

Evaluation review of a chassis dynamometer system for xEV testing

- (4th Report) Overview of JASO E 018 Part-3 for the Purpose of Reproducing Actual Driving Conditions -

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Even when emissions and fuel economy are measured under real-world driving conditions, there are no established methods to verify the reproducibility of these results. Consequently, it is difficult to identify the cause even when the measured results differ significantly from expected levels. Furthermore, during the vehicle development phase, it is necessary to evaluate in advance the vehicle's ability to handle a wide variety of real-world driving conditions; however, this presents a significant technical challenge due to the reasons mentioned above. Therefore, this standard was established to enable detailed experimental investigation of emissions, fuel consumption, and electric energy consumption by reproducing a wide range of real-world driving conditions on a chassis dynamometer. This standard specifies the control requirements for chassis dynamometers designed to reproduce real-world driving conditions, as well as methods for evaluating their performance. Part 1 specifies the control requirements and performance evaluation methods for chassis dynamometers designed to reproduce real-world driving conditions. Part 2 standardizes the evaluation of the effectiveness of measures to suppress tire slip on chassis dynamometers. In Part 3 of this standard, methods and evaluation metrics that enable highly accurate assessment of xEVs were standardized, taking into account the powertrain characteristics of these vehicles, and their validity was verified.

Table. Recommended Range by Purpose and Evaluation Mode

	Evaluation Metrics	a			b	c
		Acceleration	Deceleration	Low speed	Recommended Range	Recommended Range
Driving load control evaluation	Correlation coefficient	≥ 0.98	≥ 0.98	≥ 0.98	Not specified	≥ 0.98
	Slope of a regression	Recommended range in Fig. 1			1.00 ± 0.02	Recommended range in Fig. 11
	Regression intercept	Not specified			Not specified	Not specified
	Deviation rate of force	$\leq 5\%$	$\leq 5\%$	$\leq 5\%$	Not specified	$\leq 5\%$
Speed difference	Speed difference	≤ 0.16 km/h	≤ 0.16 km/h	≤ 0.16 km/h	≤ 0.16 km/h	Per JASO E 014 5.5. However, for a sampling rate of 10 ms, data shall be downsampled.
	Section distance	Not specified	Not specified	Not specified	Not specified	
	Distance difference rate	Not specified	Not specified	Not specified	Not specified	
Accumulated power	Accumulated power difference	Not specified	Not specified	Not specified	Not specified	User judgment
	Accumulated power deviation rate	Not specified	Not specified	Not specified	Not specified	User judgment

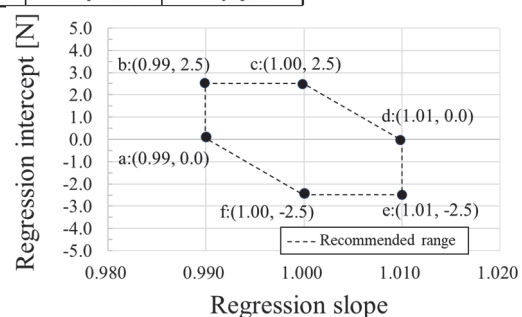
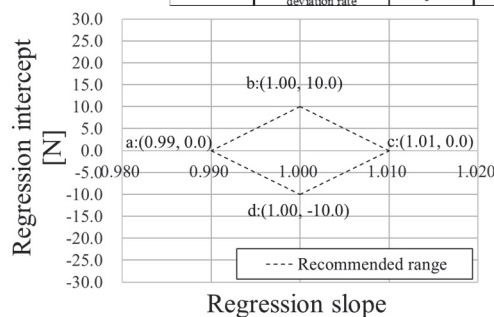


Fig. Recommended Range for Slope and Intercept of Regression Line