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**Data communication protocol between intelligent terminal
and dispatching center for urban bus and trolley bus**
城市公共汽电车车载智能终端与调度中心间数据通信协议

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Data communication protocol between intelligent terminal and dispatching center for urban bus and trolley bus

1 Scope

This document specifies the protocol basis, communication connection, message processing and data format for data communication between intelligent terminal and dispatching center for urban bus and trolley bus.

This document is applicable to the data communication between intelligent terminal and dispatching center for urban bus and trolley bus through wireless transmission channels.

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 32852.1-2016, *Urban passenger transportation terminology - Part 1: General terminology*

JT/T 808-2019, *GNSS for operating vehicles - General specifications for vehicle terminal communication protocol and data format*

JT/T 1076-2016, *GNSS system for operating vehicles - Technical specification for onboard video terminals*

JT/T 1078-2016, *GNSS system for operating vehicles - Video communication protocol*

3 Terms and definitions, abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 32852.1-2016 as well as the followings apply.

3.1.1 origin station; primary station

On a bus line, a start-end station that is equipped with a master scheduler.

The total mileage traveled by a delivery vehicle during the operation service process, including passenger mileage and empty mileage.

[Source: GB/T 32852.1-2016, 8.6]

3.1.11 dispatching center

A place for remote dispatching of operating vehicles on multiple lines.

[Source: GB/T 32852.2-2018, 3.3.2]

3.1.12 transit signal priority

According to the real-time monitored traffic conditions at intersections or historical traffic data, combined with the real-time passenger state of bus operating vehicles and the state of arriving earlier & later, priority signal timing is provided for bus operating vehicles, so that buses and trolley buses can pass in priority over other vehicles.

3.1.13 display plate for vehicle running position

The vehicle is marked with the name of the route and the names of the stops. There is an indicator light showing the current running position of the vehicle and the running direction of the vehicle.

[Source: GB/T 32852.2-2018, 3.5.24]

3.2 Abbreviations

The following abbreviations apply to this document.

CAN: Controller Area Network

FTP: File Transfer Protocol

GBK: Chinese Internal Code Specification

HTTP: Hyper Text Transfer Protocol

ID: Identity

IP: Internet Protocol

LCD: Liquid Crystal Display

LED: Light Emitting Diode

RSA: An asymmetric cryptographic algorithm (developed by Ron Rivest, Adi Shamir, Leonard Adleman, named after the names of the three)

TCP: Transmission Control Protocol

6.2 The classification, requirements and encryption mechanism of signaling data messages in the protocol shall comply with the requirements of Chapter 7 of JT/T 808-2019.

6.3 The real-time audio and video transmission channel agreement in the protocol shall meet the requirements of 4.2 in JT/T 1078-2016.

6.4 The audio and video signaling data message communication shall use the established link between the vehicle intelligent terminal and the dispatching center for the transmission of positioning information. No new link shall be created. A new link shall be created for the communication of audio and video code stream data message, instead of the link for transmitting the positioning information.

6.5 The message definition in the protocol shall meet the requirements of Annex A.

7 Data format

7.1 Basic data

7.1.1 General response from terminal

The data format of the general response message body of the terminal shall comply with the provisions in 8.1 of JT/T 808-2019.

7.1.2 General response from dispatching center

The data format of the general response message body of the dispatching center shall comply with the provisions in 8.2 of JT/T 808-2019.

7.1.3 Terminal heartbeat

The data format of the terminal heartbeat message body shall comply with the provisions in 8.3 of JT/T 808-2019.

7.1.4 Query server time request

The data format of the query server time request message body shall comply with the provisions in 8.4 of JT/T 808-2019.

7.1.5 Query server time response

The data format of the query server time response message body shall comply with the provisions in 8.5 of JT/T 808-2019.

7.1.6 Server retransmission subpackage request

The data format of the message body of the server's retransmission subpackage request

shall comply with the provisions of 8.6 of JT/T 808-2019.

7.1.7 Terminal retransmission subpackage request

The data format of the message body of the terminal retransmission subpackage request shall comply with the provisions in 8.7 of JT/T 808-2019.

7.1.8 Terminal registration

The data format of the terminal registration message body shall comply with the provisions in 8.8 of JT/T 808-2019.

7.1.9 Terminal registration response

The data format of the terminal registration response message body shall comply with the provisions in 8.9 of JT/T 808-2019.

7.1.10 Terminal logout

The data format of the terminal logout message body shall comply with the provisions in 8.10 of JT/T 808-2019.

7.1.11 Terminal authentication

The data format of the terminal authentication message body shall comply with the provisions of 8.11 in JT/T 808-2019.

7.1.12 Setting terminal parameters

The data format of the message body for setting terminal parameters shall comply with the provisions in 8.12 of JT/T 808-2019.

7.1.13 Query terminal parameters

The data format of the query terminal parameter message body shall comply with the provisions of 8.13 in JT/T 808-2019.

7.1.14 Query specified terminal parameters

The data format of the message body for querying the specified terminal parameters shall comply with the provisions in 8.14 of JT/T 808-2019.

7.1.15 Query terminal parameter response

The data format of the query terminal parameter response message body shall comply with the provisions in 8.15 of JT/T 808-2019.

7.1.16 Terminal control

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