

ICS 45.060
CCS S 30



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

GB/T 44409.1-2024

**Heating, ventilation and air conditioning systems for rolling
stock - Part 1: Terms and definitions**

机车车辆空气调节系统 第1部分：术语与定义

(English Translation)

Issued on: August 23, 2024

Implemented on: August 23, 2024

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative references	
3 Terms and Definitions	
4 Symbols and abbreviations	18
Reference	
Index	

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 1 of GB/T 44409 "Rolling stock air conditioning systems". GB/T 44409 has been published in the following parts.

--- Part 1: Terms and definitions.

This document replaces GB/T 4549.7-2004 "Vocabulary of railway vehicles Part 7: Heating, ventilation and air conditioning equipment" and Compared with GB/T 4549.7-2004, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The scope of application has been changed (see Chapter 1, Chapter 1 of the 2004 edition);
- b) Added air conditioning system, air conditioning unit, vehicle space, air classification, heat load, air pressure, comfort, test and Maintenance related terms and definitions (see 3.1 to 3.9);
- c) Changes to natural ventilation, forced ventilation, air conditioning unit, heating unit, air preheating device, ventilation unit, ventilator, air duct, Fresh air duct, supply air duct, return air duct, exhaust duct, electric humidifier, compact air conditioning unit, split air conditioning unit, compressor the term name or definition of air conditioner, condenser, evaporator, condensing fan, blower, capillary tube and air filter shall be expressed as follows (see 3.1.1.8, 3.1.1.9, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.1.3.9, 3.1.3.10, 3.1.3.16, 3.1.3.17, 3.1.3.18, 3.1.3.19, 3.1.3.20, 3.1.3.24, 3.2.1.1, 3.2.1.2, 3.2.3.4, 3.2.3.6, 3.2.3.7, 3.2.3.9, 3.2.3.10,

3.2.3.23 and 3.2.3.26, 3.4, 3.3, 4.1, 2.1, 4.4, 3.1, 3.2, 4.18, 4.19, 4.20, 4.21, 4.22, 4.25, 4.6, 4.7, 4.8, 4.9, 4.10, 4.15, 4.16, 4.11 and 4.17);

d) Deleted the following items. warm water heating device, independent warm water heating device, electric heating device, automatic temperature control device, room temperature controller, air conditioner Air precooling device, dryer, filter, tuyere and exhaust device terms and definitions (see 2004 edition 2.2, 2.3, 2.4, 4.2, 4.3, 4.5, 4.13, 4.14, 4.23 and 4.24);

e) Added symbols and abbreviations for rolling stock air conditioning systems (see Chapter 4);

f) Deleted relevant equivalent terms (see Appendix A of the 2004 edition).

This document is modified to adopt ISO 19659-1:2017 "Heating, ventilation and air conditioning systems for rolling stock for railway applications Part 1 Part 1: Terms and Definitions.

This document has the following structural adjustments compared to ISO 19659-1:2017.

--- Due to the addition of new terms in 3.1.3 and 3.2.3, the corresponding term item numbers in ISO 19659-1:2017 have been renumbered in sequence.

Postponed.

The technical differences between this document and ISO 19659-1:2017 and their reasons are as follows.

--- Added terms and definitions such as "air conditioning system" to supplement and improve the terminology system of air conditioning systems for rolling stock applicable in my country (See 3.1, 3.1.3.2, 3.1.3.6, 3.1.3.10, 3.1.3.17, 3.1.3.18, 3.1.3.19, 3.1.3.20, 3.1.3.24, 3.2.3.23, 3.2.3.24, 3.2.3.25 and 3.2.3.26);

--- Added the permissible terms of related terms to meet the actual domestic application (see 3.1.1.9, 3.1.1.10, 3.1.4.15, 3.1.5.5, 3.1.5.6, 3.1.5.7, 3.1.5.8);

--- Changed the expressions of relevant term definitions to conform to domestic application practices (see 3.1.3.8, 3.5.6, 3.5.7, 3.5.9, 3.7.1, 3.7.2, 3.1.3.8, 3.5.6, 3.5.7, 3.5.9, 3.7.1, 3.7.2 of ISO 19659-1:2017).

The following editorial changes were made to this document.

--- Changed the standard name;

--- Deleted the sources of terms and definitions;

--- Changed the description of the relevant matters;

--- Added the introductory words and table titles of the symbol list (see 4.1);

--- Added introductory words for abbreviations (see 4.2);

--- Changed references.

Introduction

The International Organization for Standardization Railway Application Technical Committee (ISO/TC269) has developed standards for rail transit vehicle air conditioning, including technical specifications, it comprehensively specifies the terms and definitions, comfort parameters, energy efficiency, etc. of the air conditioning system of rolling stock.

In order to formulate the air conditioning system standard for rail transit locomotives and vehicles in line with China's national conditions, improve the relevant standard system, and cooperate with international rail transit Based on the domestic application practice and relevant international standards, GB/T 44409 "Road and Rolling Stock Air Conditioning Technical Standard System" was formulated.

The standard for air conditioning systems is planned to consist of three parts.

--- Part 1: Terms and definitions. The purpose is to systematically and comprehensively specify the terms and definitions, symbols and Abbreviations.

--- Part 2: Comfort. The purpose is to specify the thermal comfort parameters and equipment performance requirements of rolling stock air conditioning systems and test methods.

--- Part 3: Energy efficiency. The purpose is to specify the measurement, test and evaluation methods of energy efficiency of air conditioning systems for rolling stock.

Rolling stock air conditioning system Part 1: Terms and definitions

1 Scope

This document defines the terms and definitions, symbols and abbreviations for rolling stock air conditioning systems.

This document applies to rolling stock air conditioning systems.

2 Normative references

This document has no normative references.

3 Terms and definitions

Heating, ventilation and air conditioning systems Systems for cooling (3.1.1.1) and/or dehumidification (3.1.1.3) and/or heating (3.1.1.4) and/or ventilation (3.1.1.7)

3.1.1 Function

3.1.1.1

Refrigeration

The process of lowering or maintaining the temperature inside a vehicle.

3.1.1.2

Pre-cooling

The process of lowering the temperature inside a vehicle (with no passengers in the vehicle).

3.1.1.3

Dehumidification

The process of removing water vapor from the air to reduce the absolute humidity.

3.1.1.4

Heating

The process of raising or maintaining the temperature inside a vehicle.

3.1.1.5

Preheating

The process of increasing the temperature inside the vehicle (with no passengers in the vehicle).

3.1.1.6

Supplementary heating Auxiliary heating Additional heating to support the air conditioning system (3.1.1.4).