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**Intelligence grading of artificial intelligence terminal - Part 7:
Cockpit**

人工智能终端智能化分级 第7部分：汽车座舱

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1 Scope

This document specifies the division into levels of the key intelligence capabilities of the vehicle cockpit and the determination of the level, and describes the test methods.

This document applies to guiding the intelligence upgrading of the vehicle cockpit, and provides a reference for the design, development, application, selection and evaluation of vehicle cockpits.

2 Normative references

The following documents contain provisions which, through normative reference in this text, constitute indispensable provisions of this document. For dated references, only the edition cited applies. For undated references, the latest edition, including any amendments, applies.

GB/Z 177.1-2026, Grading of intelligence for artificial intelligence terminals - Part 1: Reference framework

GB/Z 177.2-2026, Grading of intelligence for artificial intelligence terminals - Part 2: General requirements

3 Terms and definitions

3.1 artificial intelligence cockpit - a mobile space in which the software and hardware systems carried inside the vehicle possess intelligence capabilities such as human-machine interaction, network connection and scenario extension, and provide the driver and passengers with an intelligent, efficient and comprehensive user experience.

4 Abbreviated terms

The abbreviated terms defined in GB/Z 177.1-2026 and GB/Z 177.2-2026 and the following apply to this document. USB: Universal Serial Bus.

5 Key capabilities

5.1 Overview. Following GB/Z 177.2, specific requirements are put on the perception, cognition, execution, memory and learning capabilities of the vehicle cockpit.

5.2 L1 response level. 5.2.1 Perception. 5.2.1.1 Perception of user information: the capability to receive a single instruction shall be provided; the accuracy of speech-to-character recognition shall be not less than 90 % in a low-noise environment and not less than 80 % in a high-noise environment; the parameters of the low-noise and high-noise environment scenarios are given in Annex A.

5.2.1.2 Perception of device information: the capability to perceive device information shall be provided, including a) the capability to perceive the hardware state of the cockpit terminal, such as the state of the cockpit equipment and the cockpit settings; b) the capability to perceive the software information of the cockpit terminal, such as the list of installed software and the software state. 5.2.1.3 Perception of environmental information: the capability to obtain information about the environment inside the cockpit through sensors integrated within the cockpit system shall be provided, with not fewer than two types of information perceived, such as lighting environment information and temperature

information; the types of information are given in Annex B.

5.2.2 Cognition. 5.2.2.1 Understanding: the capability to understand shall be provided, including a) the capability to understand a single simple instruction from the user, the instructions being described in Annex C; b) the capability to understand a complex user instruction containing conditions or several steps, the instructions being described in Annex C. 5.2.2.2 Reasoning: no requirement. 5.2.2.3 Planning: no requirement.

5.2.3 Execution. 5.2.3.1 Tool calling: the capability to call tools shall be provided, including a) the capability to call a determinate tool to complete a cockpit service, such as calling the map to start navigation; b) the cockpit gives clear feedback when a tool call fails, such as a spoken announcement when music fails to play. 5.2.3.2 Content generation: the capability to generate a reply in Chinese text shall be provided, such as basic question answering. 5.2.3.3 Interconnected collaboration: no requirement. 5.2.3.4 Expressive output: the capability to feed back the state and the result of the task to the user by text output shall be provided. 5.2.4 Memory. 5.2.4.1 Short-term memory: no requirement.

5.4.3.3 Interconnected collaboration at L3 includes b) the capability of an external device to control the vehicle, such as opening the doors or the air conditioning from a mobile terminal; c) the capability to control external devices, such as screen casting from a mobile terminal or an in-vehicle air purifier. 5.4.3.4 Expressive output: the capability to feed back the state and the result of the task to the user through output in text, audio or image form shall be provided.

5.4.4 Memory. 5.4.4.1 Short-term memory: the capability to remember the content of the context of a single session shall be provided. 5.4.4.2 Long-term memory: the capability to remember the session history and the preferences of the user over the long term shall be provided. 5.4.5 Learning. 5.4.5.1 Context-adaptive learning: within a single session, the capability to adjust and optimize the output content dynamically according to the context or the examples of the user shall be provided. 5.4.5.2 Continuous evolutionary learning: no requirement.

6 Determination of the level

The intelligence level of the vehicle cockpit is determined by reference to the conformity method of 9.3.1 of GB/Z 177.2-2026. According to the target intelligence level applied for by the client and the capabilities this document specifies for that level, several test scenarios are selected until all the capability items are covered; examples of test scenarios are given in Annex D. Each scenario verifies the detailed capability items associated with it - for instance a scenario may have to verify the perception of user information, the understanding of the intent of an instruction and tool calling - and the test methods may follow Annex E. The language of all voice instructions is standard Mandarin Chinese.