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**Automatic train operating device
for railway rolling stock—
Test methods**

ICS 45.040; 45.120

Descriptors : railway vehicle components, control devices, rail safety

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Land, Infrastructure and Transport through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

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Automatic train operating device for railway rolling stock— Test methods

1 Scope This Japanese Industrial Standard specifies test methods for automatic train operating device on board⁽¹⁾ (hereafter referred to as “device”), for railway rolling stock, making the train power driving, coasting and brake controlling automatically under backup of the automatic train control device (ATC).

Note (1) Device comprised of on-board transmission equipment assigned to transmission of tracking position information and data and on-board control equipment performing the train operation control.

2 Normative references The following standards contain provision which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of these standards shall be applied.

JIS B 7507 *Vernier, dial and digital callipers*

JIS B 7512 *Steel tape measures*

JIS C 0920 *Tests to prove protection against ingress of water and degrees of protection against ingress of solid objects for electrical equipment*

JIS D 0207 *General rules of dust test for automobile parts*

JIS E 4001 *Railway rolling stock—Vocabulary*

JIS E 4031 *Railway rolling stock parts—Test methods for vibration*

JIS E 4032 *Railway rolling stock parts—Test methods for shock*

JIS E 5004 *Control equipment for electric rolling stock—Test methods*

JIS E 5006 *Railway rolling stock—Electronic equipment—General rules for tests*

3 Definitions For the purposes of this Standard, the definitions of **JIS E 4001** apply, and the rest of the terms are as follows.

- a) **on-board transmission equipment** Device which, making information transmission with wayside through the pickup coil, performs exchange of transmitted information with the respective on-board facilities to be connected with.
- b) **pickup coil** The antenna which, joined to the on-board transmission equipment, serves data transmission with ground through linkage to the wayside coil.
- c) **wayside transmission equipment** Device which, making information transmission with on-train through the wayside coil, performs exchange of transmitted information with the respective wayside facilities to be connected with.
- d) **wayside coil** The antenna which, joined to the wayside transmission equipment, serves data transmission with on-train through linkage to the pickup coil.
- e) **on-board control equipment** Device which outputs power driving command and braking command, based on the tracking position information and data transmission information of on-board transmission equipment and the automatic speed control information of ATC, to serve automatic operation of the train.

4 Test conditions Test conditions shall be as follows:

4.1 Common conditions for test place For the common conditions for test place, unless otherwise designated particularly, clause **9** (Common conditions for test place) of **JIS E 5004** applies.

4.2 Power supply voltage and frequency For the voltage and frequency of power source to be supplied to the device, **6.1** (Conditions of supply voltage) **b)** procedure 2 and **6.3** (Conditions of frequency) of **JIS E 5004** apply.

4.3 Auxiliary test equipment

- a) **Wayside simulation tester** The wayside simulation tester, which is a test equipment simulating the wayside transmission equipment, shall have the function of forming wayside information, measurement of on-board information, and start/stop of transmission sending.

5 Categories, items and classification of test

5.1 Categories of test There are three categories of test, which are type tests, routine tests and investigation tests, as follows.

- a) **Type tests** Type tests shall be performed on a single device by every group of the same design. If a part of the device is almost identical to the one tested previously, it is not necessary to repeat the relevant tests.
- b) **Routine tests** Routine tests shall be performed on all the device.
- c) **Investigation tests** Investigation tests shall be performed, intending to obtain additional information regarding service conditions and the like, as needed based on the agreement between the parties concerned with delivery.

5.2 Test items Table 1 gives the test items.

5.3 Classification of temperature tests For the classification of temperature tests, **6.2** (Classification of temperature tests) of **JIS E 5006** applies. In the case where any temperature specification is provided on the agreement, it shall be applied.