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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 21561.4-2018

Railway applications - Rolling stock pantograph characteristics and tests - Part 4: Interface between the pantograph and metro and light rail vehicles

轨道交通 机车车辆受电弓特性和试验 第4部分：受电弓与地铁、轻轨车辆接口

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Foreword

GB/T 21561 "Characteristics and test of the pantograph of rail transit rolling stock" is divided into four parts.

--- Part 1. The pantograph of the mainline locomotive;

--- Part 2. Pantographs for metro and light rail vehicles;

--- Part 3. Interface between pantograph and mainline locomotives;

--- Part 4. The interface between the pantograph and the subway and light rail vehicles. This part is the fourth part of GB/T 21561. This part is drafted in accordance with the rules given in GB/T 1.1-2009. Please note that some of the contents of this document may involve patents. The issuing organization of this document is not responsible for identifying these patents. This part is proposed by the National Railway Administration. This part is under the jurisdiction of the National Traction Electrical Equipment and Systems Standardization Technical Committee (SAC/TC278). This section is responsible for drafting the unit. CRRC Zhuzhou Electric Locomotive Co., Ltd. Participated in the drafting of this section. CRRC Qingdao Sifang Locomotive & Rolling Stock Co., Ltd., CRRC Nanjing Puzhen Vehicle Co., Ltd. Spring Rail Bus Co., Ltd. The main drafters of this section. Li Jun, Guo Jianxiang, Han Qingjun, Lu Qing, Zhang Guoqin. Characteristics and test of pantograph of rail transit rolling stock Part 4. Interfaces between pantographs and subway and light rail vehicles

1 Scope

China's national specification for the interface between a pantograph and a metro or light

rail vehicle. It is Part 4 of GB/T 21561 and specifies the interface layout and the mechanical, pneumatic and electrical interfaces between the pantograph and the vehicle, including the valve plate, and it applies to metro and light rail vehicles. The pantograph is bought as a unit and fitted to a roof designed by somebody else, often years apart and often by different companies over the life of a fleet. What this part standardises is therefore not the pantograph and not the vehicle but the boundary between them, so that a replacement or a different supplier's unit fits and works. The mechanical interface is the mounting: the bolt pattern, the insulator positions, the heights and the space envelope through which the pantograph must sweep without touching anything on the roof. The pneumatic interface matters because a metro pantograph is raised by air and lowered by spring or by air, and the raising force - which determines the contact force against the overhead line and therefore both the current collection and the wear of the contact wire - is set by the air pressure supplied by the vehicle. The valve plate through which that air is controlled is part of the interface for exactly that reason. The electrical interface covers the high-voltage connection down to the roof equipment and the low-voltage control and monitoring signals. Metro and light rail are treated separately from mainline traction because the voltages, the roof space, the line heights and the duty are all different. Issued on 28 December 2018 and in force since 1 July 2019.

This part of GB/T 21561 specifies the interface layout, mechanical interface, pneumatic interface and electrical interface of the pantograph with subway and light rail vehicles. And gas valve plate. This section applies to subway and light rail vehicles.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

ISO 8573-1.2010 compressed air Part 1. Contaminant purification grades (Compressedair-Part 1. Contaminants Andpurityclasses)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Target area targetarea The area used to locate the mechanical, pneumatic, and electrical interface locations on the xy plane.

4 Coordinate system

The x-axis is based on the longitudinal centerline of the pantograph, the negative direction points to the elbow joint of the pantograph, and the y-axis is the centerline of the pivot of the pantograph bow. For the reference, the intersection of the x-axis and the y-axis is the

coordinate origin.

5 Interface

5.1 Interface layout The arrangement of the interfaces and mutual positions is shown in Figure 1.