} + Z_{F1}} = \frac{\frac{Z_0}{\sqrt{\varepsilon_{r2}}} - \frac{Z_0}{\sqrt{\varepsilon_{r1}}}}{\text{“} + \text{“}}$

$= \frac{\sqrt{\varepsilon_{r1}} - \sqrt{\varepsilon_{r2}}}{\text{“} + \text{“}} = \frac{1 - \sqrt{\frac{\varepsilon_{r2}}{\varepsilon_{r1}}}}{1 + \sqrt{\frac{\varepsilon_{r2}}{\varepsilon_{r1}}}}$

$= \frac{-0{,}5}{2{,}5} = -0{,}2$

2,5