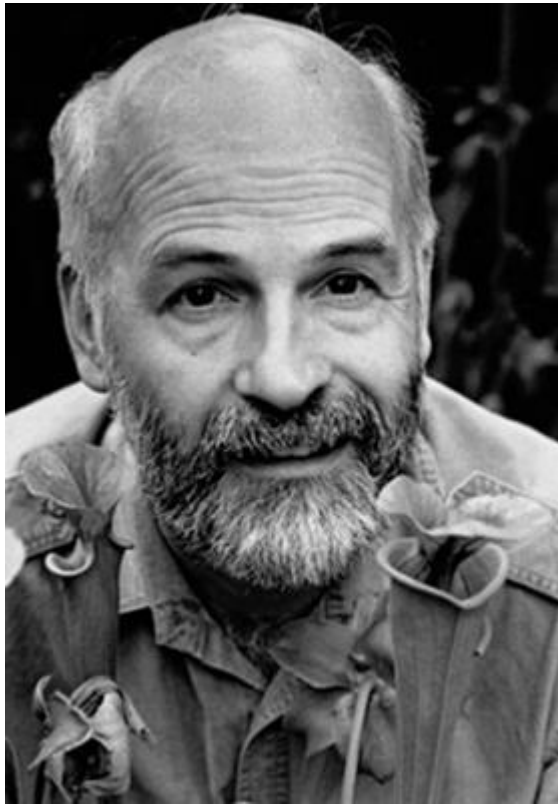


Экспериментальное
исследование частотно-
зависимых характеристик
систем заземления в
декаметровом диапазоне
длин волн

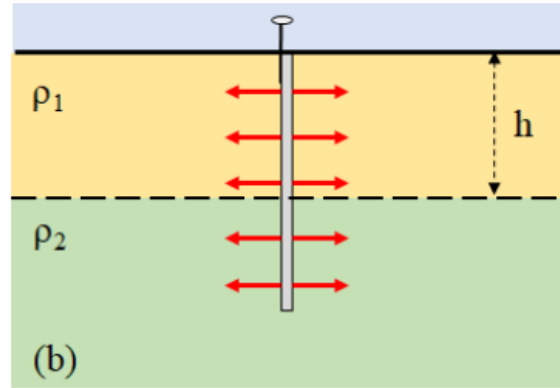
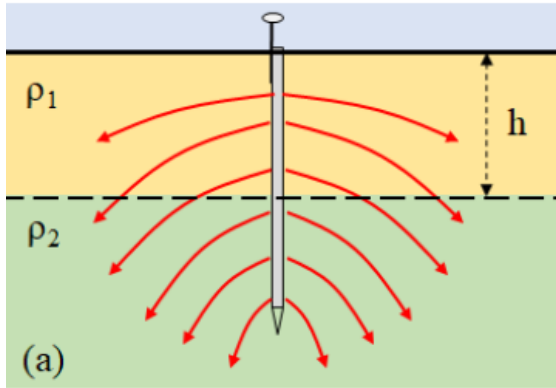


Терри Пратчетт
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28 апреля 1948 –
12 марта 2015

ПЕРЕД ТЕМ КАК ЧЕЛОВЕК УМРЕТ, ВСЯ ЖИЗНЬ
ДЕЙСТВИТЕЛЬНО ПРОХОДИТ У НЕГО ПЕРЕД
ГЛАЗАМИ. СОБСТВЕННО, ЭТОТ ПРОЦЕСС И
НАЗЫВАЕТСЯ "ЖИЗНЬЮ".

(«Последний континент» 1998 г.)



$$Z_0 = \frac{\ln(8l/d) - 1}{2\pi} \sqrt{\frac{j\omega\mu_0/\sigma}{(1 + j\omega\varepsilon_0\varepsilon'/\sigma)'}}$$

$$\gamma = \sqrt{j\omega\mu_0(\sigma + j\omega\varepsilon_0\varepsilon')}$$

$$Z = Z_0 \operatorname{cth}(\gamma l)$$

Figure 2. Current density along the length of a rod in a two-layer soil: (a) real situation and (b) the situation where the influence of a layer in other is suppressed for the current density distribution – adapted from [6].

$$Z_{N-i} = Z_{0N-i} \frac{Z_{N-i+1} + Z_{0N-i} \tanh(\gamma_{N-i} h_{N-i})}{Z_{0N-i} + Z_{N-i+1} \tanh(\gamma_{N-i} h_{N-i})}$$

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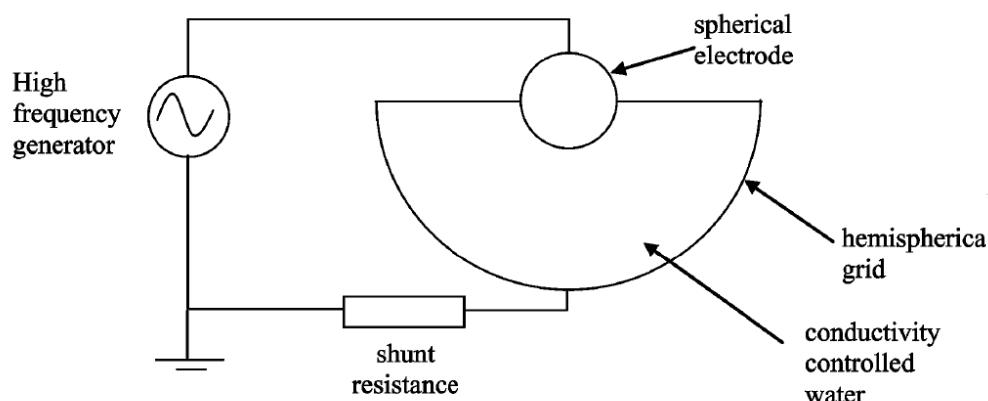


Fig. 6. Experimental setup for small-scale spherical measurements of grounding impedance.

