For the dicussion at http://www.talk-polywell.org/bb/viewtopic.php?t=2086 the electron number calculation based on image coil theory would be following. Btw: why am I (me, Indrek) doing this, I don't have the time. This is basic math. Get onto it.

We start with these assumptions from http://www.mare.ee/indrek/ephi/invwb/:
*A=0.150000*
*R=0.150000, S=0.080000, I=200000.000000*
*iR=0.051787, iS=0.027620, iI=-340380.343468*
You can derive your own using formulae in http://www.mare.ee/indrek/ephi/images.pdf.

Image coil current:

$$I = 340000 = 3.4e5\ A.$$

Image coil radius:

$$r = 0.051787\ m.$$

Image coil circumference:

$$C = 2\pi r = 0.325\ m.$$

Elementary/electron charge:

$$e_- = 1.6e\text{-}19\ C$$

Energy of an electron in eV:

$$E_V = 12keV = 1.2e4\ eV$$

Energy of an electron:

$$E = E_V \cdot e_- = 1.2e4 \cdot 1.6e\text{-}19\ J \approx 1.92e\text{-}15\ J.$$

Speed of electrons:

$$E = \frac{m_e v^2}{2} \Rightarrow v = \sqrt{\frac{2E}{m_e}} = \sqrt{\frac{2E_v e_-}{m_e}} = \sqrt{\frac{2 \cdot 1.2e4 \cdot 1.6e\text{-}19}{9.12e\text{-}31}} \approx 6.5e7\ m/s.$$

Current from one electron inside one image coil:

$$I_1 = \frac{v}{C} \cdot e_- = \sqrt{\frac{2E_v e_-}{m_e}} \cdot \frac{e_-}{C} \approx 6.5e7 \cdot \frac{1.6e\text{-}19}{0.325} \approx 3.2e\text{-}11\ A.$$

Number of electrons required to provide full coil current:

$$N_c = \frac{I}{I_1} = \frac{IC}{e}\sqrt{\frac{m_e}{2E}} = I2\pi r\sqrt{\frac{m_e}{2E_v e_-^3}} \approx 1.06e16.$$

Total amount of electrons:

$$N = 6 \cdot N_c \approx 6.4e16.$$

This is the ideal lower bound to the number of electrons.