STUDY THE INFLUENCE OF THE NUMBER AND LENGTH OF THE COIL WINDINGS TOWARDS VOLTAGE RISE ON THE MECHANISM OF VIBRATION ENERGY HARVESTER

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Abstract

Vibration often occurs on machines or equipment - the equipment is operating, and this vibration can cause excitation force in the form of kinetic energy has the potential to be converted into other energy forms. Based on this fact, the idea emerged to harvest energy from vibrations that occur. Permanent Mechanism of Vibration Energy is one mechanism that can convert vibrations into electrical energy earlier.

In this final test of Permanent Mechanism of Vibration Energy and theoretical calculations about the amount of voltage generation by varying the number and length of the coil windings on the power generating mechanism. Quantity of electricity generated voltage is measured using a digital oscilloscope and the results compared with the voltage that can be raised from the calculation.

From this final resurrection of the voltage data obtained from the mechanism of vibration energy harvesters. Voltage biggest rise in theory and testing occurred at the time of the mechanism of vibration energy harvesters using the power generating mechanism with a long coil of 15 mm and the number of coil windings 3000 that is equal to 77.36 volts and 13.15 volts for the theory to the test. Sedankan the lowest occurred in a long coil of 25 mm and the number of coil windings which in 1000
amounted to 2.66 volts and 2.54 volts for the theory to the test.

Keywords: Mechanism of the vibration energy harvesters, electromagnetic methods, harmonic vibration excitation, the length of the coil, the number of windings.