A Study on the Driving Performance of Online Electric Vehicle

JEONGKEUN AHN
Dongwon OLEV, Munjilo Yuseong-gu Daejeon, 305-732, South Korea
jkahn@dongwon.com

YOUNG DONG SON, DONGKWAN SEO, JUNG KWI KIM, HEUNG REOL LEE
Dongwon OLEV, Munjilo Yuseong-gu Daejeon, 305-732, South Korea
syd0608@dongwon.com, challengseo@dongwon.com, jkja0731@dongwon.com, hrlee@dongwon.com

YONGWAN JUNG, TAESEUNG CHUNG
Dongwon OLEV, Yangjae-dong Seocho-gu Seoul, 305-732, South Korea
ywjung@dongwon.com, tschung@dongwon.com

Key words : Electric Vehicle, Contactless Power Transfer, Vehicle Dynamics

Unlike a conventional battery-powered electric vehicle, Online Electric Vehicle (OLEV) has a highly-efficient on-board pickup device which enables contact-less power transfer while driving, from the power supply line installed under the road. This new concept electric vehicle is also powered by a small on-board battery for the road where there is no power supply line underneath.

In order to commercialize electric vehicles, battery charging stations should be built and charging time should be shortened in comparison to the current charging time. However, OLEV does not rely mainly on the battery for its operation. By reducing the battery dependency and capacity, OLEV can reduce not only the total weight of vehicle but also building of the charging infra. OLEV system is composed of the power supply lane system, the vehicle electric system and the vehicle mechanical system. The power supply lane system is to generate a magnetic field on lane, which is consisted of the power supply inverter, the power cable and the ferrite core. The vehicle electric system is to receive and store electrical energy supplied from the power lane, which is composed of the pickup coil, the rectifier, the regulator, the battery, the battery management system(BMS), the motor control unit(MCU) and the motor inverter. The vehicle mechanical system is composed of the traction motor, the reduction gear and the tire for generation of vehicle motion.

OLEV SYSTEM

This paper describes on the OLEV system developed in Dongwon OLEV and how to predict Driving Performance and Vehicle Energy Consumption through the OLEV system model.