

Development of a Sensor Data Collecting System for the Ground Coils of the Superconducting Maglev

Minoru TANAKA Noriyuki TAKAHASHI Ryohei IKEDA
Hiroshi YODA Masahito IWAI Kenji INAMOTO

In order to manage the ground coils of the superconducting maglev more effectively, we developed a sensor data collecting system. In this system, wireless sensors were mounted on the ground coils to monitor conditions, and monitoring results were collected by a running maintenance vehicle. We incorporated a wake-up receiver which controls the sleep mode using wireless wake-up signals, into the wireless sensor so as to reduce power consumption and radio wave interference. In the sleep mode, the power consumption of the wireless sensor when waiting the wake-up signal was 1.24mW. The system was evaluated in Kyusyu Shinkansen. When the wake-up signal was sent at 0.5-second intervals from a Shinkansen vehicle running at 248km/h, wireless sensor data was received 5 times. Based on this result, we can expect to introduce the data collecting system to the superconducting maglev vehicle running at 500km/h.