

PLANIRANJE MOBILNIH  
SUSTAVA  
2.D2

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$$d_0 = 1 \text{ km}$$

$$d_1 = 2 \sqrt{0,5^2 \cdot 2} = \underline{\underline{\sqrt{2} \text{ km}}}$$

$$d_2 = 2 \sqrt{0,5^2 + 1} = \underline{\underline{\sqrt{5} \text{ km}}}$$

$$d_3 = 3 \text{ km}$$

$$L(20\%) = 1 \text{ dB}$$

$$L(50\%) = 3 \text{ dB}$$

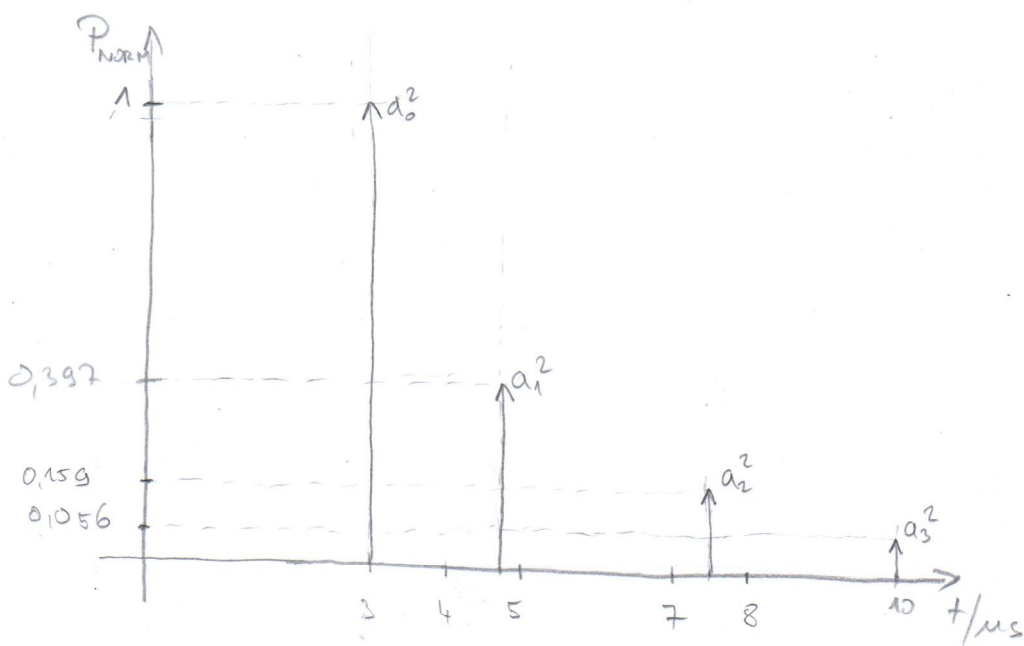
$$t_0 = \frac{d_0}{c} = \underline{\underline{3,336 \mu\text{s}}}; \quad L_{\text{LOS}} = L_0 = |F_{\text{RIIS}}| = \underline{\underline{92,45 \text{ dB}}}$$

$$t_1 = \frac{d_1}{c} = \underline{\underline{4,717 \mu\text{s}}}; \quad T_1 = |t_0 - t_1| = \underline{\underline{1,381 \mu\text{s}}}; \quad L_1 = |F_{\text{RIIS}}| + L(20\%) = \underline{\underline{96,46 \text{ dB}}}$$

$$t_2 = \frac{d_2}{c} = \underline{\underline{7,459 \mu\text{s}}}; \quad T_2 = |t_0 - t_2| = \underline{\underline{4,123 \mu\text{s}}}; \quad L_2 = |F_{\text{RIIS}}| + L(20\%) = \underline{\underline{100,44 \text{ dB}}}$$

$$t_3 = \frac{d_3}{c} = \underline{\underline{10 \mu\text{s}}}; \quad T_3 = |t_0 - t_3| = \underline{\underline{6,664 \mu\text{s}}}; \quad L_3 = |F_{\text{RIIS}}| + L(50\%) = \underline{\underline{104,99 \text{ dB}}}$$

ZRAKA	RELATIVNA AMPLITUDA $L_0 - L_i [\text{dB}]$	NORMALIZIRANA SNAGA
LOS	0	1
$d_1$	-4,01	0,397
$d_2$	-7,99	0,159
$d_3$	-12,54	0,056



$$r(t) = a_0 s(t) + a_1 s(t - T_1) + a_2 s(t - T_2) + a_3 s(t - T_3)$$

sveukupno ekscresno kašnjenje:  $\max(T_1, T_2, T_3) = T_3 = 6,66 \mu s$

srednje kašnjenje:  $\bar{T} = \frac{1}{P_T} (0,397 \cdot T_1 + 0,159 T_2 + 0,056 T_3)$ ;  $P_T = \sum_{i=0}^M P_i = 1,612$

$$\underline{\bar{T} = 0,9783 \mu s}$$

RMS kašnjenje:

$$T_{RMS} = S_T = \sqrt{\bar{T}^2 - \bar{T}^2}; \quad \bar{T}^2 = \frac{1}{P_T} \sum_{i=0}^M P_i T_i^2 = \frac{1}{1,612} (0,397 T_1^2 + 0,159 T_2^2 + 0,056 T_3^2)$$

$$T_{RMS} = \sqrt{3,689 - 0,9783^2} \quad \underline{\bar{T}^2 = 3,689 \mu s^2}$$

$$\underline{T_{RMS} = 1,653 \mu s}$$

$$GSM \rightarrow T_S = 3,7 \mu s$$

$$\text{uvjet da nema ISI: } T_S \geq T_{RMS} \cdot 5$$

$$3,7 \mu s \times 5 = 18,265 \mu s$$

Ovim kanalom ne mogu se preneti GSM simboli.