

**An Application of a Formal Technology to an Appraisal of a Train Control System
with a Wireless Communication System**

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For a train control system with a wireless communication system, new architectures for wireless communications and train controls are introduced, and then conventional arguments often fail to focus on the superiority regarding the configurations. For such a reason, it is essential to model various properties properly and examine them sufficiently in advance. In this paper, an evaluation problem of a train delay for degraded situation is selected among such evaluation problems for a train control system with a wireless communication system. Then, Unified Modeling Language (UML), which provides many kinds of graphical expressions to examine the validity of the system requirements, is applied. In addition, a formal technique is introduced for proper modeling and sufficient examination of the evaluation.