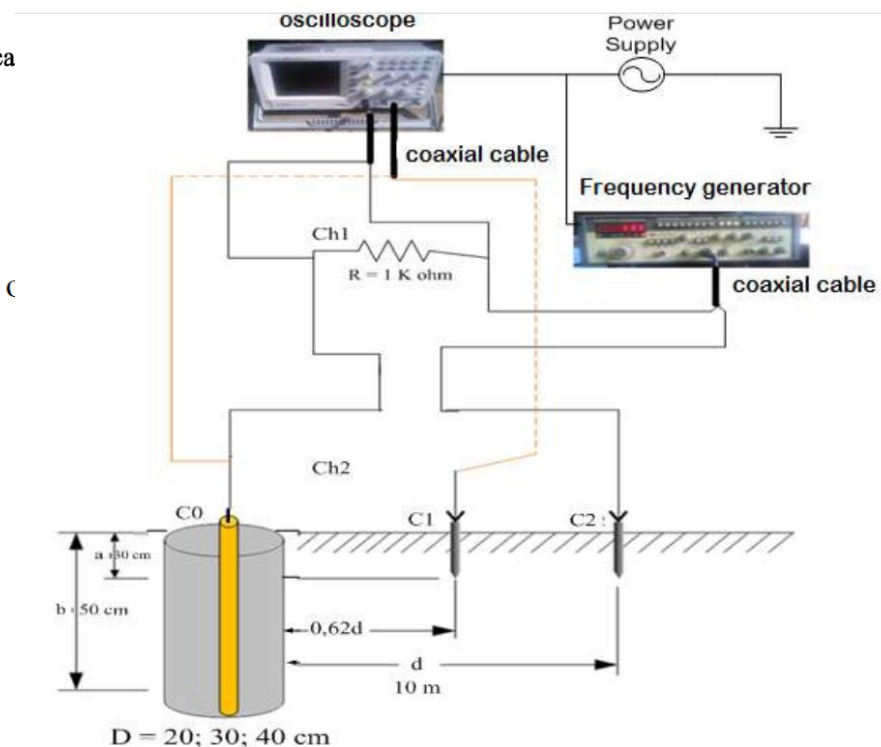
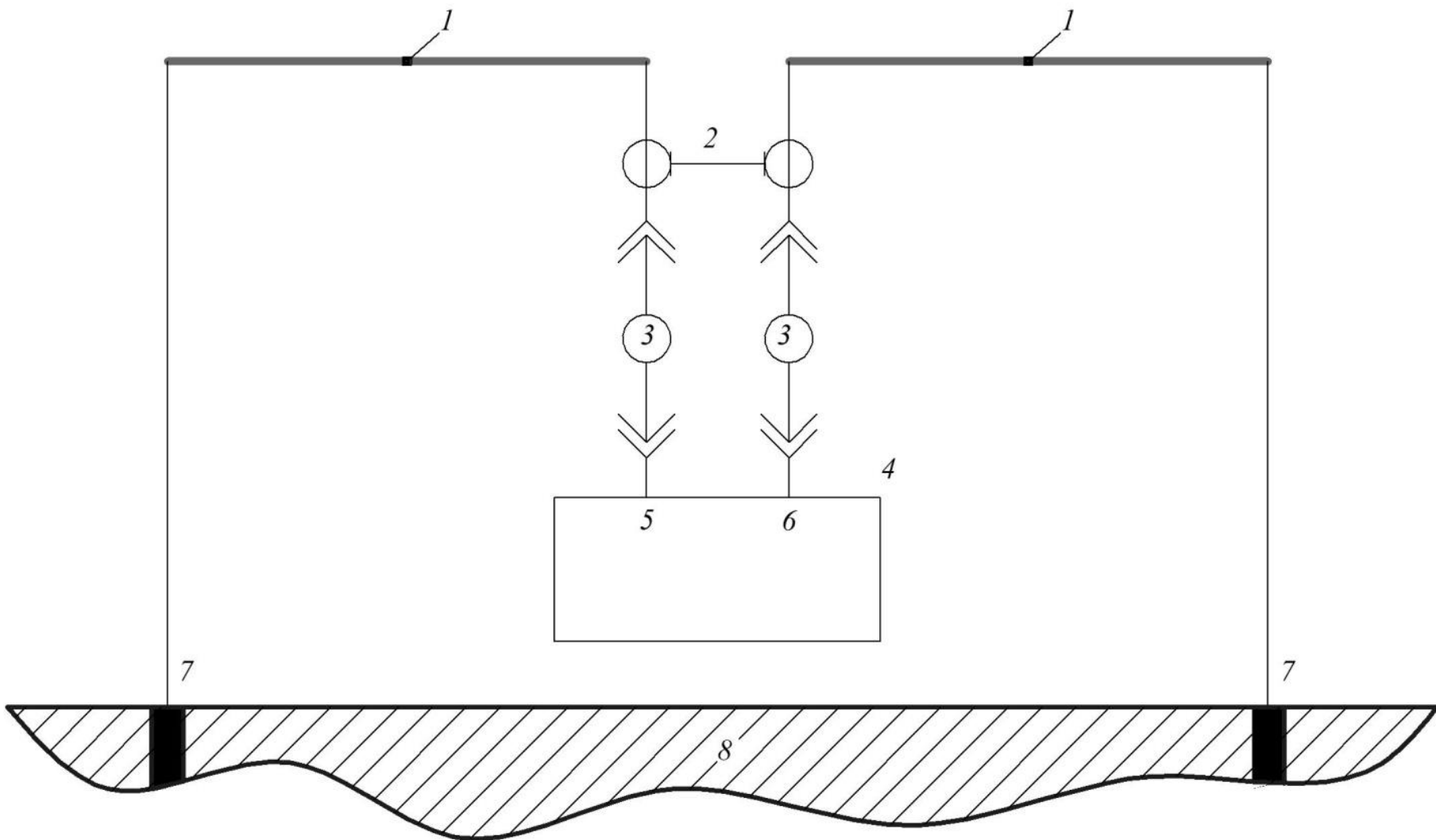
