

$$L_0 = 1 \text{ H/km}$$

$$C_0 = 10^{-2} \text{ F/km}$$

$$\omega = 10^4 \frac{\text{rad}}{\text{s}}$$

$$l_1 = 5 \text{ km}$$

$$l_2 = 5 \text{ km}$$

$$X_c = 10 \Omega$$

$U(x) = ?$   
 or  $U(y) = ?$

$$Z_c = \sqrt{\frac{L_0}{C_0}} = \sqrt{\frac{1}{10^{-2}}} = 10 (\Omega)$$

$$\beta = \omega \sqrt{L_0 C_0} = 10^4 \sqrt{1 \cdot 10^{-2}} = 1000 \left( \frac{\text{rad}}{\text{km}} \right)$$

$$\begin{aligned} Z_{in2} &= j Z_c \operatorname{tg} \beta l_2 = j 10 \operatorname{tg}(10^3 \cdot 5 \cdot 10^{-3}) = \\ &= j 10(-3,38) = -j 33,8 (\Omega) \end{aligned}$$

$$Z_{se1} = \frac{-j X_c \cdot Z_{in2}}{-j X_c + Z_{in2}} = \frac{-j 10(-j 33,8)}{-j 10 + j 33,8} =$$

$$= \frac{-338}{-j 43,8} = f(1042 \text{ (se)}) = -j 7,72 (\Omega)$$

$$Z_{in1} = Z_c \frac{Z_{se1} + j Z_c \operatorname{tg} \beta l_1}{Z_c + j Z_{se1} \operatorname{tg} \beta l_1} = 10 \frac{-j 7,72 + j 10(-3,38)}{10 + j(-j 7,72)(-338)} =$$

$$= 10 \frac{-j 41,52}{10 + (-26,09)} = j 25,80 (\Omega)$$

$$\dot{I}_{11} = \frac{U_{11}}{Z_{in1}} = \frac{10}{j 25,80} = -j 0,39 (\text{A})$$

$$\begin{aligned} \dot{I}_{12} &= -j \frac{U_{11}}{Z_c} \sin \beta l_1 + \dot{I}_{11} \cos \beta l_1 = -j \frac{10}{10} \sin(10^3 \cdot 5 \cdot 10^{-3}) + \\ &+ (-j 0,39) \cos(10^3 \cdot 5 \cdot 10^{-3}) = -j(-0,96) - j 0,39(-0,96) = \end{aligned}$$

$$= j 0,96 + j 0,37 = j 1,33 (\text{A})$$

$$= j 0,96 - j 0,11 = j 0,85 (\text{A})$$

$$U_{12} = I_{12} \underline{z}_{ser} = j 0,85 (-j 4,12) = 6,56 \text{ (V)}$$

$$U_{21} = U_{12} = 6,56 \text{ (V)}$$

$$I_{21} = \frac{U_{21}}{\underline{z}_{\dot{u}2}} = \frac{6,56}{-j 33,8} = j 0,19 \text{ (A)}$$

$$I_{22} = -j \frac{U_{21}}{z_c} \sin \beta l_2 + I_{21} \cos \beta l_2 =$$

$$= -j \frac{6,56}{10} (-0,96) + j 0,19 \cdot 0,28 = j(0,63 + 0,05) =$$

$$= j 0,68 \text{ (A)}$$

$$U_{22} = U_{21} \cos \beta l_2 - j I_{21} z_c \sin \beta l_2 =$$

~~$$= 6,56 \cdot 0,28 - j j 0,19 \cdot 10$$~~

$$= 6,56 \cdot 0,28 - j j 0,19 \cdot 10 (-0,96) = 1,84 - 1,82 = 0,02 \text{ V.} \\ \approx 0$$

(Taked apūntus lide sītu pavadu, jo  
2. līn. slogots ar īsslogumu)

