The Study and Countermeasure of Electromagnetic Noise from Motorbike Ignition System

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ABSTRACT

Electronic controlled devices such as ABS and ignition system are increasingly used to enhance the performance of motor vehicles. However, electromagnetic noise from vehicles may degrade the performance of electronic devices and cause the human safety problem if EMC designs are not appropriately implemented in the vehicles. Therefore, the EMC design and EMI fix techniques of vehicle and devices have become an important task in the design of motor vehicles. In this thesis, radiated emissions from the major noise source of vehicle, ignition system. Are analyzed by theoretical simulation and measurement. First, the theoretical model and measurement system are proposed for analyzing the problem. In addition, the effects of EMI fix techniques including filter devices 、resistive ignition wire、shielding tubes、resistive spark plug used to reduce radiated emission from ignition system are investigated. The results of theoretical simulation and measurement are helpful in the EMC design of ignition system of motor vehicles. Finally the monopole antenna, loop antenna, and standard source are designed and implemented for measuring the shielding effectiveness of anechoic chamber and the correlation of the test sites.

Keywords : Ignition System ; Radiated Emission ; Electromagnetic Compatibility ; EMI Fix Techniques

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