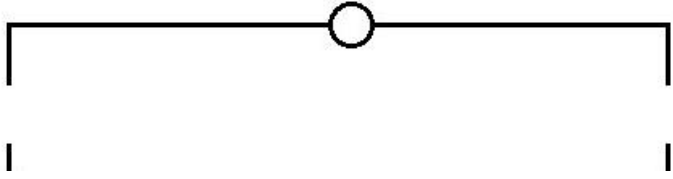
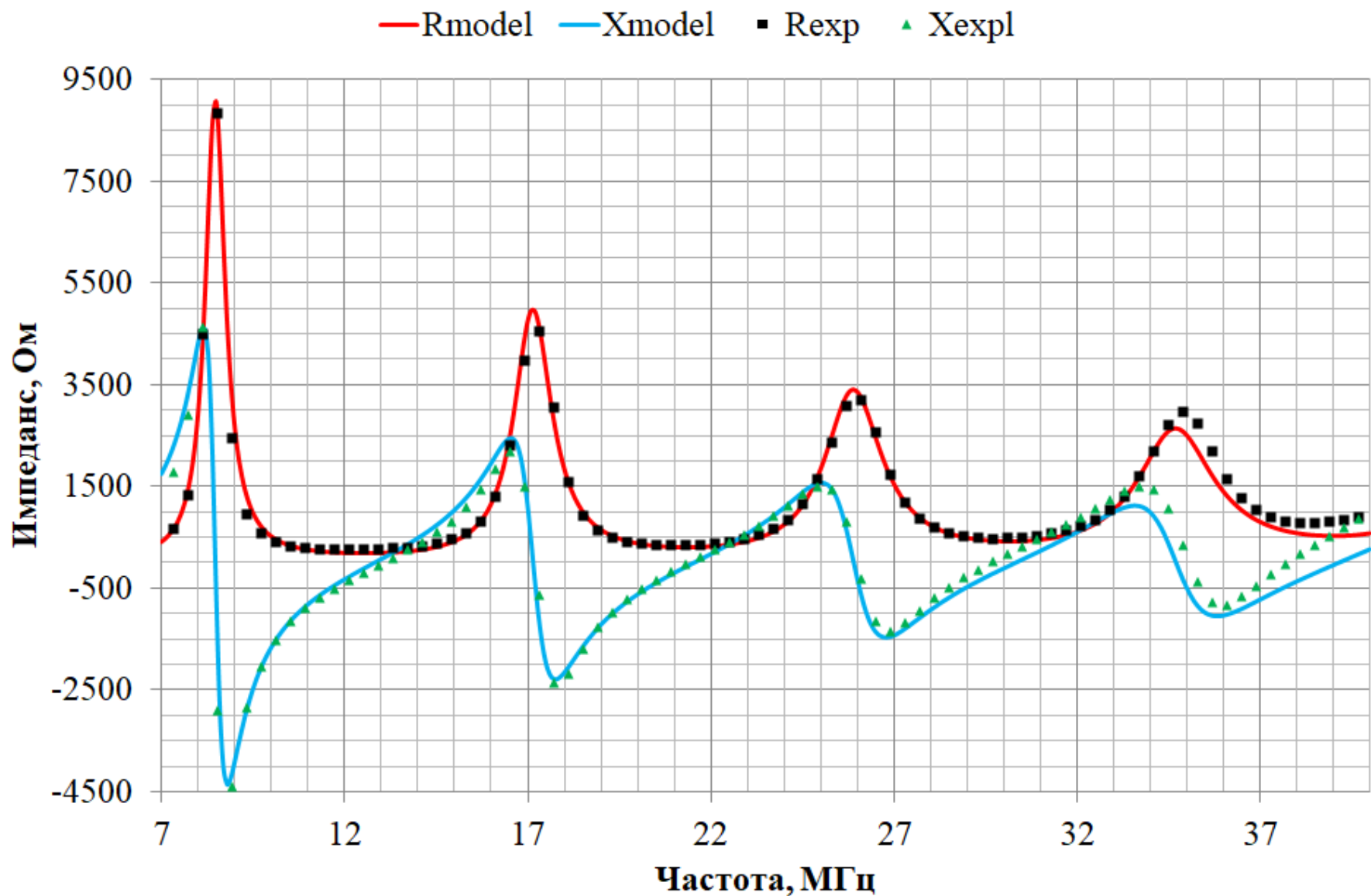


