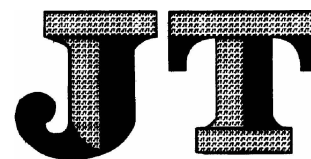


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Transportation Industry Standard of the People's Republic of China

JT 808—2019

Replaces JT808-2011

Communication protocols and data formats for road transport vehicle satellite positioning system terminals

~~公路卫星定位系统车载终端通信协议和数据格式~~
~~Communication protocols and data formats for road transport vehicle satellite positioning system terminals~~

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Preface

This standard is drafted in accordance with the rules given in GB/T1.1-2009.

This standard replaces JTIT808-2011 "Road Transportation Vehicle Satellite Positioning System Terminal Communication Protocol and Data Format". Compared with JTIT 808-2011, the main technical content changes except editorial changes are as follows.

- modified bit 14 of the message body attribute format of the message header to read "version identification" (see 4.4.3, 2011 version of 4.4.3).
- Modified the length of the terminal cell phone number in the message header (see 4.4.3, 2011 version of 4.4.3).
- Added server time query request (see 8.4).
- Addition of terminal sub-packet retransmission requests (see 8.7).
- Changed the description of the terminal model, terminal D length, and license plate format of the registration message (see 8.8, 2011 version 8.4).
- Changes to the manufacturer's D length and format definitions for terminal registration messages, as well as to the criteria for referencing license plate colors (see 8.8, 2011 version of 8.8).
- modified the terminal authentication message format by adding fields for software version number and IMEI number (see 8.11, 2011 version of 8.11).
- Modified the definition of license plate color in the Setup Terminal parameter (see 8.12, 2011 version of 8.12).
- The content of the parameters for setting terminal parameters has been modified (see 8.12, 2011 version of 8.12).
- Added the Query Specified Terminal Parameters command (see 8.14).
- The Query Terminal Properties command has been added (see 8.16).
- Revised the parameter description of the terminal control command to control the connection of the terminal to the specified server. Deleted the three control commands of "terminal shutdown", "data communication shutdown" and "all wireless communication shutdown", and deleted the description of the data type of the command parameter of the wireless upgrade command, and the specific command parameter type is based on the parameter type of the corresponding command word (see 8.16 of the 2011 version). 8.16, 2011 version).
- The requirements in the data format for event setup, event reporting, question placement, question answering, message on demand menu setup, message on demand I cancellation, and message service have been deleted (see 8.17, 8.18, 8.19, 8.20, 8.21 in the 2011 edition); - The requirements in the data format for event setup, event reporting, question placement, question answering, message on demand menu setup, message on demand I cancellation, and message service have been deleted, 8.22, 8.23).
- Added command to issue terminal upgrade packages (see 8.19).
- Location information reporting message requirements have been modified (see 8.21, 2011 version of 8.21).
- Manual acknowledgement of alarms has been added (see 8.25).
- The Terminal Link Detection command has been added (see 8.26).
- the requirement to send text messages has been modified (see 8.27, 2011 version); and
- Modified the data format for vehicle control commands (see 8.30, 8.12 of the 2011 edition).
- Added definitions such as switch gates for setting area attributes for circular area commands (see 8.32).
- Added fields for the names of Set Rectangular Area, Set Circular Area, Set Polygonal Area, Set Route, etc. (see 8.32 ~ 8.38).
- Added query area or line data and response (see 8.40).
- Added definition of data block field for tachograph data collection commands (see 8.42).
- Added a request to report driver identification information (see 8.46).
- Revised the structure of the Driver Identity Capture Upload message (see 8.47, 2011 version 8.47).
- Added a bulk upload request for location data (see 8.48).
- Added CAN bus data upload request (see 8.49).
- Added field for location information for multimedia data uploads (see 8.51).
- Added definitions for minimum and maximum resolution for the Camera Immediate Capture command (see 8.53); --
- Added a new definition of the minimum and maximum resolution for the Camera Immediate Capture command (see 8.53).
- Added the Camera Immediate Recording command response (see 8.54).
- Added storage of multimedia IDs in the Multimedia Data Retrieval Response Multimedia Retrieval Item Data Format (see 8.56); --- Added storage of multimedia IDs in the Multimedia Data Retrieval Response Multimedia Retrieval Item Data Format.

- Added the Single Storage Multimedia Data Retrieval Upload command (see 8.59); --- Added the Single Storage Multimedia Data Retrieval Upload command (see 8.59).
- Added a table of passthrough message type definitions for passthrough message type descriptions in data downstream passthrough commands (see 8.60).
- modified the description of the passthrough message type for data uplink passthrough commands (see 8.61, 2011 version of 8.61); and
- Modified the peripheral type numbering table to include burglar alarm peripheral types (see Table A.2).
- Modified the table of command types, added the contents of special protocols related to the Road Transportation Certificate C card and the contents of peripheral self-test and firmware update (see table A3).
- The Query Slave Version Number Information command has been added (see A3.4).
- The slave self-test command has been added (see A3.5).
- Slave firmware update command added (see A3.6).
- Added the Query Peripheral Attributes command (see A3.7) ;--- Added the Query Peripheral Attributes command (see A3.7) .
- The C-Card Authentication Specific Protocol description has been added (see A.4).
- Message cross-reference tables have been revised, supplemented with the addition of all new directive content, and the scope of vendor-defined uplink messages and vendor-defined downlink messages has been defined (see Appendix B).

This standard is proposed by the National Road Transportation Standardization Technical Committee (SACITC521) and under the control of the National Road Transportation Standardization Technical Committee (SACITC521).

This standard drafting unit: fujian province department of transportation, China traffic communication information center, the ministry of transportation highway research institute.

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Liang, Xie Zizhong, Ma Zhiran, Lin Zhao, Yao Yu, Wang Shufang, Luo Guanwei, Liu Xiaosong, Zhuo Zaipei.

The successive editions of the standard that this standard replaces were issued as follows.

---JT/T 808—2011。

Communication protocols and data formats for road transport vehicle satellite positioning system terminals

1 Scope

This standard specifies the communication protocol and data format between the vehicle-mounted terminal of the road transportation vehicle satellite positioning system and the supervisory monitoring platform.

Includes protocol fundamentals, communication connections, message handling, protocol classifications and requirements, and data formats.

This standard applies to the road transport vehicle satellite positioning system vehicle terminal and supervision and monitoring platform for communication between.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this document. For undated references, the latest version (including all change orders) applies to this document.

GB 2260 The administrative code of the People's Republic of China

GB 19056 Vehicle tachographs

JT/T 697.7—2014 Transportation Information Base Data Elements Part 7: Road transport information base data elements

JT/T 794 Satellite Positioning System for Road Transportation Vehicles Technical requirements for vehicle-mounted terminals

3 terms and definitions, acronyms

3.1 Terminology and definitions

The following terms and definitions apply to this document.

3.1.1

data communication link anomaly **数据通信链路异常**

A state in which the wireless communication link is disconnected, or temporarily suspended (e.g., during a call).

3.1.2

Registration **注册**

The terminal sends a message to the platform informing it of the operation of a vehicle on which it is installed.

3.1.3

Write-offs **注销**

The terminal sends a message to the platform informing of the removal from the installed vehicle.

3.1.4

Forensics **取证**

When the terminal connects to the platform, it sends a message to the platform so that the platform can authenticate itself, and at the same time reports the version of the protocol that it is currently using to communicate with the platform.

3.1.5

location reporting strategies **位置报告策略**

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

3.1.6

The Position Reporting Program **位置报告程序**

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Determine rules for location reporting intervals based on the location reporting strategy.

3.1.7

Inflection point complementary passages ~~adfin lp isq rwh tbnq~~

The rules for the terminal to send a position information report message when it determines that the vehicle has turned a corner. The sampling frequency is not less than 1Hz, and the rate of change of the vehicle's azimuth angle is not less than 15°, and lasts at least 3s.

3.1.8

telephone answering strategies ~~answrig strgy~~

Rules for the terminal to answer incoming calls automatically or manually.

3.1.9

SMS text alarms ~~sstetalm~~

Operation of sending text messages by SMS when the terminal alarms.

3.1.10

multi-center connectivity strategies ~~multictrnctlnstrgy~~

The terminal shall report the same data content to multiple central servers at the same time, and the terminal shall only respond to the commands from the master server, but not from the slave servers, in response to the commands from the central server.

32 Abbreviations

The following abbreviations apply to this document.

