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

JT/T 808-2019

**[Including 2021XG] GNSS for operating vehicles - General
specifications for vehicle terminal communication protocol and
data format**

道路运输车辆卫星定位系统终端通讯协议及数据格式 含2021年第1号修改单
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Table of Contents

Foreword...	3
1 Scope...	6
2 Normative references...	6
3 Terms and definitions, abbreviations...	6
4 Protocol basics...	9
5 Communication connection...	12
6 Message processing...	13
7 Protocol classification and requirements...	14
8 Data format...	19

1 Scope

This standard specifies the communication protocol and data format, between the on-board terminal of the satellite positioning system of road transport vehicles and the monitoring/monitoring platform, including protocol basis, communication connection, message processing, protocol classification and requirements, data format.

This standard applies to the communication -- between the on-board terminal of the satellite positioning system of road transport vehicles and the supervision/monitoring platform.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document;

for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 2260 Codes for the administrative divisions of the Peoples Republic of China

GB/T 19056 Vehicle travelling data recorder

JT/T 697.7-2014 Basic data element of transportation information - Part 7.Basic data element of road transportation information

JT/T 794 GNSS system for operating vehicles - Technical specification for vehicle terminals

3.1 Terms and definitions

The following terms and definitions apply to this document.

3.1.1

Abnormal data communication link

The state in which the wireless communication link is disconnected, or temporarily suspended (such as during a call).

3.1.2

Register

An operation that the terminal sends a message to the platform, informing that it is installed on a certain vehicle.

3.1.3

Unregister

An operation that the terminal sends a message to the platform to inform the removal from the installed vehicle.

3.1.4

Authentication

When the terminal is connected to the platform, it sends a message to the platform to verify its identity, at the same time reports the version of the protocol currently used to communicate with the platform.

3.1.5

Location reporting strategy

Rules for timed, distanced reporting or a combination of both.

3.1.6

Location reporting program

The rules for determining the location reporting interval, according to the location reporting strategy.

4.1 Communication method

The communication method, which is adopted by the protocol, shall comply with the relevant requirements in JT/T 794. The communication protocol shall adopt TCP or UDP, the supervision/monitoring platform (hereinafter referred to as the "platform") shall

serve as the server end, whilst the on-board terminal of the road transport's vehicle satellite positioning system (hereinafter referred to as "the terminal") serves as the client.

When the data communication link is abnormal, the terminal can use SMS messages to communicate.

4.2 Data types

The data types, which are used in protocol messages, are as shown in Table I.

4.3 Transmission rules

The protocol shall communicate words and doublewords in big-endian network byte order. The transmission rules are agreed as follows.

4.4.1 Message structure

Each message is composed of identification bit, message header, message body, check code. The message structure is as shown in Figure 1.

Identification bit Message header Message body Check code Identification bit

4.4.2 Identification bit

The identification bit shall be represented by 0x7e. If 0x7e and 0x7d appear in the check code, message header, message body, escape processing is required. The escaping rules are defined as follows.

4.4.3 Message header

4.4.3.1

See Table 2 for the content of the message header.

4.4.3.2

The message body's attribute format structure is as shown in Figure 2.

4.4.4 Message body

The format and content of each different command message body is determined by each command, see Chapter 7 for specific requirements.

4.4.5 Check code

The calculation rule of the check code shall start from the first byte of the message header, XOR operation with the next byte, until the end of the last byte of the message body; the length of the check code is one byte.

5.1 Connection establishment

The daily data connection -- between the terminal and the platform -- can use TCP or UDP. After the terminal is reset, it shall establish a connection with the platform. After the connection is established, it will immediately send a terminal authentication message to the platform, for authentication.

5.2 Maintenance of connection

After the connection is established and the terminal authentication is successful, the terminal shall periodically send a terminal heartbeat message to the platform; the platform will send a platform general response message to the terminal, after receiving it; the sending period is specified by the terminal parameters.

5.3 Disconnection of connection

Both the platform and the terminal shall actively determine whether the connection is disconnected.

The platform shall use the following methods, to determine whether the terminal connection is disconnected.

6.1.1 Messages mainly sent by the platform

All messages sent by the platform shall require the terminal to respond. Response is divided into two ways.

6.1.2.1 Normal data communication link

When the data communication link is normal, all messages mainly sent by the terminal shall require the platform to respond. Responses shall be divided into general responses and specific responses, which are determined by specific functional protocols. After the terminal waits for the response timeout, it shall resend the message.

6.1.2.2 Abnormal data communication link

When the data communication link is abnormal, the terminal shall save the location information report message to be sent. The saved message shall be sent, as soon as the data communication link is restored.

6.2 SMS message processing

When the terminal communication mode is switched to the SMS message mode, the PDU eight-bit encoding method shall be adopted. For messages with a length exceeding