Figure 5. Measurement System of Impedance Grounding System

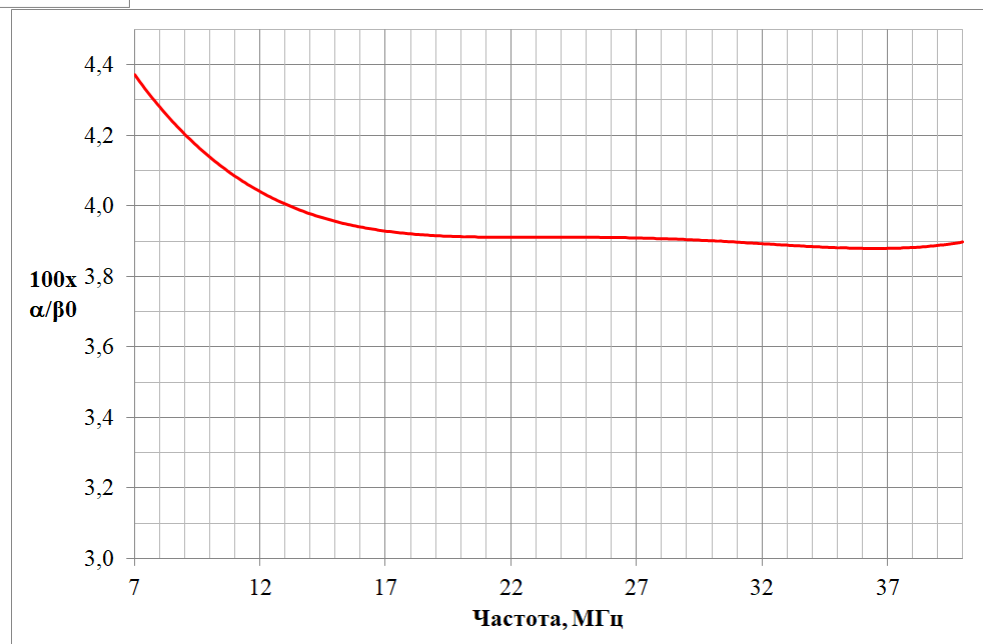
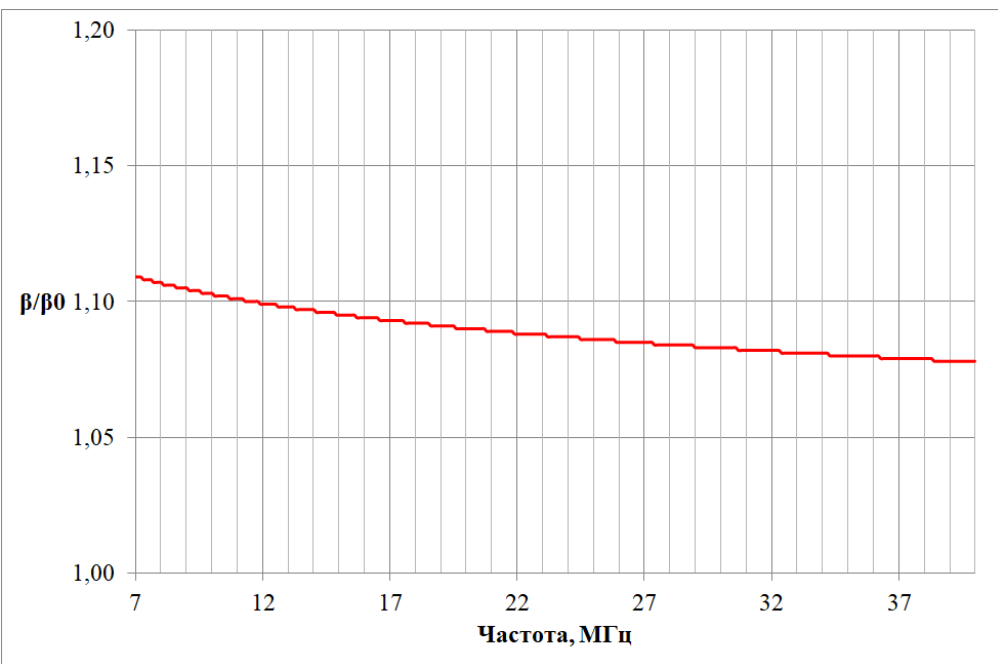