ID - Identity

APN - Access Point Name (snt)

GZP - a GNU free software file compression program (GNUzip)

LCD - liquid crystal display (Liquid CrystalDisplay)

MSA - a ùú symmetrical code üý (by Mon Mivest "AdiShamirh" Len Ad1eman, from the name ý°) SMS - short message service (ShteS). -Short Message Service (ShteS).

TCP - Transmission Control Protocol (Transmission

ControlProtocol) TTS - Text to Speech (TextToSpeech)

UDP---User Datagram Protocol (UserDatagramProtocol) VSS--

-Vehicle Speed Sensor (VehicleSpeed Sensor)

GNSS---Global Navigation Satellite System (G1oha1Navigation Sate11iteSystem)

GBK---ChineseInternalCodeSpecification GBK---

ChineseInternalCodeSpecification

4 Basis of Agreement

4.1 communication methods

The communication mode adopted in the protocol shall conform to the relevant provisions of JTIT794, and the communication protocol adopts TCP or UDP, with the supervision and monitoring platform (hereinafter referred to as the "platform") as the server, and the vehicle-mounted terminal of the satellite positioning system for road transportation vehicles (hereinafter referred to as the "terminal") as the client. (hereinafter referred to as "terminal") as the client. When the data communication link is abnormal, the terminal can use SMS message to communicate.

4.2 data type

The data types used in protocol messages are shown in Table 1.

Table 1 Data types

data type	description and requirements
BYTE	Unsigned single-byte integer (byte, 8-bit)
WORD	Unsigned double-byte integer (byte, 16-bit)
DWORD	Unsigned four-byte integer (double word, 32 bits)
BYTE[n]	n bytes
BCD[n]	8421 yards, n bytes
STRING	GBK encoding, if there is no data, leave it blank

4 3 transmission rules

The protocol shall use the network byte order in big-endian mode to transmit words and double words. The transmission rules are agreed as follows.

--- Transfer of bytes (BYTE), in the form of a stream of bytes; --- Transfer of bytes (BYTE), in the form of a stream of bytes.

--- Transmission of the word (WORD), first the high octet, then the low octet; --- Transmission of the word (WORD), first the high octet, then the low octet.

--- Double word (DWORD) transmission, first pass the high twenty-four bits, then pass the high sixteen bits, then pass the high eight bits, and finally pass the low

Eight bits.

4 4 The composition of the message, the

4 4 1 message structure

Each message consists of an identification bit, a message header, a message body and a checksum, and the message structure is shown in Figure 1.

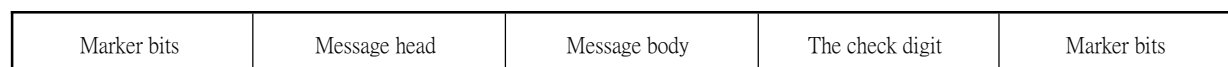


Figure 1 Message structure diagram

4 4 2 marking positions

The identification bit should be 0x7e, if 0x7e and 0x7d appear in the check digit, message header and message body, then it should be escaped. The escaping rules are defined as follows.

First escape 0x7d to fixed two-byte data: 0x7d 0x01; then escape 0x7e to fixed two-byte data: 0x7d 0x02. The escape process is as follows.

When sending a message: first encapsulate the message, then calculate and fill in the check digit, and finally perform escape processing; when receiving a message: first perform escape reduction processing on the message, then verify the check digit, and finally parse the message.

Example: To send a packet with content 0x30 0x7e0x08 0x7d 0x55, the encapsulation is as follows: 0x7e0x30 0x7d 0x02 0x08 0x7d 0x01 0x55 0x7e.

4 4 3 message header

~~443~~ The contents of the message header are detailed in Table 2.

~~442~~ The structure of the message body attribute format is shown in Figure 2.

Table 2 Message header contents

start byte	fields	data type	description and requirements
0	Message ID	WORD	—
2	The message body attribute	WORD	The structure of the message body attribute format is shown in Figure 2
4	protocol version number	BYTE	Protocol version, incremented for each critical revision, with an initial version of 1.
5	terminal cell phone number	BCD [10]	The cell phone number is converted according to the cell phone number of the terminal after installation. If the cell phone number is less than one digit, add the digit 0 in front of it.
15	The message stream number	WORD	Cyclic accumulation starting from 0 in the order of transmission
17	message packet encapsulation entries	—	If the relevant identifier bit in the message body attribute determines that the message is packetized, then the item has content, otherwise there is no item

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Reservations	version identification	Subcontracting	data encryption methods			the length of the message body									
Note: The value of the version identification bit is fixed to 1.															

Figure 2 Structure of the message body attribute format

4.4.3

Data shall be encrypted as follows.

- bit10 ~bit12 are data encryption identification bits.
- when all three bits are 0, the message body is not encrypted; ---when all three bits are 0, the message body is not encrypted.
- When the 10th bit is 1, the message is encrypted by the RSA algorithm.
- The other bits are reserved.

4.4.4

Message subcontracting shall be handled in accordance with the following requirements.

- When bit 13 in the message body attribute is 1, it means that the message body is a long message and will be sent in packets, the specific packet information is decided by the packet encapsulation item.
 - If bit 13 is 0, there is no packet encapsulation field in the message header.
- The contents of the message packet encapsulation items are shown in Table 3.

Table 3 Contents of packet encapsulation items

start byte	fields	data type	description and requirements
0	the total number of message packets	WORD	the total number of packages after subcontracting this message
2	package serial number	WORD	Starting at 1

4.4.5

Version marking shall be handled in accordance with the following requirements.

- When the 14th bit is 0, it means that the protocol is the 2011 version, which has not introduced the version identification function.
- When the 14th bit is 1, it means that the protocol has introduced the version identification function, and the version number of the protocol is followed by the authentication code of the terminal authentication message, and the initial version number is 1 after the introduction of the version identification function, and the version number will be incremented for each subsequent critical revision.

4.4.4 message body

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

445 Checksum

Check digit calculation rules should start from the first byte of the message header, with the next byte of the different or manipulation, until the end of the message body is not byte; check
The length of the check digit is one byte.

5 communication connections

51 connection establishment

The daily data connection between the terminal and the platform can be in TCP or UDP mode, and the terminal should establish a connection with the platform after reset, and send a terminal authentication message to the platform for authentication immediately after the connection is established.

52 the maintenance of the connection

After the connection is established and the terminal authentication is successful, the terminal should send a terminal heartbeat message to the platform periodically, and the platform will send a platform common answer message to the terminal after receiving it, and the sending period is specified by the terminal parameters.

53 disconnection of the 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 a terminal is disconnected.

--- Active disconnection in TCP connection mode as determined by the TCP protocol.

---A terminal with the same identity establishes a new connection, indicating that the original connection has been disconnected.

--- A message from the terminal was not received for a certain period of time.

The terminal shall use the following methods to determine if the connection is broken.

--- In TCP connection mode determines a platform-initiated disconnection based on the TCP protocol.

---- No answer has been received after the retransmission count has been reached.

6 message processing

61 TCP and UDP message handling

611 A message from the platform owner

All messages sent by the platform should require the terminal to answer. There are two types of response: general response and specialized response, which are determined by each specific functional protocol. The sender should retransmit the message after waiting for the response timeout. The answer timeout time and the number of retransmissions are specified by the platform parameters, and the calculation method of the answer timeout time after each retransmission is shown in formula (1).

$$T_{N+1} = T_N \times (N+1) \quad (1)$$

where: T_{N+1} --- the timeout for answering after each retransmission, in s; and

T_N --Timeout of the previous answer, in s.

N - the number of retransmissions, in times.

612 messages sent by the terminal owner

6121 The data communication link is normal

When the data communication link is normal, the platform should be asked to answer the messages sent by all terminals. The response is divided into general response and specialized response, which is determined by each specific functional protocol. After the terminal waits for the response timeout, it should retransmit the message. The answer timeout and the number of retransmissions are determined by the terminal

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The parameter is specified, and the calculation method of the answer timeout time after each retransmission is shown in formula (1). If the critical alarm message sent by thousands of terminals is not answered even after the number of retransmissions is reached, it should be saved. The saved critical alarm message should be sent before sending other messages in the future. 6122 Data communication link abnormality

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

62 SMS message processing

When the communication mode of the terminal is switched to the SMS message mode, the PDU eight-bit encoding mode should be adopted, and the messages with a length of more than 140 bytes should be subcontracted in accordance with the SMS service planning.

