

ABSTRACT

The Non-Destructive Testing Method is a testing method or an identification of a material without damaging the test material. This method utilizes the magnetic field from a number of coils (transmitters) which will then be directed towards the receiver through the test material. Because the homogeneity of the formed magnetic field is very influential on the accuracy of the data obtained, it is necessary to analyze the shape of the transmitter coil to see the distribution of the formed magnet field. In this final assignment research coil shape analysis is done by designing a square shaped multicoil and singlecoil system which will then be seen the distribution of the magnetic field that formed when flowing. The coil is given an input in the form of 1V, 2V and 3V voltages. The magnetic field formed is then measured as many as 100 points 1cm away from the end of the coil at each measurement voltage. The results obtained are more homogeneous magnetic field distribution in the plural coil system. At 1 V the voltage shows a homogeneity value of 0.8375 for a single coil and 0.8778 for a plural coil. For a voltage of 1.5 V it shows a homogeneity value of 0.7769 for a single coil system and a value of 0.9093 for multiple coil systems. And for 2 V voltage homogeneity value in a single coil system is 0.7370 and plural coil is 0.7852. The value of the magnetic field on a single coil is greater than the plural coil. At 1 V the voltage indicates the highest magnetic field value of 2.7 G for a single coil and 1 G for a plural coil. For a voltage of 1.5 V, the highest magnetic field value is 4.3 G for multiple coil systems and 1.9 G for single coil systems. And for the 2 V voltage the highest magnetic field value in the plural coil system is 5.9 G and a single coil of 2.3 G

Key words: Non-Destructive Testing, homogeneity, singlecoil, multicoil, and magnetic field distribution.