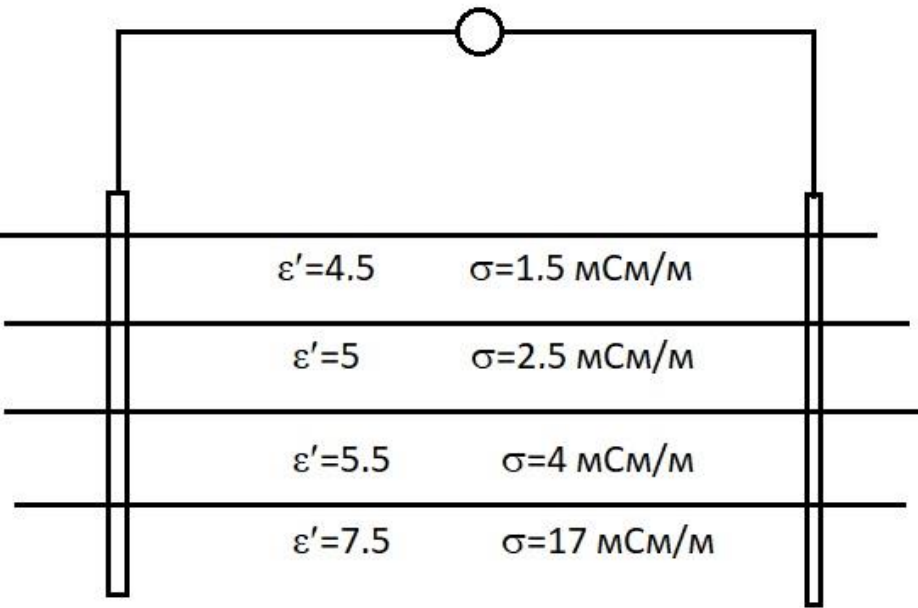


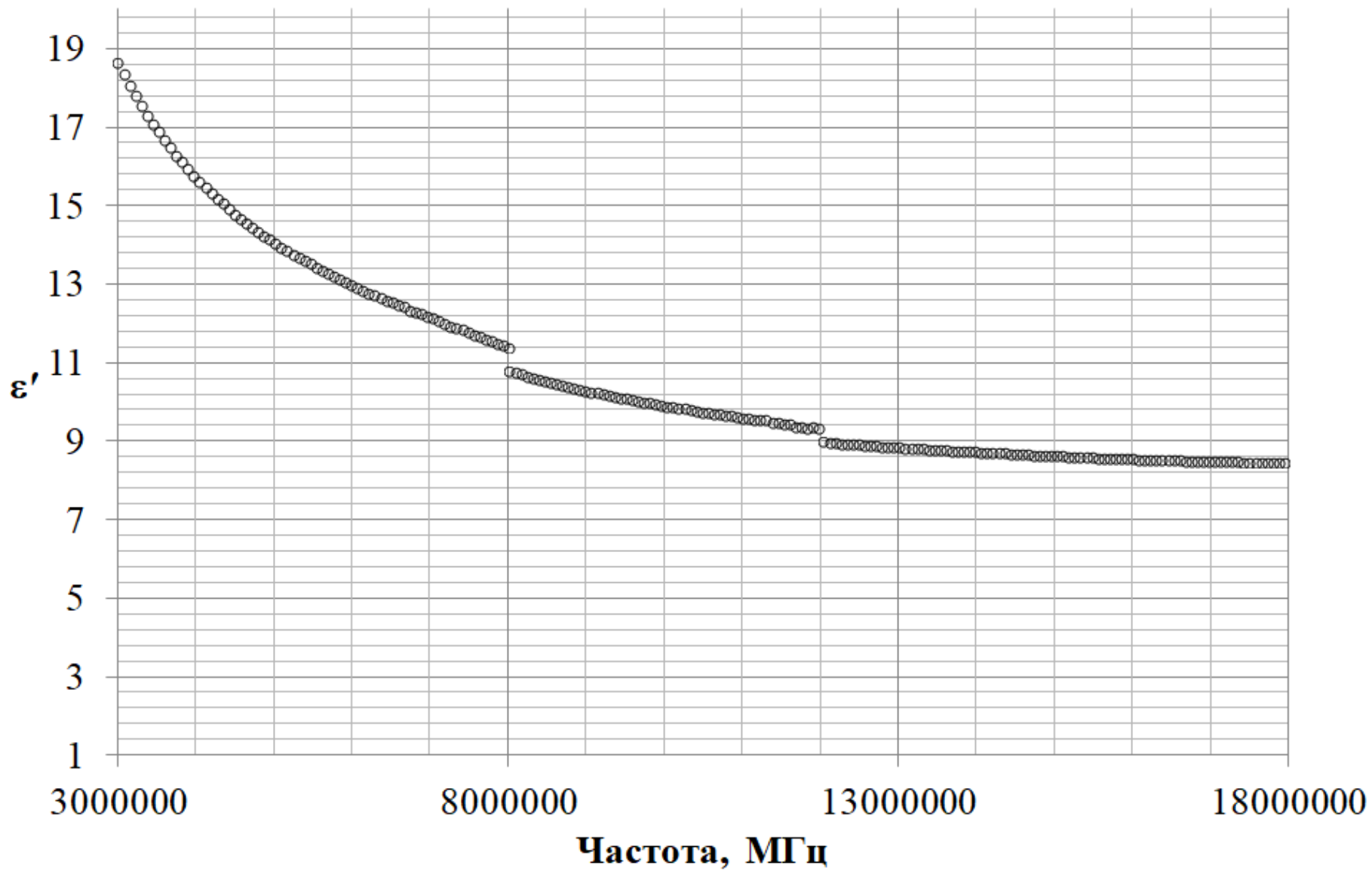


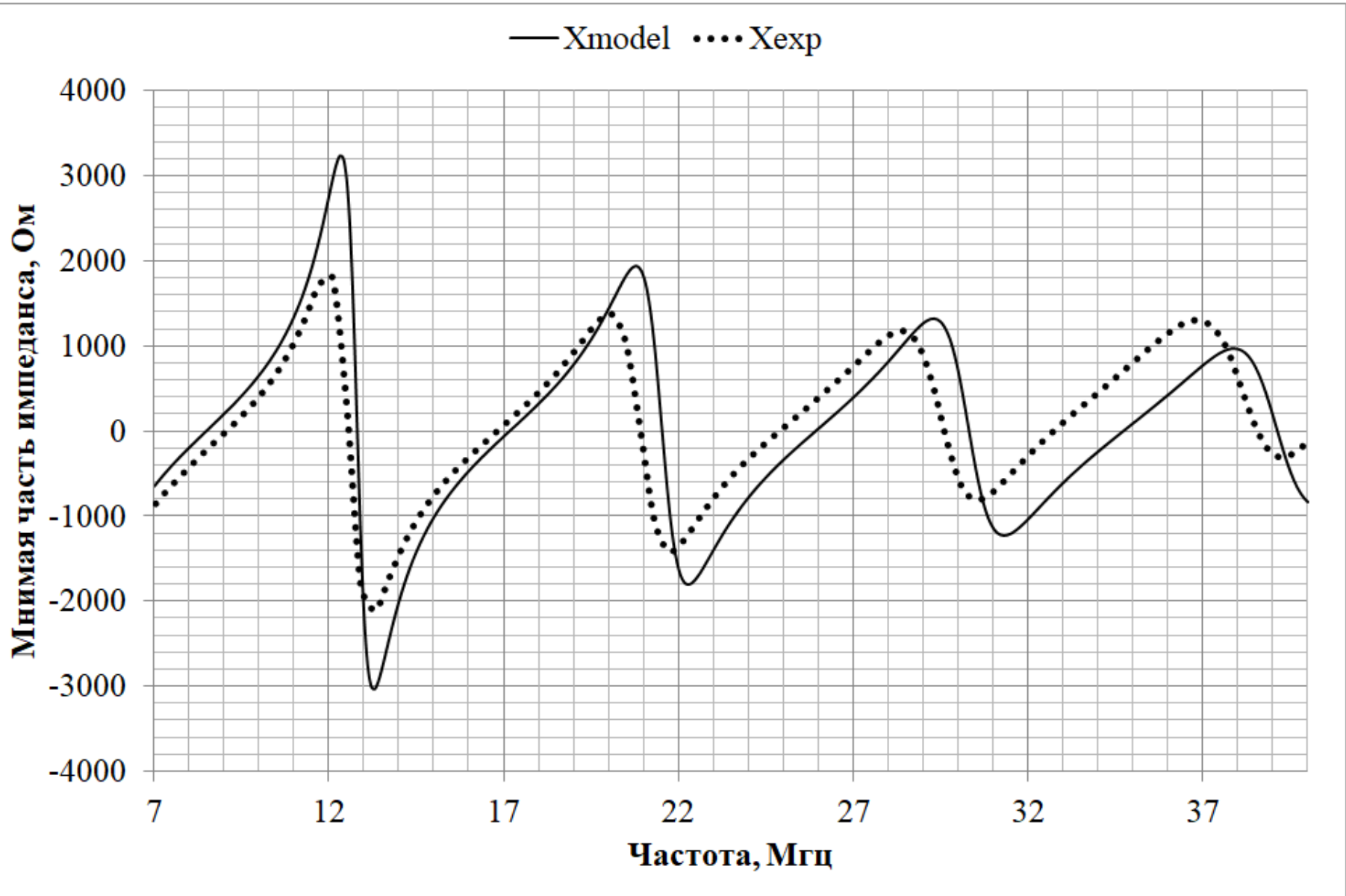