The response, retransmission and saving mechanism of SMS messages shall comply with the requirements of 6.1. The response timeout and the number of retransmissions shall be handled in accordance with the relevant settings of parameters ID0x0006 and 0x0007 in Table 13.

7 agreement classification and requirements

7.1 Classification

Protocols are described according to functional categories. Unless otherwise specified, TCP communication mode is adopted by default. The communication protocol between the vehicle-mounted terminal and external devices is shown in Appendix A. The message name and message ID in the protocol are shown in Appendix B.

7.2 terminal management class protocols

7.2.1 terminal registration/de-registration

When the terminal is not registered, it should be registered first, and after successful registration, the terminal obtains the authentication code and saves it, and the authentication code can be found in the terminal

This is used for authentication. Before removing or replacing the terminal on a vehicle, the terminal shall be canceled and the correspondence between the terminal and the vehicle shall be canceled.

If the terminal chooses to send terminal registration and terminal deregistration messages via SMS, the platform shall reply to the terminal registration by sending a terminal registration reply via SMS and reply to the terminal deregistration by sending a platform general reply via SMS.

7.2.2 Terminal authentication

Registered terminals shall be authenticated immediately after each connection is established with the platform. No other messages should be sent by the terminal before successful authentication.

The terminal shall be authenticated by sending a terminal authentication message, and the platform shall reply with a generic terminal response message.

7.2.3 Setting/querying terminal parameters

The platform sets the terminal parameters by sending a message to set the terminal parameters, and the terminal replies with a generic terminal response message. The platform queries the terminal parameters by sending a query terminal parameter message, and the terminal replies with a query terminal parameter response message. The terminals under different network systems should support some specific parameters of their respective networks.

7.2.4 terminal control

The platform controls the terminal by sending a terminal control message, and the terminal replies with a generic terminal response message.

7.3 location, alarm type protocols

7.3.1 Location information reporting

The terminal periodically sends position information report messages according to the parameter settings.

According to the parameter control, the terminal can send a position information report message when it determines that the vehicle has turned a corner.

732 location information query

The platform sends a location information query message to query the location information of the specified vehicle-mounted terminal, and the terminal replies with a location information query response message.

733 temporary position tracking control

The platform starts/stops position tracking by sending a temporary position tracking control message. The position tracking requires the terminal to stop reporting in the previous cycle and to report at the time interval specified in the message. The terminal replies with a generic terminal response message.

734 terminal alarms

When the terminal judges that the alarm conditions are met, it sends a location information report message, sets the corresponding alarm flag in the location report message, and the platform can reply to the platform's general response message for alarm processing.

Each alarm type is described in the location information report message body. If the alarm flag is maintained until the alarm condition is canceled, a position information report message should be sent immediately after the alarm condition is canceled to clear the corresponding alarm flag.

74 information class protocols**741** Text message sent

The platform sends a message by sending a text message to notify the driver in a specified way. The terminal replies with a generic terminal response message.

742 event setup and reporting

The platform sends the event list to the terminal for storage by sending the event setting message, and the driver can enter the event list interface to select the event after encountering the corresponding event, and the terminal sends the event report message to the platform after selection.

For event setup messages, the terminal shall reply to the terminal generic response message. For the event report message, the platform shall reply to the platform generic response message.

743 Ask a question

The platform sends a question with a candidate answer to the terminal by sending a question message, the terminal shall immediately display the message content, and the terminal shall send a question answer message to the platform after the driver selects it.

The terminal shall respond to the questioning message with a generic terminal response message.

744 Information on Demand

The platform sets messages by sending information on-demand menu and sends the list of information on-demand items to the terminal for storage, and the driver can choose to on-demand or cancel the corresponding information service through the menu, and the terminal sends out information on-demand or canceled messages to the platform after the selection.

After the information service is on-demand, the terminal will regularly receive information service messages from the platform, such as news, weather forecast, and so on. For the information on-demand menu setting message, the terminal should reply to the terminal general answer message.

The platform shall reply to the platform generic answer message for message on-demand/cancel messages.

For information service messages, the terminal shall reply to the terminal generic response message.

75 telephone type agreements**751** Callback

The platform sends a callback message to request the terminal to call back at the specified phone number and to specify whether to listen to the call. The terminal should not turn on the speakerphone during the callback.

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A callback message that requires the terminal to respond to a generic answer message from the terminal.

72 Setting up the phone book

The platform sets up a phonebook for the terminal by sending a setup phonebook message, which requires the terminal to reply to the terminal's generic response message.

76 vehicle control class protocols

The platform sends a vehicle control message to request the terminal to control the vehicle according to the specified operation. Upon receiving the message, the terminal shall immediately reply to the terminal's generic response message. After replying to the generic response message, the terminal shall control the vehicle and reply to the vehicle control response message according to the result.

77 Vehicle management-type agreements

The platform sets up areas and routes for the terminal by sending messages to set up circular areas, rectangular areas, polygonal areas and routes. The terminal judges whether the alarm conditions are met according to the attributes of zones and routes. Alarms include speeding alarm, alarm for entering or leaving an area or route, and alarm for insufficient or excessive traveling time on a road section. The terminal should include the corresponding additional location information in the location information report message.

The range of area or route ID is from 1 to 0xFFFFFFFF. If the set D is duplicated by an area or route D of the same type that already exists in the terminal, the area or route data corresponding to this ID is updated.

The platform can also delete areas and routes saved on terminals by deleting circular areas, rectangular areas, polygonal areas and routes with the message Delete Circular Areas, Rectangular Areas, Polygonal Areas and Routes.

Setting/deleting area and route messages requires the terminal to reply to the terminal's generic answer message.

78 information-gathering class protocols

781 Collecting data on driver identification information

The terminal collects driver identity data and uploads it to the platform for identification, and the platform replies with the message of success or not.

782 Capture of electronic waybill data

The terminal collects electronic waybill data and uploads it to the platform.

783 collection of driving record data

The platform requests the terminal to upload the specified data by sending a command message for the collection of driving record data. The message requires the terminal to reply to the tachograph data upload message.

784 downloading of driving record parameters

The platform requests the terminal to upload the specified data by sending a command message to transmit the driving record parameters. This message requires the terminal to reply with a generic terminal response message.

79 Multimedia class protocols

791 multimedia event information uploading

When the terminal actively shoots or records due to a specific event, it should actively upload a multimedia event message after the event occurs. This message requires the platform to reply with a generic response message.

792 multimedia data uploading

The terminal sends a multimedia data upload message to upload multimedia data. Each complete multimedia data should be preceded by the location information reporting message body of the recording, i.e. the location multimedia data. The platform determines the receiving timeout time according to the total number of packets, after receiving all the packets or reaching the timeout time, the terminal will send the multimedia data upload message

After the time limit, a multimedia data upload answer message is sent to the terminal, which confirms the I\$* packet or requests the terminal to upload the specified packet.

73 The camera takes the shot immediately

The platform issues a shooting command to the terminal by sending a camera immediate shooting command message, which requires the terminal to reply to the terminal's generic response message. If real-time upload is specified, the terminal should upload the camera image or video in real time after shooting, otherwise the image or video should be stored.

74 The recording begins

The platform sends a recording command to the terminal by sending a recording start command message, which requires the terminal to reply to the terminal's generic response message.

If real-time upload is specified, the terminal should upload the audio data after recording, otherwise the audio data is stored.

75 retrieval terminals for storing multimedia data and extracting

The platform obtains the situation of multimedia data stored in the terminal by sending a stored multimedia data retrieval message, which requires the terminal to reply to the stored multimedia data retrieval response message.

According to the search results, the platform can request the terminal to upload the specified multimedia data by sending a stored multimedia data upload message, which requires the terminal to reply to the terminal's generic response message.

70 Generalized data transfer classes

Messages that are not defined in the protocol but need to be transmitted in practice can be exchanged upstream and downstream using data upstream passthrough messages and data downstream passthrough messages.

For longer messages, the terminal can use GZIP compression algorithm to compress the data and upload the message using data compression.

71 cryptographic class protocols

If there is a need for encrypted communication between the platform and the terminal, an RSA public key cryptosystem can be used. The platform informs the terminal of its RSA public key by sending the platform RSA public key message, and the terminal replies to the terminal RSA public key message and vice versa.

8 data format

81 Terminal Generic Response

Message ID:0x0001.

The terminal generic answer message body data format is shown in Table 4.

