

## EVALUATION METHOD OF HANDLING QUALITIES OF PASSENGER CAR USING VEHICLE RESPONSES CHARACTERISTICS

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### Abstract

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This study proposed the objective handling qualities evaluation method using driver dynamics. In this study, first, handling qualities are defined clearly, and the driver strategy is assumed appropriately. Then, tracking operation experiments were conducted, and the driver model and the closed-loop system were mathematically analyzed. The analysis revealed the driving strategies clearly and it enhanced the fact that the closed-loop analysis is essential. Using the identified driver model and its strategies, the handling qualities evaluation method, which is driver-in-the-loop analysis, is developed. Simulator experiments for several car dynamics were performed, and it confirmed the validities of the proposed method.

### Keywords

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Handling qualities, Driver model, Driver-in-the-loop analysis, tracking experiment, identification