$$Z = W \operatorname{cth}(\gamma l)$$

$$l = 0.75 \text{ м}$$

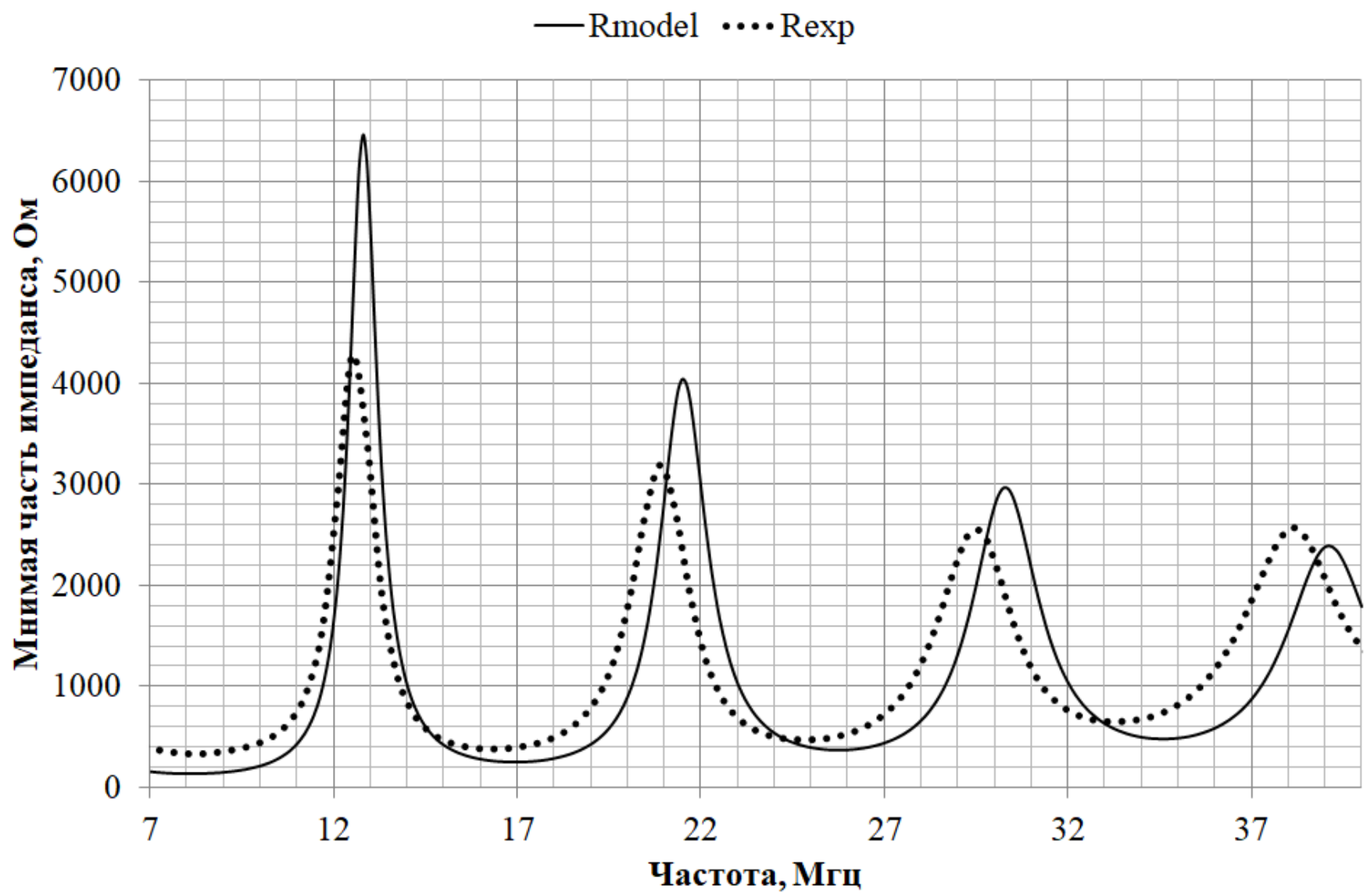