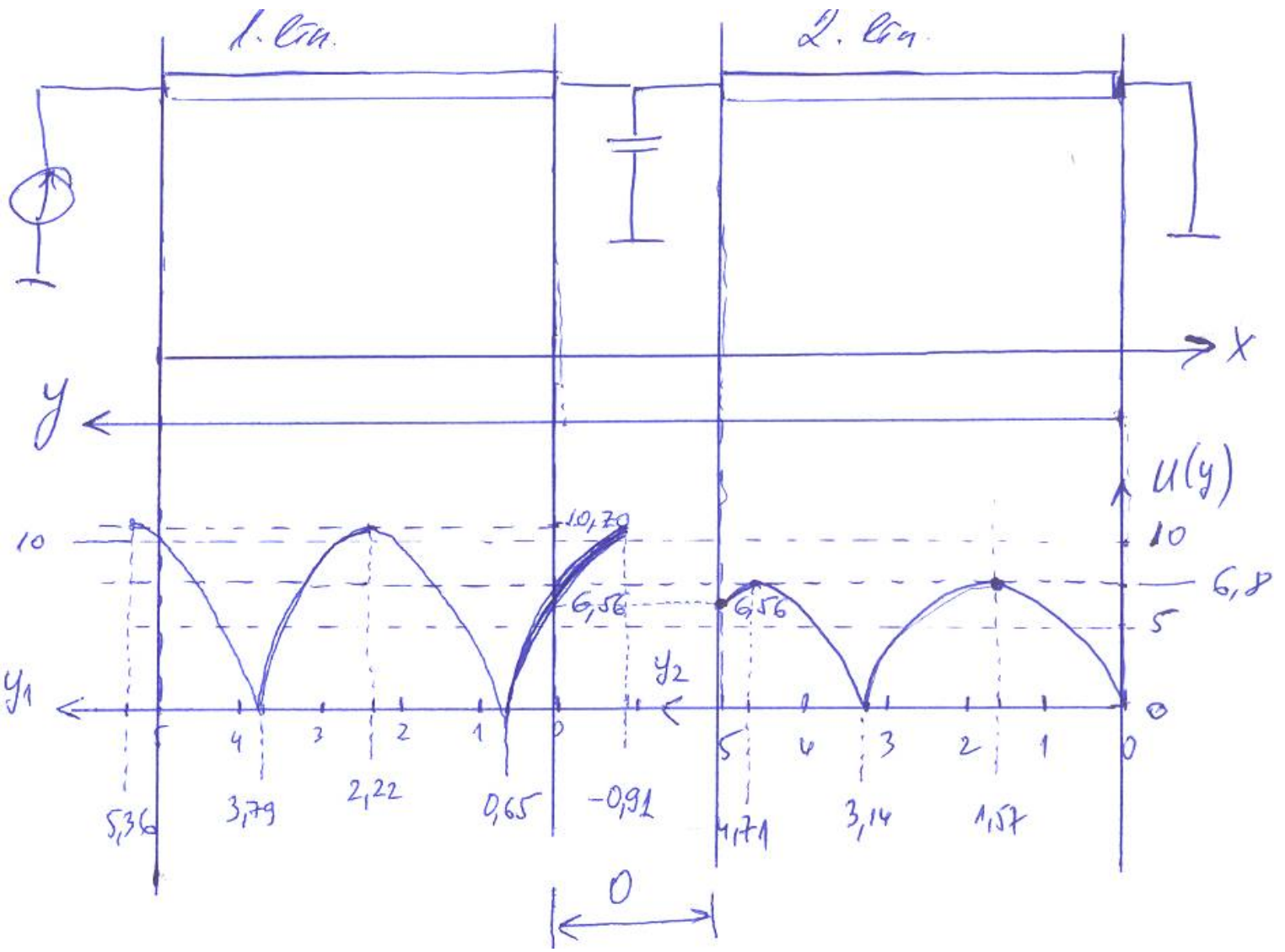
$$\lambda = \frac{2\pi}{\beta} = 6,28 \cdot 10^{-3} \text{ km} = 6,28 \text{ (m)}$$