Table 4 Terminal generic answer message body data format

start byte	fields	data type	description and requirements
0	Answer stream number	WORD	the running number of the corresponding platform message
2	Answer ID	WORD	the ID of the corresponding platform message
4	Results	BYIE	0:Success/Acknowledgement;1:Failure;2:Wrong message;3:Unsupported

82 Platform Generic Response

Message ID:0x8001.

The data format of the Platform's generic response message body is shown in Table 5.

Table 5 Data format of the platform's generic response message body

start byte	fields	data type	description and requirements
0	Answer stream number	WORD	the stream number of the corresponding terminal message
2	Answer ID	WORD	the ID of the corresponding terminal message
4	Results	BYTE	0: Success/Acknowledgement; 1: Failure; 2: Incorrect message; 3: Not supported; 4: Alarm handling acknowledgement, 0: Success/Acknowledgement; 1: Failure; 2: Incorrect message; 3: Not supported; 4: Alarm handling acknowledgement

83 Terminal heartbeat

Message ID:0x0002.

The terminal heartbeat data message body is empty.

84 Query server time request

Message ID:0x0004.

The terminal sends a request to the server to query the server time, and the message body is empty.

85 Query server time response

Message ID:0x8004.

The server responds to a request from a terminal to query the server.

The query server time response message body data format is shown in Table 6.

Table 6 Query server time response message body data format

start byte	fields	data type	description and requirements
0	server time	BCD [6]	UTC time (i.e., Coordinated Universal Time) is listed by year, month, day, hour, minute, and second, e.g., 2017-03-15 17:09:23 is 0x170315170923.

86 The server retrospectively transmits a packetized request that

Message ID:0x8003.

The format of the Supplemental Transmission Subpacket Request message body data is shown in Table 7.

Table 7 Data format of the message body of the supplementary transmission sub-packet request message

start byte	fields	data type	description and requirements
0	the original message stream number	WORD	corresponding to the message stream number of the first packet of the original message requested for retransmission
2	the total number of retransmitted packets	WORD	
4	retransmit the list of package IDs	BYTE [2*n]	Retransmit the package serial numbers in sequential order, e.g., "Package ID1 Package ID.....Packet IDn" ,n is the total number of retransmitted packets
I# response to the message is promised EV original message à retransmission packet ID list s of sub-packetized retransmissions I w,5 original sub-packetized message * I A.			

87 terminal supplementary transmission of a sub-packet request

Message ID:0x0005.

The data format of the terminal supplementary transmission sub-packet request message body is the same as that of the server supplementary transmission sub-packet request message body, see Table 7.

88 terminal registration

Message ID:0x0100.

The terminal registration message body data format is shown in Table 8.

Table 8 Terminal Registration Message Body Data Format

start byte	fields	data type	description and requirements
0	Provincial ID	WORD	It indicates the province where the vehicle installed in the terminal is located, 0 is reserved and the platform takes the default value. The provincial ID adopts the first two of the six digits of the administrative division code specified in GB/T2260
2	City-County ID	WORD	It indicates the city and county where the vehicle installed in the terminal is located, and 0 is reserved, and the default value is taken by the platform. The city and county IDs adopt the last four of the six digits of the administrative division code specified in GB/T2260
4	Manufacturer ID	BYTE[11]	It consists of the administrative code of the location of the vehicle terminal manufacturer and the manufacturer ID
15	terminal model	BYTE[30]	The model number of this terminal is defined by the manufacturer, if the number of digits is not enough, then add 0x00.
45	terminal ID	BYTE[30]	This terminal ID is defined by the manufacturer and consists of uppercase letters and numbers
75	License plate color	BYIE	License plate color is in accordance with JT/T697.7-2014, and 0 for unlicensed vehicles.
76	License plates	STRING	Public security traffic management department issued by the motor vehicle license plate, if the vehicle is not licensed to fill in the car Harvest

89 terminal registration response

Message ID:0x8100.

The data format of the Terminal Registration Answer message body is shown in Table 9.

Table 9 Terminal registration response message body data format

start byte	fields	data type	description and requirements
0	Answer stream number	WORD	the stream number of the corresponding terminal registration message
2	Results	BYIE	0:Success;1:Vehicle has been registered;2:No such vehicle in the database;3:Terminal has been registered;4:No such terminal in the database
3	authentication code	STRING	This field is available only if the registration result is successful

80 Terminal write-offs

Message ID:0x0003.

The terminal logout message body is empty.

81 Terminal authentication

Message ID:0x0102.

The terminal authentication message body data format is shown in Table 10.

Table 10 Terminal Authentication Message Body Data Format

start byte	fields	data type	description and requirements
0	the length of the authentication code	BYTE	
<i>n</i>	the contents of the authentication code	STRNG	<i>n</i> is the length of the authentication code
<i>n</i> + 1	Terminal II	BYTE [15]	
<i>n</i> + 9	software version number	BYTE [20]	Manufacturer's customized version number, if the number of digits is not enough, append "0x00". <i>n</i> is the length of the authentication code

82 Setting terminal parameters

Message D 0x8103.

The Set Terminal Parameters message body data format is shown in Table 11.

Table 11 Terminal Parameter Message Body Data Format

start byte	fields	data type	description and requirements
0	Total number of parameters	BYTE	the number of parameter entries
1	A list of parameter entries		The format of the parameter entries is shown in Table 12

Table 12 Terminal parameter item data format

fields	data type	description and requirements
parameter ID	DWORD	See Table 13 for parameter ID definitions and descriptions
The length of the parameter	BYTE	The length of the parameter
parameter values		In the case of a multi-valued parameter, multiple parameter entries with the same ID are used in the message, e.g., the dispatch center phone number

Table 13 Definition and description of each parameter item of the terminal parameter settings

Parameter ID	data type	description and requirements
0x0001	DWORD	Terminal heartbeat transmission interval, in seconds (s).
0x0002	DWORD	TCP message response timeout, in seconds (s).
0x0003	DWORD	The number of TCP message retransmissions that
0x0004	DWORD	UDP message response timeout, in seconds (s).
0x0005	DWORD	The number of UDP message retransmissions that
0x0006	DWORD	SMS message response timeout, in seconds (s).
0x0007	DWORD	The number of retransmissions of SMS messages
0x0008 ~ 0x000F		Reservations
0x0010	STRNG	Main server APN, wireless communication dialing access point. If the network system is CDMA, this is the PPP dialing number

Table 13 (continued)

Parameter ID	data type	description and requirements
0x011	STRING	the master server wireless communications dial-up user name
0x012	STRING	the master server wireless communication dialing password
0x013	STRING	Host server address, Ip or domain name, split hosts and ports by colons, multiple servers split by semicolons
0x014	STRING	Backup server ApN
0x015	STRING	backing up the server's wireless communications dial-up user name
0x016	STRING	Backup server wireless communication dialing passwords
0x017	STRING	Backup server backup address, Ip or domain name, split hosts and ports by colon, split multiple servers by semicolon
0x018 ~0x019		Reservations
0x01A	STRING	Road Transport License IC Card Authentication Master Server p address or domain name
0x01B	DWORD	Road Transport License IC Card Authentication Master Server TCp Port
0x01C	DWORD	Road Transport License IC Card Authentication Master Server UDp Port
0x01D	STRING	Road Transportation License IC Card Authentication Backup Server Address or domain name, port is the same as the main server
0x01E ~0x01F		Reservations
0x020	DWORD	Positional reporting strategy, 0: timed reporting; 1: spaced reporting; 2: timed and spaced reporting
0x021	DWORD	Position reporting scheme, 0: according to the ACC status; 1: according to the login status and ACC status, first determine the login status, if login and then according to the ACC status
0x022	DWORD	Driver Not Logged In Reporting Interval, in seconds (s), a value greater than zero
0x023	STRING	ApN of the slave server. If this value is empty, the terminal should use the same configuration as the master server
0x024	STRING	Dial-up user name for wireless communication from the server. If this value is empty, the terminal should use the same configuration as the master server
0x025	STRING	Dialing password for wireless communication from the server. If this value is empty, the terminal should use the same configuration as the master server
0x026	STRING	Backup address from server Ip or domain name, host and port separated by colon, multiple servers separated by semicolon
0x027	DWORD	Reporting time interval during sleep, in seconds (s), value greater than 0
0x028	DWORD	Reporting time interval for emergency alarms, in seconds (s), value greater than 0
0x029	DWORD	Default time reporting interval, in seconds (s), value greater than 0
0x02A ~0x02B	DWORD	Reservations
0x02C	DWORD	Default distance reporting interval in meters (m), value greater than 0
0x02D	DWORD	Driver not logged in reporting distance interval, in meters (m), value greater than 0
0x02E	DWORD	Reporting distance intervals during dormancy, in meters (m), values greater than 0
0x02F	DWORD	Reporting distance interval for emergency alarms, in meters (m), values greater than 0