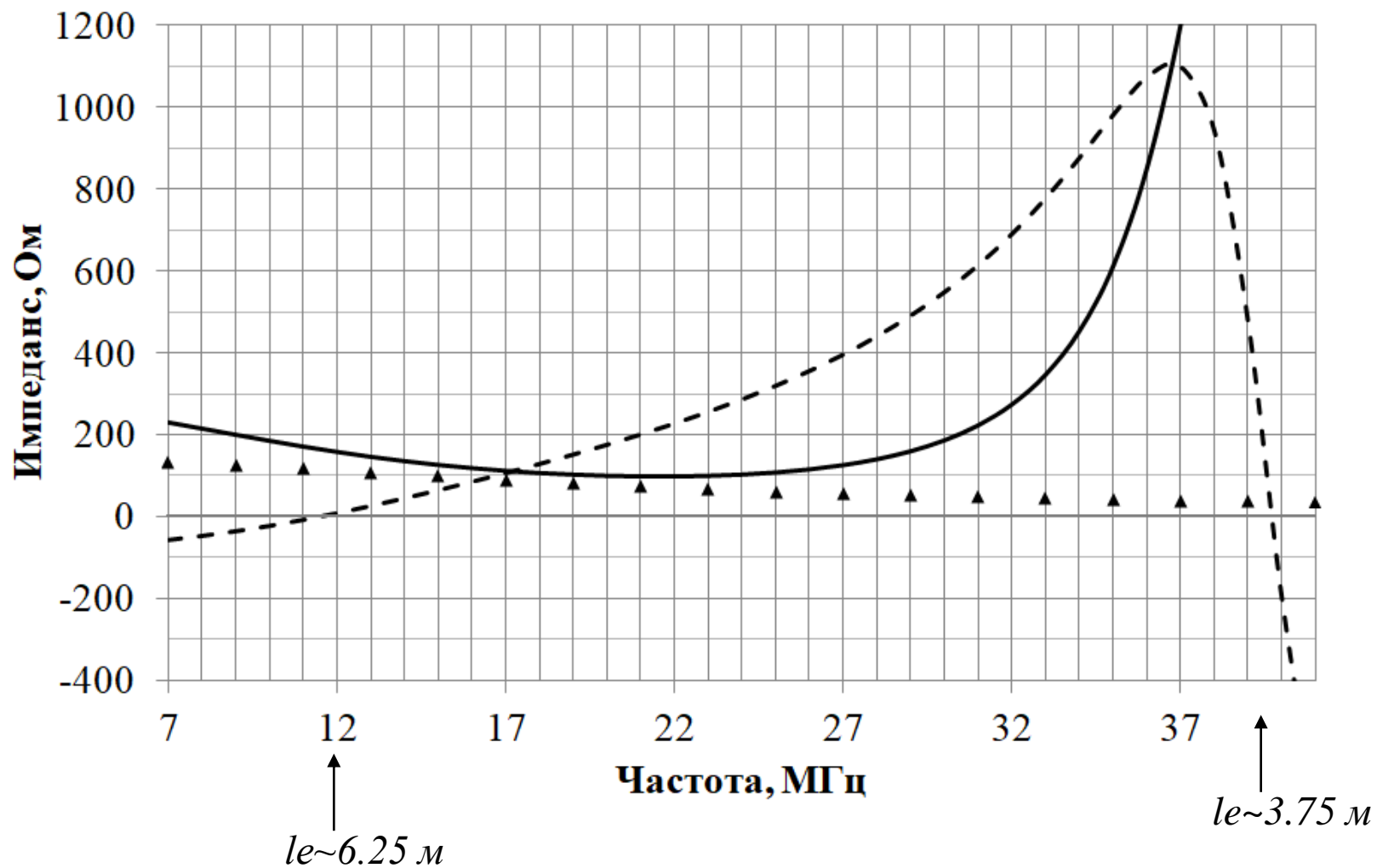


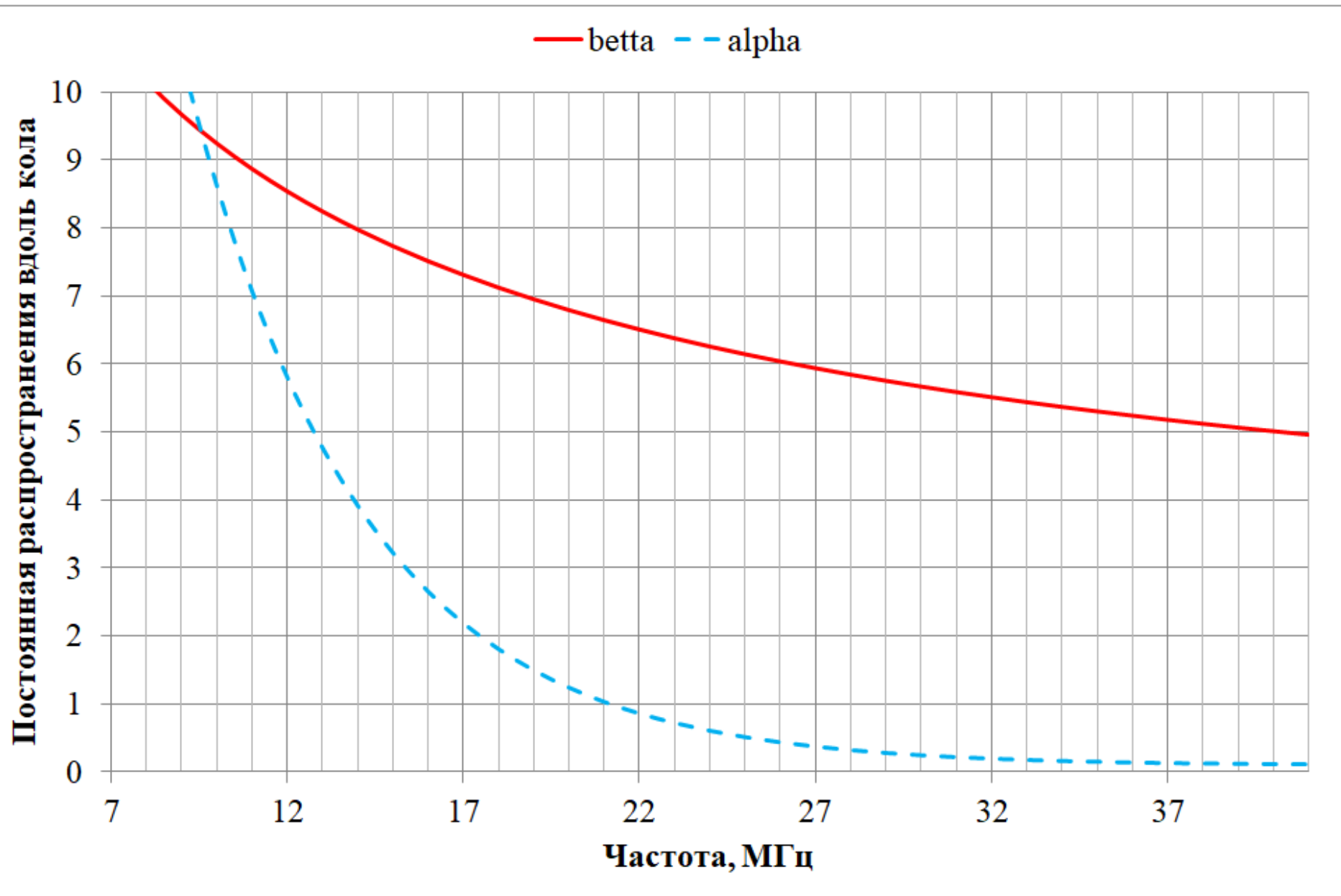


$Z=Wth(\gamma l)$ и измерения заземленной линии



- - Мнимая часть импеданса ЭЗ — Действительная часть импеданса ЭЗ ▲ Расчетные значения





БЛАГОДАРЮ

ЗА

ВНИМАНИЕ