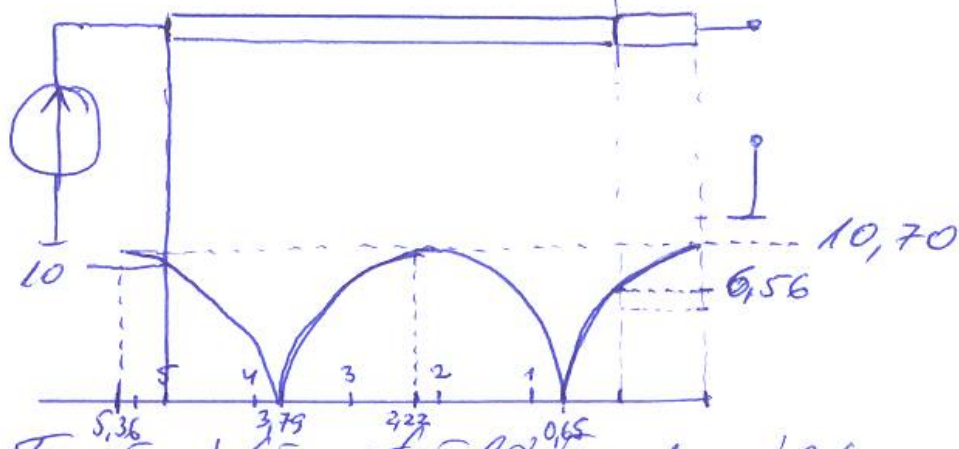
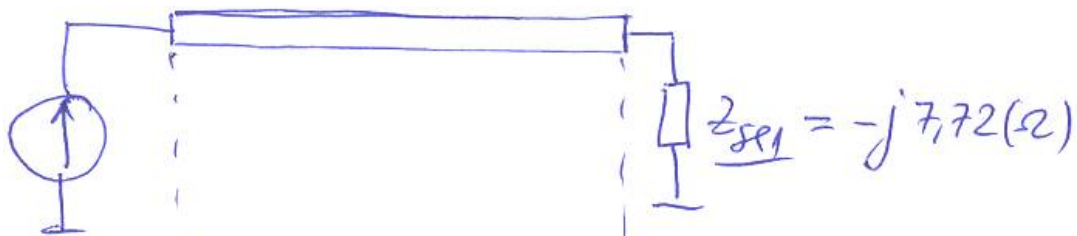
$$\frac{\lambda}{4} = 1,57 \text{ (m)}$$

Ja  $y = y_0 = \frac{\lambda}{4} = 1,57 \text{ m}$ , tad  $U(y_0) = \text{max}$

$$U'(y_0) = U_{22} \cos \beta y_0 + j I_{22} z_c \sin \beta y_0 = 0 + j j 0,68 \cdot 10 \sin(10^3 \cdot 1,57) \\ = -6,8 \text{ (V)}$$

$$U(y_0) = |U'(y_0)| = 6,8 \text{ (V)}$$





Tuwingatō s trūdōjotom papōdpsman uējas pretstāq:

$$\left. \begin{aligned} Z_{up} &= -j z_c \operatorname{ctg} \beta l_p \\ Z_{sel} &= -j 7,72 = -j X_{cse} \end{aligned} \right\} X_{cse} = 7,72 = z_c \operatorname{ctg} \beta l_p$$

$$\operatorname{ctg} \beta l_p = \frac{X_{cse}}{z_c} = \frac{7,72}{10} = 0,77$$

$$\operatorname{tg} \beta l_p = \frac{1}{0,77} = 1,30$$

$$\beta l_p = \operatorname{arctg} 1,30 = 0,92$$

$$l_p = \frac{0,92}{\beta} = \frac{0,92}{10^3} = 0,92 \cdot 10^{-3} \text{ km} = 0,92 \text{ (m)}$$

$$\dot{U}(x_0 = l_1 + l_p = 5 + 0,92 = 5,92 \text{ km}) = U_{11} \cos \beta x_0 - j \dot{I}_{11} z_c \sin \beta x_0 =$$

$$= 10 \cdot \cos 5,92 - j(-j 0,39) \cdot 10 \sin 5,92 = 10 \cdot 0,93 - 3,9 \cdot (-0,36) =$$

$$= 10,70 \text{ (V)}$$