Table 13 (continued)

Parameter ID	data type	description and requirements
0x0030	DWORD	Angle of inflection, value less than 180
0x0031	WORD	Electronic fence radius (illegal displacement broad value), in meters (m)
0x0032	BYTE[4]	Range of moving violation periods, accurate to the minute. BYTE1: the hourly portion of the start time of the violation; BYTE2: the minute portion of the start time of the violation; BYTE3: the hourly portion of the end time of the violation; BYTE4: the minute portion of the end time of the violation. Example: 0x16320A1F, which means that from 10:50 p.m. one night to 10:30 a.m. the next morning is a moving violation
0x0033 ~ 0x003F		Reservations
0x0040	STRING	Monitoring platform phone numbers
0x0041	STRING	Reset phone number, which can be used to call the terminal to reset it
0x0042	STRING	Factory reset phone number, you can use this phone number to call the terminal to restore the factory settings
0x0043	STRING	monitoring platform SMS phone number
0x0044	STRING	Receive the SMS text alarm number of the terminal
0x0045	DWORD	Terminal phone answering strategy. 0: automatic answer; 1: automatic answer when ACCON, manual answer when OFF
0x0046	DWORD	Maximum duration of each call in seconds (s), 0 for no calls allowed, 0xFFFFFFFF for unlimited
0x0047	DWORD	Maximum call time for the month in seconds (s), 0 for no calls allowed, 0xFFFFFFFF for unlimited
0x0048	STRING	Listening to phone numbers
0x0049	STRING	the privileged SMS number of the regulatory platform
0x004A ~ 0x004F		Reservations
0x0050	DWORD	Alarm blocking word, corresponds to the alarm flag in the position information report message, if the corresponding bit is 1, the corresponding alarm is blocked
0x0051	DWORD	Alarm send text SMS switch, corresponds to the alarm flag in the position information report message, the corresponding bit is 1, then the text SMS is sent when the corresponding alarm occurs
0x0052	DWORD	Alarm shooting switch, corresponds to the alarm flag in the position information report message, if the corresponding bit is 1, the camera will shoot at the corresponding alarm
0x0053	DWORD	Alarm shooting storage flag, corresponds to the alarm flag in the position information report message, if the corresponding bit is 1, then the photo taken during the corresponding alarm will be stored, otherwise, it will be uploaded in real time
0x0054	DWORD	Key flag, corresponds to the alarm flag in the position information report message, if the corresponding bit is 1, the corresponding alarm is a key alarm
0x0055	DWORD	Maximum speed in kilometers per hour (km/h)
0x0056	DWORD	Duration of overdrive in seconds (s)

Table 13 (continued)

Parameter ID	data type	description and requirements
0x057	DWORD	Continuous driving time threshold in seconds (s)
0x058	DWORD	Threshold for cumulative driving time for the day, in seconds (s)
0x059	DWORD	Minimum rest time in seconds (s)
0x05A	DWORD	Maximum stopping time in seconds (s)
0x05B	WORD	Difference in speed warning, in units of 1/10 kilometers per hour (1/10km/h).
0x05C	WORD	Fatigue Driving Warning Difference, in seconds (s), value greater than zero
0x05D	WORD	Collision Alarm Parameter Settings. b7-b0: collision time in milliseconds (ms). b15-b8 is the collision acceleration, the unit is 0.1g; the setting range is 0~79 and the default is 10.
0x05E	WORD	Rollover Alarm Parameter Setting: Rollover Angle, unit is degree (°), default is 30°.
0x05F~0x063	—	Reservations
0x064	DWORD	Timed photo control, see Table 14 for parameter format and definition.
0x065	DWORD	The format and definition of the parameters are shown in Table 15.
0x066~0x06F	—	Reservations
0x070	DWORD	Image/video quality, the setting range is 1~10, 1 means the highest quality
0x071	DWORD	Brightness, setting range 0~255
0x072	DWORD	Contrast, setting range 0~127
0x073	DWORD	Saturation, the setting range is 0~127.
0x074	DWORD	Chromaticity, setting range 0~255
0x075~0x07F	—	—
0x080	DWORD	Vehicle odometer reading in 1/10km
0x081	WORD	the ID of the province in which the vehicle is located
0x082	WORD	the ID of the municipality in which the vehicle is located
0x083	STRING	motor vehicle number plates issued by the Public Security Traffic Management Department
0x084	BYTE	License plate color, value in accordance with the provisions of JT/T697.7-2014, unlicensed vehicles fill 0
0x090	BYTE	GNSS positioning mode, defined as follows: bit0,0: disable GPS positioning, 1: enable GPS positioning; bit1,0: disable BeiDou positioning, 1: enable BeiDou positioning; bit2,0: disable GLONASS positioning, 1: enable GLONASS positioning; bit3,0: disable Gaileo positioning, 1: enable Galileo positioning
0x091	BYTE	GNSS baud rate, defined as follows. 0x0: 4800; 0x1: 9600; 0x2: 19200; 0x3: 38400; 0x4: 57600; 0x5: 115200
0x092	BYTE	GNSS module detailed positioning data output frequency, defined as follows. 0x00:500ms; 0x01: 1000ms (default); 0x02: 2000ms; 0x03: 3000ms; 0x04:4000ms

Table 13 (continued)

Parameter ID	data type	description and requirements
0x093	DWORD	GNSS module detailed positioning data acquisition frequency, in seconds (s), default 1
0x094	BYTE	GNSS module detailed positioning data upload method. 0x00, local storage, no upload (default). 0x01, uploading at time intervals. 0x02, uploading at distance intervals. 0x0B, upload according to the accumulated time, automatically stop uploading after reaching the transmission time. 0x0C, upload by accumulated distance, stop uploading automatically after reaching the distance. 0x0D, upload by accumulated number of articles, automatically stop uploading after reaching the number of articles uploaded
0x095	DWORD	Detailed positioning data upload settings of GNSS module: when upload mode is 0x01, the unit is second (s); when upload mode is 0x02, the unit is meter (m); when upload mode is 0x0B, the unit is second (s); when upload mode is 0x0C, the unit is meter (m); when upload mode is 0x0D, the unit is bar
0x100	DWORD	CAN bus channel 1 acquisition interval in milliseconds (ms), 0 means no acquisition
0x101	WORD	CAN bus channel 1 upload interval in seconds (s), 0 means no upload
0x102	DWORD	CAN bus channel 2 acquisition interval in milliseconds (ms), 0 means no acquisition
0x103	WORD	CAN bus channel 2 upload interval in seconds (s), 0 means no upload
0x110	BYTE[8]	Individual CAN bus ID acquisition settings. bit63-bit32 means this ID acquisition interval (ms), 0 means no acquisition; bit31 means CAN channel number, 0: CAN1, 1: CAN2; b30 means frame type, 0: standard frame, 1: extended frame; bit29 means data acquisition mode, 0: original data, 1: sieve value of acquisition interval; bit28- bit0 means CAN bus ID; bit28- bit0 means CAN bus ID, 0: original data, 1: sieve value of acquisition interval; bit28- bit0 means CAN bus ID; bit32- bit31 means CAN bus ID; bit32- bit31 means CAN bus ID; bit32- bit32 means CAN bus ID; bit33- bit35 means CAN bus ID. bus ID
0x111 ~ 0x1FF	BYTE[8]	for separate acquisition settings for other CAN bus IDs
0x000 ~ 0xFF		customized by the manufacturer

Table 14 Timer Photo Control Bit Definitions

place	Definition	description and requirements
0	Camera channel 1 Timer photo switch flag	0: not allowed; 1: allowed
1	Camera Channel 2 Timer Photo Switch Flag	0: not allowed; 1: allowed
2	Camera Channel 3 Timer Photo Switch Flag	0: not allowed; 1: allowed
3	Camera Channel 4 Timer Photo Switch Flag	0: not allowed; 1: allowed
4	Camera Channel 5 Timer Photo Switch Flag	0: not allowed; 1: allowed
5 ~ 7	Reservations	
8	Camera Channel 1 Timed photo storage sign	0:store; 1:upload
9	Camera Channel 2 Timed photo storage sign	0:store; 1:upload
10	Camera Channel 3 Timed photo storage sign	0:store; 1:upload
11	Camera Channel 4 Timed photo storage sign	0:store; 1:upload

