Accuracy Improvement of Braking Distance by Using Deceleration Feedback Function Applying to Brake System

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The brake control systems used in current railways are generally open-loop structures. The braking performance tends to be affected by some disturbances, such as wheel slides, characteristics of friction components included in brake equipment. In order to stabilize automatically the braking performance, we propose a new closed-loop system which can make the train deceleration follow the target value changing with the braking distance. We carried out running tests using the rolling stock equipped with the proposed method. The results of the test showed that the proposed method sufficiently contributes to the reduction of the increase of braking distance in case of temporary brake degradation.