

## Data Sheet Earth's Magnetic Field

Angle $\alpha$ (degrees)	Current 5 loop (A)	Current 10 loop (A)	Current 15 loop (A)
20			
30			
40			

$$B_L = \frac{\mu I N}{2r}$$

Angle $\alpha$ (degrees)	B <sub>L</sub> 5 loop (T)	B <sub>L</sub> 10 loop (T)	B <sub>L</sub> 15 loop (T)
20			
30			
40			

$$B_{eh} = \frac{B_L}{\tan \alpha}$$

Angle $\alpha$ (degrees)	B <sub>eh</sub> 5 loop (T)	B <sub>eh</sub> 10 loop (T)	B <sub>eh</sub> 15 loop (T)
20			
30			
40			

The average of the nine values in the table above yields the earth's average horizontal magnetic component,  $B_{eh-average}$ .

$$B_{eh-average} = \underline{\hspace{2cm}} \text{ T}$$

Use this value along with your dip angle (theta) to find the magnitude of the earth's total field. See figure 22-3 .

$$\theta = \underline{\hspace{2cm}} \text{ degrees} \quad B_{total} = B_{et} = \underline{\hspace{2cm}}$$

**Use 50 point format (which is on-line).**

**Turn in data page**

**Answer questions & show one sample calculation for Be , Beh and Bt**