

**Development of Condition Monitoring System for Railway Facilities
Using Low Power Wide Area Wireless Communication Network**

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A condition monitoring system consisting of wireless sensors and a receiver was developed for condition-based maintenance of railway facilities. Lora, one of a low power wide area (LPWA) was used for wireless communications. To avoid communication interference, we controlled the transmission timing of each wireless sensor. Also, we introduced space diversity, time diversity, frequency diversity, and spreading factor diversity. Four wireless sensors were installed outdoors for 32 days and we succeeded in collecting all monitoring data.