

A Study on the Reliability Evaluation of a Timer Card for Air Dryer of the Railway Vehicle

Authors : Chul Su Kim, Jun Ku Lee, Won Jun Lee

Abstract : The EMU (electric multiple unit) vehicle timer card is a PCB (printed circuit board) for controlling the air-dryer to remove the moisture of the generated air from the air compressor of the braking device. This card is exposed to the lower part of the railway vehicle, so it is greatly affected by the external environment such as temperature and humidity. The main cause of the failure of this timer card is deterioration of soldering area of the PCB surface due to temperature and humidity. Therefore, in the viewpoint of preventive maintenance, it is important to evaluate the reliability of the timer card and predict the replacement cycle to secure the safety of the air braking device is one of the main devices for driving. In this study, the existing and the improved products were evaluated on the reliability through ALT (accelerated life test). In addition, the acceleration factor by the 'Coffin-Manson' equation was obtained, and the remaining lifetime was compared and examined.

Keywords : reliability evaluation, timer card, Printed Circuit Board, Accelerated Life Test

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