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Hybrid-electric road vehicles — Guidelines for charge balance measurement

Véhicules routiers électriques hybrides — Lignes directrices pour le mesurage de la balance de charge

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

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Introduction

On the fuel consumption test of non-externally chargeable *hybrid-electric vehicles* (HEV), it is essential to measure the charge balance in a rechargeable energy storage system (RESS) during a test period in order to compensate the effect of energy change in a RESS on fuel consumption. ISO 23274, which defines a basic fuel consumption test method for non-externally chargeable HEVs, does not define required accuracy on a current measurement system but defines required accuracy on charge balance as required accuracy for the total current measurement system; so the required accuracy of current sensor or current measuring system for each test should be individually managed.

To investigate the required accuracy on a current measuring system is a complicated task, due to the fact that the effect of current measurement error on fuel consumption test accuracy depends on both vehicle characteristics and test cycle. As the charge balance is normally obtained by integrating battery current (remainder of “accumulated value of charging current” minus “accumulated value of discharged current”) and as the battery current is composed of intermittent huge charging current, intermittent huge discharging current and small current with long duration time, it is necessary to pay special attention to managing the d.c. stability in the current measurement system to keep the required accuracy.

In consideration of these backgrounds, this Technocal Report describes detailed guidelines for charge balance measurement methods (including requirements for current measuring systems) to fulfil the required total accuracy prescribed in ISO 23274.