Table 14 (continued)

place	Definition	description and requirements
12	Camera Channel 5 Timed photo storage sign	0:store; 1:upload
13 ~15	Reservations	
16	timed time units	0:second(s), when the value is less than 5s, the terminal is treated as 5s; 1:minute
17 ~31	Timing interval	received a parameter setting or executed after a restart

Table 15 Definitions of the distance-photography control bits

place	Definition	description and requirements
0	Camera Channel 1 Distance photo switch sign	0: not allowed; 1: allowed
1	Camera Channel 2 Distance Photo Switch Marker	0: not allowed; 1: allowed
2	Camera Channel 3 Distance Photo Switch Sign	0: not allowed; 1: allowed
3	Camera Channel 4 Distance Photo Switch Sign	0: not allowed; 1: allowed
4	Camera Channel 5 Distance Photo Switch Sign	0: not allowed; 1: allowed
5 ~7	Reservations	
8	Camera Channel 1 Fixed Distance Photo Storage Sign	0:store; 1:upload
9	Camera Channel 2 Fixed Distance Photo Storage Sign	0:store; 1:upload
10	Camera Channel 3 Fixed Distance Photo Storage Sign	0:store; 1:upload
11	Camera Channel 4 Fixed Distance Photo Storage Sign	0:store; 1:upload
12	Camera Channel 5 Fixed Distance Photo Storage Sign	0:store; 1:upload
13 ~15	Reservations	
16	unit of fixed distance	0: meter (m), when the value is less than 100m, the terminal will be set as follows 100m treatment. 1: kilometers
17 ~31	Fixed Distance Interval	received a parameter setting or executed after a restart

8B Querying the terminal parameters, the

Message ID:0x8104.

The query terminal parameter message body is empty.

84 Queries the specified terminal parameters

Message ID:0x8106.

The data format of the message body for querying the specified terminal parameters is shown in Table 16, and the terminal answers with the 0x0104 command.

Table 16 Queries the data format of the specified terminal parameter message body

start byte	fields	data type	description and requirements
0	Total number of parameters	BYTE	
1	A list of parameter IDs	BYTE [4*n]	Parameters are listed in order, e.g., "Parameter ID1 Parameter ID2...". Parameter IDn" ,n is the total number of parameters.

85 Query terminal parameter response

Message ID:0x0104.

See Table 17 for the Query Terminal Parameters Answer Message Body Data Format.

Table 17 Query Terminal Parameter Answer Message Body Data Format

start byte	fields	data type	description and requirements
0	Answer stream number	WORD	the stream number of the corresponding terminal parameter query message
2	The number of response parameters	BYTE	
3	A list of parameter entries		The format and definition of the parameter items are shown in Table 12

86 terminal control

Message ID:0x8105.

The terminal control message body data format is shown in Table 18.

Table 18 Terminal control message body data format

start byte	fields	data type	description and requirements
0	command word	BYTE	See Table 19 for a description of the terminal control command words
1	command parameters	STRNG	The format of the command parameters is described later, each field is separated by a semicolon ";", and each STRNG field is first processed by GBK encoding before composing the message

Table 19 Terminal control command word descriptions

command word	command parameters	description and requirements
2	STRNG	Controls the connection of the terminal to the specified server. The parameters are separated by semicolons. The control commands are as follows: "Connection control (0 means switch to the specified supervisory platform server, 1 means switch back to the original default monitoring platform server); supervisory platform authentication code; dial-up point name; dial-up user name; dial-up password; address; TCP port; UDP port; time limit for connecting to the specified server", if a parameter has no value, it will be put to blank, if the value of the connection control is 1, then there is no succeeding parameter. 1, then there is no succeeding parameter
4	without	Terminal reset
5	without	The terminal is restored to its factory settings

87 To query the terminal properties, the

Message ID:0x8107.

The query terminal attribute message body is empty.

88 Query terminal attribute response

Message ID:0x0107.

The query terminal attribute response message body data format is shown in Table 20.

Table 20 Query Terminal Attribute Response Message Body Data Format

start byte	fields	data type	description and requirements
0	terminal type	WORD	bit0,0: not applicable to passenger vehicles, 1: applicable to passenger vehicles. bit1,0: not applicable to DG vehicles, 1: applicable to DG vehicles. bit2,0: not applicable to general cargo vehicles, 1: applicable to general cargo vehicles. bit3,0: not applicable to rental vehicles, 1: applicable to rental vehicles; bit6,0: does not support hard disk recording, 1: supports hard disk recording; bit7,0: all-in-one machine, 1: split machine; bit7,0: all-in-one machine, 1: split machine; bit7,0: all-in-one machine, 1: split machine; bit7,0: all-in-one machine, 1: split machine; bit7,0: all-in-one machine, 1: split machine; bit7,0: all-in-one machine, 1: split machine. bit8,0: not applicable to trailers, 1: applicable to trailers
2	Manufacturer ID	BYTE [5]	5 bytes, terminal manufacturer's code
7	terminal model	BYTE [30]	20 bytes, this terminal model is defined by the manufacturer, if the number of bits is not enough, then add "0x00".
37	terminal ID	BYTE [30]	7 bytes, composed of uppercase letters and numbers, this terminal ID is defined by the manufacturer, if the number of bits is not enough, then add "0x00".
67	Terminal SIM card CCD	BCD [10]	the terminal SIM card ICCID number
77	the length of the terminal hardware version number	BYTE	
78	the terminal hardware version number	STRING	
78 +n	the length of the terminal firmware version number	BYTE	
79 +n	the terminal firmware version number	STRING	
79 +n+m	GNSS module properties	BYTE	bit0,0: does not support GPS positioning, 1: supports GPS positioning; bit1,0: does not support BeiDou positioning, 1: supports BeiDou positioning; bit2,0: does not support GLONASS positioning, 1: supports GLONASS positioning; bit3, 0: does not support Galileo positioning, 1: supports Galileo positioning.
80 +n+m	communication module properties	BYTE	bit0,0: does not support GPRS communication, 1: supports GPRS communication; bit1,0: does not support CDMA communication, 1: supports CDMA communication; bit2,0: does not support TD-SCDMA communication, 1: supports TD-SCDMA communication; bit3,0: does not support WCDMA communication, 1: supports WCDMA communication; bit4,0: does not support CDMA2000 communication, 1: supports CD- MA2000 communication; bit5,0: does not support TD-LTE communication, 1: supports TD-LTE communication; bit5,0: does not support TD-LTE communication, 1: supports CD- MA2000 communication; bit5,0: does not support TD-LTE communication, 1: supports TD-LTE communication support CDMA2000 communication, 1: support CD- MA2000 communication; bit5,0: don't support TD-LTE communication, 1: support TD-LTE communication; bit7,0: don't support other communication mode, 1: support other communication mode
Note: n denotes the length of the terminal hardware version number, m denotes the length of the terminal firmware version number.			

89 Issuance of terminal upgrade packages

Message ID:0x8108.

The data format of the upgrade packet message body of the downgoing terminal is shown in Table 21. For this command, the terminal confirms whether it receives the upgrade packet data correctly by using the generic response.

Table 21 Data format of the message body of the downgoing terminal upgrade packet

start byte	fields	data type	description and requirements
0	type of upgrade	BYTE	0:Terminal; 12:Road Transportation Permit IC Card Reader; 52:Satellite Positioning Module
1	Manufacturer ID	BYTE [5]	manufacturer's number
6	the length of the terminal firmware version number	BYTE	
7	the terminal firmware version number	STRING	
7 +m	upgrade packet length	DWORD	m denotes the length of the terminal firmware version number
11 +m	upgrade packages		m denotes the length of the terminal firmware version number

8D Terminal upgrade result response

Message ID:0x0108.

The terminal uses this command to notify the monitoring center after the upgrade is completed and reconnected. The data format of the terminal upgrade result notification message body is shown in Table 22.

Table 22 Data format of the terminal upgrade result notification message body

start byte	fields	data type	description and requirements
0	type of upgrade	BYTE	0: Terminal; 12: Road Transportation Certificate IC Card Reader; 52: Beidou Satellite Positioning Module
1	upgrade results	BYTE	0: Success, 1: Failure, 2: Cancel

821 Location information reporting

Message ID:0x0200.

The vehicle should immediately report a location message when an alarm occurs, and attach an alarm status to the location message.

Location information report message body consists of location basic information and location additional information items list, the message structure as shown in Figure 3.

