Evaluation of Motor Power Considering Driving Environment for Electric Two-wheelers

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Abstract:

This paper discusses the performance measurement of three electric two-wheelers and provides a comparative analysis between the actual power of the installed motors and the power calculated based on vehicle specifications and driving conditions. The test results show that the performance of the three electric two-wheelers is approximately 1.5 to 2 times higher than the government vehicle evaluation standards. Furthermore, a comparison between the power required for four driving forces of the electric two-wheelers and the installed motor power reveals that the motors have nearly twice the power of the calculated requirement. Generally, devices are designed with a higher margin than the power needed during the design phase. While superior performance is important from the rider's perspective, it is also essential to consider low-margin designs from the perspectives of energy consumption and environmental impact.

Keywords:

Electric two-wheeler, motor power, tractive effort, power evaluation.