

## **Power mapping characteristic of double stator permanent magnet generator for electrical harvesting machine**

### **ABSTRACT**

The Malaysia's average of oil palm production have been increasing every year since last two decades. This is due to the increase global demands. Therefore, it is an urgent need to improve the harvesting productivity in the field. For such reasons, a harvesting machine had been developed to overcome this problem. This harvesting machine consists of DC motor and powered by electrical generator. Due to limitation of space and weight, Double Stator Permanent Magnet Generator (DSPMG) topology is being used. DSPMG has an advantage in producing high power density compared to conventional generator due to its large coil area. Sudden changes of current can be seen as the load changes when the harvester operates. Obviously, the generator performance needs to be studied. Therefore, this paper discusses on the performance of DSPMG by evaluating the power mapping characteristic. From the power mapping characteristic, the overall view of generator performance can be presented. The DSPMG shows that the highest output power (180W) can be achieved at load impedance of 10  $\Omega$ .

**Keyword:** Double stator permanent magnet generator; Rotor speed; Load impedance; Power mapping