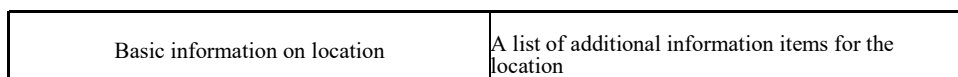


Figure 3 Location reporting message structure

The list of location-additional information items is a combination of location-additional information items, or none at all, as determined by the length field in the message header.

8211 The data format for basic location information is shown in Table 23.

Table 23 Data format for basic location information

start byte	fields	data type	description and requirements
0	warning signs	DWORD	See Table 25 for alarm flag bit definitions
4	State	DWORD	The status bits are defined in Table 24
8	Latitude	DWORD	The value of latitude in degrees multiplied by the sixth power of 10 to the nearest millionth of a degree
12	Longitude	DWORD	The value of longitude in degrees multiplied by the sixth power of 10 to the nearest millionth of a degree
16	Elevation	WORD	Altitude in meters (m).
18	Speed	WORD	In units of 1/10 kilometers per hour (1/10km/h).
20	Directions	WORD	0 ~ 359, 0 due north, clockwise
21	Time	BCD[6]	YYMMDDhh-mmss (GMT+8 time, this time zone is used for all subsequent times in this standard).

Table 24 Status Bit Definitions

position	State
0	0: ACC off; 1: ACC on
1	0: not positioned; 1: positioned
2	0: north latitude; 1: south latitude
3	0: east longitude; 1: west longitude
4	0: operation status; 1: out-of-service status
5	0: latitude and longitude are not encrypted by the Secure Plugin; 1: latitude and longitude have been encrypted by the Secure Plugin
6	1: Forward collision warning captured by the emergency braking system, the
7	1: Lane departure warning
8 ~ 9	00: Empty; 01: Half load; 10: Reserved; 11: Full load. It can indicate the unloaded state of buses, the unloaded and fully loaded state of heavy vehicles and trucks, which can be input manually or acquired by sensors
10	0: Vehicle fuel line is normal; 1: Vehicle fuel line is disconnected
11	0: Vehicle circuit is normal; 1: Vehicle circuit is disconnected
12	0: door unlocked; 1: door locked
13	0: Door 1 closed; 1: Door 1 open (front door)
14	0: Door 2 closed; 1: Door 2 open (center door)
15	0: Door 3 closed; 1: Door 3 open (rear door)
16	0: Door 4 closed; 1: Door 4 open (driver's door)
17	0: Door 5 closed; 1: Door 5 open (customized)
18	0: GPS satellites are not used for positioning; 1: GPS satellites are used for positioning
19	0: not using Beidou satellite for positioning; 1: using Beidou satellite for positioning
20	0: GLONASS satellites are not used for positioning; 1: GLONASS satellites are used for positioning
21	0: G-satellite not used for positioning; 1: G-satellite used for positioning
22	0: the vehicle is in a thousand stop state; 1: the vehicle is in a thousand traveling state
23 ~ 31	Reservations

Table 25 Alarm warning flag bit definitions

position	Definition	Processing instructions
0	l:Emergency alarm, triggered by touching the alarm switch	Zeroed when an answer is received
1	l:speeding alarm	flag is maintained until the alarm condition is removed
2	l:Fatigue Driving Alarm	flag is maintained until the alarm condition is removed
3	l: Dangerous Driving Behavior Alarm	flag is maintained until the alarm condition is removed
4	l:GNSS module fault alarm	flag is maintained until the alarm condition is removed
5	l:GNSS antenna not connected or cut alarm	flag is maintained until the alarm condition is removed
6	l:GNSS antenna short circuit alarm	flag is maintained until the alarm condition is removed
7	l:Terminal mains undervoltage alarm	flag is maintained until the alarm condition is removed
8	l:Terminal mains power down alarm	flag is maintained until the alarm condition is removed
9	l: Terminal LCD or display fault alarm	flag is maintained until the alarm condition is removed
10	l:TTS Module Fault Alarm	flag is maintained until the alarm condition is removed
11	l:camera fault alarm	flag is maintained until the alarm condition is removed
12	l:Road Transportation Permit IC Card Module Failure Alarm	flag is maintained until the alarm condition is removed
13	l: Speed warning	Signs are maintained until warning conditions are lifted
14	l: Fatigue Driving Warning	Signs are maintained until warning conditions are lifted
15	l:Driving violation alarm	flag is maintained until the alarm condition is removed
16	l:Tire pressure warning	flag is maintained until the alarm condition is removed
17	l:Abnormal right-turn blind spot alarm	flag is maintained until the alarm condition is removed
18	l:The cumulative driving overtime alarm for the day, the	flag is maintained until the alarm condition is removed
19	l:overtime parking alarm	flag is maintained until the alarm condition is removed
20	l: Alarms for entry and exit areas	Zeroed when an answer is received
21	l: Alarms for entry and exit routes	Zeroed when an answer is received
22	l:Alarm for insufficient I long traveling time on the roadway	Zeroed when an answer is received
23	l:Route deviation alarm	flag is maintained until the alarm condition is removed
24	l:Vehicle VSS failure	flag is maintained until the alarm condition is removed
25	l:Vehicle oil quantity abnormal alarm	flag is maintained until the alarm condition is removed
26	l:Vehicle theft alarm (via vehicle immobilizer)	flag is maintained until the alarm condition is removed
27	l:Vehicle illegal ignition alarm	Zeroed when an answer is received
28	l:Vehicle illegal displacement alarm	Zeroed when an answer is received
29	l:Collision rollover alarm	flag is maintained until the alarm condition is removed
30	l: Rollover warning	Signs are maintained until warning conditions are lifted
31	Reservations	

8212 The format of the Position Additional Information item is shown in Table 26.

Table 26 Format of position additional information items

fields	data type	description and requirements
Additional Information ID	BYTE	1 ~255
the length of the additional information	BYTE	
Additional information		Additional information is defined in Table 27

Table 27 Additional Information Definitions

Additional Information ID	the length of the additional information	description and requirements
0x01	4	Mileage, data type DWORD, unit 1/10km, corresponding to the odometer reading
0x02	2	Fuel quantity, data type WORD, unit 1/10L, corresponding to the reading of the fuel gauge on the vehicle
0x03	2	The speed obtained by the tachograph function, data type WORD, unit 1/10km/h
0x04	2	ID of the alarm event to be manually acknowledged, data type is WORD, counting from 1
0x05	30	Tire pressure, in Pa, calibrated wheels in left-to-right order from the front of the vehicle, e.g., front left 1, front left 2, front right 1, front right 2, center left 1, center left 2, center left 3, center right 1, center right 2, center right 3, back left 1. After the left 2, after the left 3, and so on, the extra byte is 0xFF, indicating invalid data
0x06	2	Cabin temperature in degrees Celsius, ranging from -32767 to +32767, with the highest bit being 1 for a negative number
0x07 ~ 0xFF		Reservations
0x11	1 or 5	See Table 28 for additional information on speed alarms
0x12	6	See Table 29 for additional information on alarms for routes to and from Area I.
0x13	7	See Table 30 for additional information on the Roadway Travel Time Insufficient / Excessive alarm.
0x14 ~ 0x14		Reservations
0x25	4	Extended vehicle signal status bits, see Table 31 for parameter entry format and definition.
0x2A	2	IO status bits, see Table 32 for parameter format and definition.
0x2B	4	Analog, bit0 -15, AD0; bit16 -31, AD1
0x30	1	The data type is BYTE, the signal strength of the wireless communication network
0x31	1	The data type is BYTE, the number of GNSS positioning satellites
0x3E	length of follow-up information	subsequent customization of the length of the message
0x3E ~ 0xFF		customized by the manufacturer

Table 28 Overspeed alarm additional information message body data format

start byte	fields	data type	description and requirements
0	location type	BYTE	0: no specific location. 1: circular area. 2: Rectangular area. 3: polygonal areas. 4: road sections
1	area or roadway ID	DWORD	If the location type is 0, there is no such field

Table 29 Approach Area I Route Alarm Additional Information Message Body Data Format

start byte	fields	data type	description and requirements
0	location type	BYTE	1: Circular area. 2: Rectangular area. 3: polygonal areas. 4: Route
1	area or line ID	DWORD	
5	Directions	BYTE	0:in. 1:Out

Table 30 Data format for the Route Travel Time Insufficient Excessive Alarm Additional Information message body

start byte	fields	data type	description and requirements
0	The section ID	DWORD	
4	roadway travel time	WORD	In seconds (s)
6	Results	BYTE	0: insufficient; 1: too long

Table 31 Extended Vehicle Signal Status Bit Data Format

position	Definition
0	l:low beam signal
1	l:High beam signal
2	l: Right turn signal
3	l:left turn signal
4	l: Brake signal
5	l: Reverse gear signal
6	l: Fog lamp signaling
7	l: Outline lights
8	l: Horn signal
9	l:air-conditioned condition
10	l:neutral signal
11	l:Retarder work
12	l:ABS work
13	l: Heater working
14	l: Clutch status
15 ~31	Reservations

Table 32 IO Status Bit Data Format

position	Definition
0	1: deep hibernation state
1	1: dormant state
2 ~ 15	Reservations

82 location information query

Message ID:0x8201.

