数学作业纸

班级：180231 姓名：钱思远 编号：18373038 科目：微波 2-7 第 页

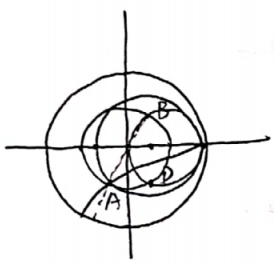
2.33

解：A：$\bar{z}_L = 0.5 - j0.5$

确定 等电阻、电抗、反射系数圆.

A 旋转 180° 得 B

$\bar{r}_L = \bar{r}_B = 1+j$ $\bar{l}_B = 0.162$.



① B点恰好在 G=1 圆上，C点.

$\bar{l}_C = \bar{l}_B = 0.162$.

$l_1 = 0$.

$\bar{r}_2 = -j$ 从短路点出发，顺时针旋转（源顺负逆）

$\bar{l}_2 = 0.125\lambda$.

② B点顺时针旋转至D点.

$\bar{l}_D = 0.338$. $\bar{r}_D = 1-j$

$l = (\bar{l}_D - \bar{l}_B)\lambda = 0.176\lambda$

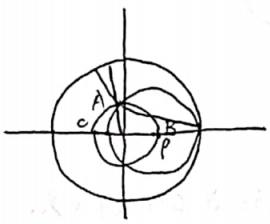
$\bar{r}_2 = +j$.

$l_2 = 0.375\lambda$.

2.34

解：$z_L = 0.6 + j0.5$

负载不为纯电阻.



$\rho = 2.25$. $\bar{l}_A = 0.095$.

B点：$l = (0.25 - 0.095)\lambda = 0.155$ m.

$z_{01} = \sqrt{z_0 z_0 \cdot \rho} = 75\Omega$.

C点. $l = (0.5 - 0.095)\lambda$

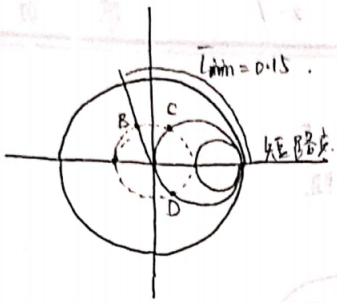
$z_{01} = \sqrt{\frac{z_0^2}{\rho}} = 33.2\Omega$.

扫描全能王 创建

2-35.

采用导纳圆图

$P=5$



$\bar{l}_B=0.1$

~~解:~~

B点顺时针旋转与 $G=1$ 交于 C点.

$\bar{l}_C=0.183$. $\bar{Y}_C=1+j1.8$.

$\bar{d}_1=\bar{l}_C-\bar{l}_B=0.083$.

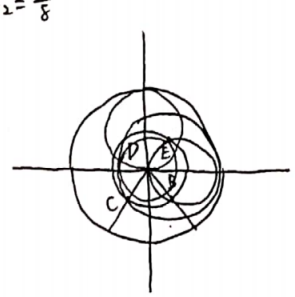
$\bar{Y}_2=-1.8j$ $\bar{l}_1=0.331-0.25=0.081$

2-36.

$\bar{Z}_L=0.5+0.5j$ $\bar{Y}_L=1-j1$

采用导纳圆图

$d_2=\frac{2}{8}$



$\bar{l}_B=0.338$.

顺时针旋转 $\bar{d}_1=0.1$. $\bar{l}_C=0.438$.

$\bar{Y}_C=0.43-j0.34$

改变 $\bar{Y}_C$ 电纳组. 使其落在 D点.

$\bar{Y}_D=0.43+j0.16$.

$\bar{Y}_1=0.5j$

$\therefore \bar{l}_G=0.073$. $\bar{l}_1=0.323$.

辅助圆绕原点顺时针转至 $G=1$ 处.

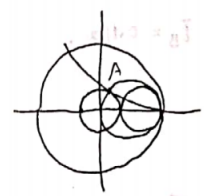
$\bar{Y}_E=1+j0.85$.

$\bar{Y}_2=-j0.85$.

$\bar{l}_2=0.138\lambda$.

2-37.

解: $\bar{Z}_L=\frac{Z_L}{Z_0}=1-j0.67$.



$P=1.95$

$|\Gamma_2|=\frac{P-1}{P+1}=0.32$.

① 无耗.

$P^-=|\Gamma_2|^2P^+=1.024$.

$P=P^+-P^-=8.976$.

② 有耗.

$A=\alpha L=0.2\,dB\approx 0.023\ Np$.

$P^+=10\cdot e^{-2\times0.023}=9.550$.

$P=P^+(1-|\Gamma_2|^2)=8.573$

扫描全能王 创建

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2-38.

B: $\bar{z}_{L1} = \frac{-j50}{50} = -j$

$\bar{r}_B = 0.125$.

$\bar{r}_C = 0.125 + \frac{1}{6} = 0.292$.

由 ρ 可确定 z_L 所在等反射系数圆

$\bar{z}_L = 1.82 + j0.9$

$z_L = 91 + j45$

扫描全能王 创建