Development of ATS-Dx with Permissible Speed Profile Using an On-board Database

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The authors had developed the basic train control system of ATS (Automatic Train Stop) -X which is interoperable with the existing ATS-Sx system already introduced into almost all the conventional lines of JR companies. The safety level of ATS-X system is higher than that of ATS-Sx system because ATS-X system has function to compare train speed with a permissible speed profile calculated by on-board device. This time, the authors developed a new ATS system called ATS-Dx system which uses a database installed in the on-board device, and is based on the ATS-X system. The ATS-Dx system is able to reduce the construction costs and the number of beacons with respect to the function of limited speed reference for curves and turnouts. In this paper, the authors report on the specifications of this system and the functional field test results.