

ICS 43.040



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Determination method for priority of on-board messages of
passenger car**

乘用车车载信息优先级的确定方法

(English Translation)

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1 Scope

This document describes the steps for collecting priority indices for in-vehicle information in passenger cars, data analysis, alternative methods for determining information priority, and the application of the results.

This document applies to the design and evaluation of M1 category vehicles equipped with in-vehicle information interaction systems. Other types of vehicles shall refer to this document for implementation.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 40856-2021, Technical requirements and test methods for cybersecurity of on-board information interactive system

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 40856-2021 as well as the followings apply.

3.1

contents of message

Information provided to the vehicle driver via the in-vehicle information interaction system.

NOTE 1: This includes system status information, warning messages, and similar data, represented by text, symbols, numbers, tones, sounds, or other means.

NOTE 2: For example, navigation information, driving information, media information, phone information, etc.

3.2

criticality

The criticality of the consequences resulting from the most probable accidents or malfunctions that occur when the driver fails to receive or ignores the content of a message.

3.3

evaluator

Personnel responsible for assessing the criticality and urgency of information for drivers.

3.4

examiner

Personnel who manage and guide the use of this document to establish priorities.

3.5

priority

It determines the relative importance of two or more pieces of information regarding their ordering or display within a time series.

NOTE: Information with the highest priority shall be displayed first (information with a higher priority rating corresponds to a higher priority level).

3.6

priority index

An indicator used to determine the priority of individual pieces of information when two or more messages need to be displayed.

3.7

scenario

Explanatory information regarding the driving environment and conditions provided to the evaluator.

3.8

urgency

If the system's expected benefits are derived from specific information, the driver must take action or make a decision based on that information within the specified timeframe.

NOTE: Urgency indicates an assessment of time.

3.9

weighting factor of criticality k_c

A factor used to calculate the criticality-related component of the priority index.

3.10

weighting factor of urgency k_u

A factor used to calculate the urgency-related component of the priority index.

3.11

human-machine interface; HMI

A medium for human-machine interaction and information exchange between in- vehicle systems, the driver, and passengers.

4.1 Overview

The data for the information priority index is collected in accordance with the steps outlined in 4.2~4.6.

4.2 Appointment of examiners

The priority index method requires examiners to coordinate the preparation and analysis of data, and the completion of the report. The responsibilities of the examiners are set forth in 4.7.

Examiners shall be familiar with prioritization methods and processes, possess an understanding of in-vehicle information management content, and have practical experience in the real-vehicle testing and usage of in-vehicle information systems, as well as a foundational understanding of human-machine interaction within information systems.

If the qualifications of the examiner are similar to those of the evaluator, the examiner may participate in the evaluation simultaneously as both an examiner and an evaluator.

4.3 Identifying and integrating information

Examiners shall identify in advance the information that the human-machine interface shall present to the driver. Examiners shall collect this information and submit it to the evaluators.

4.4.1 General principles

Examiners must define or assist in defining the driving environment and conditions, based on the road environment and traffic conditions that may present information.

When presenting information, it is advisable to define the relevant environmental and situational factors. Particular care shall be taken regarding the presentation of information in situations involving potential hazards. All hazardous situations shall be considered, with the exception of those deemed extremely unlikely to occur. Based on these conditions, the examiner may define one or more scenarios - typically no more than four - for a specific piece of information. In cases where the vehicle is unable to perceive the situation, or where only a single scenario is utilized for a given piece of information, that scenario shall represent a reasonable "worst-case" situation. If the same information is presented under two different scenarios, it shall be treated as two distinct information items for the purpose of evaluation.

NOTE 1: The priority of information related to system faults depends on the vehicle's status (for example, the priority differs depending on whether the vehicle is in the start-up or driving state).

NOTE 2: The information provided to the driver shall depend on the vehicle's ability to perceive or detect various relevant conditions (for example, if the vehicle detects the driver's state of alertness, the driver's alertness level is taken into account when describing the driving scenario).

4.4.2.1 General principles

Table 1 lists examples of factors to be considered when formulating driving scenarios;

examiners may refer to Table 1 to define the driving environment and relevant conditions. Examiners may utilize these environmental and situational factors to define driving scenarios. For driving environments and conditions in the examples that cannot be categorized under the candidate factors listed in Table 1, they shall be described under the "Other" category. If a factor serves to define neither the environment nor the conditions, "To be defined" shall be selected in the candidate column.

When clearly describing the driving environment and conditions, evaluators shall consider the factors listed in Table 1 during the rating process.

Table 1 -- Examples of factors to consider when formulating driving scenarios