

## **Safety-related Communication in Transmission Systems that are Mixed with Non-safety-related Devices**

Mitsuyoshi FUKUDA    Kouji IWATA    Hiroyuki SUGAHARA

Takayasu KITANO    Kunihiro KAWASAKI

IEC 62280 defines requirements for safety related transmission systems in railway systems. Although the standard mentions the communication between fail-safe devices, there are many systems under which communication with non-fail-safe devices is conducted. So, it is necessary to confirm requirements for safety related transmission between devices including the non-fail-safe devices. However it is difficult to determine the behaviors of the devices, and every failure, in any transmission system, appears as the same event as threats described in IEC 62280. We analyzed the safety related transmission with non-fail-safe devices by this concept. In this paper, we describe the method of the analysis and the results.