

ABSTRACT

This research is devoted to study the design, simulation, fabrication, and characterization of three phase linear generator as component of Electromagnetic Vibration Energy Harvesting (EVEH) device. The three phase linear generator was simulated by using Comsol Multyphysics 4.3 software. The length and width of the magnets used during the fabrication were 5 mm and 5 mm. The number of turns for each coil was used 68 turns. After fabrication, a linear 3 phase generator device has been characterized by variations of frequency that started from 10 Hz to 23 Hz. The aims of characterization was to determine the effect of frequency on the output voltage and to find out the magnitude of the resonance frequency for each coil. The result of characterization show that each coil produced a resonant frequency at 20.7 Hz with the output voltage generated by coil 1, 2 and 3 were 139 mV, 161 mV and 169.2 mV.

Keywords: Electromagnetic vibration energy harvesting, three phase linear generator, resonance frequency, permanent magnet NdFeB N42.