FR patent n°4,936,961 - Demonstration for isotopic generator FR 268,061,3

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<u>Calculations</u>

Be $\boxed{B1}$ the magnetic field of the coil 1.

Be $\boxed{B2}$ the magnetic field of the coil 2.

Be $\boxed{B3}$ the magnetic field of the coil 3.

Be $\boxed{N1}$ the number of turns of the coil 1.

Be $\boxed{N2}$ the number of turns of the coil 2.

Be $\boxed{N3}$ the number of turns of the coil 3.

Be $\boxed{l1}$ the length of the coil 1.

Be $\boxed{l2}$ the length of the coil 2.

Be $\boxed{l3}$ the length of the coil 3.

Be $\boxed{i1}$ the current across the coil 1.

Be $\boxed{i2}$ the current across the coil 2.

Be $\boxed{i3}$ the current across the coil 3.

Be $\boxed{u1}$ the voltage across in the coil 1.

Be $\boxed{u2}$ the voltage across in the coil 2.

Be $\boxed{u3}$ the voltage across in the coil 3.

Be $\boxed{f1}$ the frequency across in the coil 1.

Be $\boxed{f2}$ the frequency across in the coil 2.

Be $\boxed{f3}$ the frequency across in the coil 3.

Be $\boxed{L1}$ the inductance of the coil 1.

Be $\boxed{L2}$ the inductance of the coil 2.

Be $\boxed{L3}$ the inductance of the coil 3.

Be $\boxed{S}$ the area of the iron core.

Be $\boxed{l}$ the length of the iron core.

Be $\boxed{D}$ the diameter of the iron core.

Be $\boxed{\mu}$ the permeability of the iron core.

Be $\boxed{\mu_r}$ the relative permeability of the iron core.

Be $\boxed{\mu_0}$ the permeability of the empty space.
We have :

$$\begin{cases} L = (N^2 * \mu_0 * S)/l \\ N = \sqrt{(L * l)/(\mu_0 * S)} \\ B = (\mu_0 * N * I_L)/l \\ N = (B * l)/(\mu_0 * I_L) \\ I_L = (B * l)/(\mu_0 * N) \\ |U_L| = \omega_L * L * |I_L| = 2 * \pi * f_L * L * |I_L| \\ |I_L| = |U_L|/(2 * \pi * f_L * L) \end{cases}$$