The location information query message body is empty.

83 Location information query response

Message ID:0x0201.

The data format of the location information query response message body is shown in Table 33.

Table 33 Location information query response message body data format

start byte	fields	data type	description and requirements
0	Answer stream number	WORD	The streaming number of the corresponding location information query message, the
2	Location information reporting		For reporting of location information, see 8 12

84 temporary position tracking control

Message ID:0x8202.

The temporary position tracking control message body data format is shown in Table 34.

Table 34 Temporary Position Tracking Control Message Body Data Format

start byte	fields	data type	description and requirements
0	Time intervals	WORD	The unit is seconds (s), and the trace stops when the time interval is zero. No successor field is required to stop tracking
2	location tracking expiration date	DWORD	The unit is s. After receiving the position tracking control message, the terminal sends the position report according to the time interval in the message before the expiration time of the valid period

85 The worker acknowledges the alarm message

Message ID:0x8203

See Table 35 for manual acknowledgement of alarm message body data format.

Table 35 Manual Acknowledgement Alarm Message Data Format

start byte	fields	data type	Description
0	Alarm message stream number	WORD	The water number of the alarm message that needs to be manually acknowledged, 0 means all the messages of this alarm type, and 0 means all the messages of this alarm type, and 0 means all the messages of this alarm type
2	manually acknowledging the type of alarm	DWORD	See table 36 for definitions

Table 36 Manual Acknowledgement Alarm Type Definitions

position	Definition
0	1: Acknowledgement of emergency alarms.
1 ~2	Reservations
3	1: Recognition of hazard warnings.
4 ~19	Reservations
20	1: Acknowledgement of entry and exit area alarms.
21	1: Confirmation of access route alarm.
22	1:Confirmation of roadway travel time insufficient/excessive alarm.
23 ~26	Reservations
27	1: Confirmation of illegal vehicle ignition alarm.
28	1: Confirmation of illegal vehicle displacement alarm.
29 ~31	Reservations

86 link detection

Message ID:0x8204.

The message body is empty.

87 Text message sent

Message ID:0x8300.

See Table 37 for the text message sender body data format.

Table 37 Data format of the body of the text message sent

start byte	fields	data type	description and requirements
0	Marker	BYTE	See Table 38 for the meaning of the text message flag bits
1	Text type	BYTE	1 = notification, 2 = service
2	Text message	STRING	Maximum length is 1024 bytes, encoded in GBK

Table 38 Meaning of text message flag bits

position	Marker
0 ~ 1	01: service; 10: emergency; 11: notification
2	1: The terminal display shows that
3	1: Terminal TTS readout
4	
5	0:center navigation message, 1:CAN fault code message
6 ~ 7	Reservations

88 Callback

Message ID:0x8400.

See Table 39 for the phone callback message body data format.

Table 39 Telephone callback message body data format

start byte	fields	data type	description and requirements
0	Marker	BYIE	0:Normal call; 1:Listening
1	phone number	STRNG	up to 20 bytes

89 Setting up the phone book

Message ID:0x8401.

The Setup Phonebook message body data format is shown in Table 40.

Table 40 Setting the phonebook message body data format

start byte	fields	data type	description and requirements
0	Setting type	BYIE	0:Delete all stored contacts on the terminal. 1: Indicates updating the phonebook (deleting all existing contacts in the terminal and appending the contacts in the message). 2: Indicates an addition to the telephone book. 3:Indicates modification of the phonebook (indexed by contact).
1	Total number of contacts	BYIE	
2	Contact person, item		The data format for phonebook contact entries is shown in Table 41.

Table 41 Data format for phonebook contact entries

start byte	fields	data type	description and requirements
0	Marker	BYIE	1:inbound; 2:outbound; 3:inbound/outbound
1	Number length	BYIE	
2	phone number	STRNG	
2 +n	contact length	BYIE	n is the length of the phone number
3 +n	Contact Person	STRNG	encoded in GBK, n is the length of the phone number

80 Vehicle control

Message ID:0x8500.

The vehicle control message body data format is shown in Table 42.

Table 42 Vehicle Control Message Body Data Format

start byte	fields	data type	description and requirements
0	controlling the number of types	WORD	
1	control type		See table 43

Table 43 Control type data format

fields	data type	description and requirements
control type ID	WORD	0x0001:door. 0x0002 ~0x8000: reserved for standard revision. 0xF001 ~0xFFFF: for factory-defined control type
control parameters		Defined by different control type IDs, BYTE type when ID is 0x001: 0: Door locked 1:Doors open

81 Vehicle Control Response

Message ID:0x0500.

The Vehicle Control Answer message body data format is shown in Table 44.

Table 44 Vehicle Control Response Message Body Data Format

start byte	fields	data type	description and requirements
0	Answer stream number	WORD	the stream number of the corresponding vehicle control message
2	The location information reporting message body		Judge whether the control is successful or not according to the corresponding status bits

82 Set the circular area that

Message ID:0x8600.

See Table 45 for setting the data format of the circular area message body. This message protocol supports the cycle time range, for example, to limit the daily 8:30 ~ 18:00, the start/end time is set to: 00-00-00-08-30-00 /00-00-00 -00-18-00-00, and so on.

Table 45 Setting the data format for circular area message bodies

start byte	fields	data type	description and requirements
0	Setting Properties	BYTE	0: update area. 1: additional area. 2: Modify the region
1	Total number of regions	BYTE	
2	Regional projects		The format of the content data for the regional items in the circular area is shown in table 46.

Table 46 Regional item content data format for circular regions

start byte	fields	data type	description and requirements
0	Area ID	DWORD	
4	regional properties	WORD	See Table 47 for definitions of regional attributes
6	Latitude of the center point	DWORD	Latitude in degrees multiplied by 10 to the sixth power, accurate to one millionth of a degree
10	Longitude of the center point	DWORD	Longitude in degrees multiplied by 10 to the sixth power, accurate to one millionth of a degree
14	Radius	DWORD	In meters (m)
18	Starting time	BCD[6]	The format is YYMM-DD-hh-mm-ss, if bit 0 of the region attribute is 0 then there is no such field
24	End time	BCD[6]	The format is YYMM-DD-hh-mm-ss, if bit 0 of the region attribute is 0 then there is no such field
30	Maximum speed	WORD	The unit is kilometers per hour (km/h), and there is no such field if bit 1 of the area attribute is zero
32	Duration of overdrive	BYTE	The unit is seconds (s), and there is no such field if bit 1 of the region attribute is 0
33	Maximum speed at night	WORD	The unit is kilometers per hour (km/h), and there is no such field if bit 1 of the area attribute is zero
35	name length	WORD	
37	The name of the region	STRING	the name description of the region

Table 47 Definitions of regional attributes for regions

place	Marker
0	Whether to enable the judgment rule of start time and end time,0:No;1:Yes
1	Whether or not to enable the maximum speed The judgment rule for the duration of over speeding and the maximum speed at night,0:No;1:Yes
2	Whether to enter the area to alarm the driver,0:No;1:Yes
3	Whether or not to alert the platform of the entry area, 0: no; 1: yes
4	Whether to alarm the driver out of the area,0:No;1:Yes
5	Whether or not to alert the platform to the out-of-area, 0: no; 1: yes
6	0: north latitude; 1: south latitude
7	0: east longitude; 1: west longitude
8	0: open door is allowed; 1: open door is prohibited
9 ~13	Reservations
14	0: into the area to turn on the communication module; 1: into the area to turn off the communication module
15	0: enter the area without collecting GNSS detailed positioning data; 1: enter the area to collect GNSS detailed positioning data

83 Delete the circular area

Message ID:0x8601.

The format of the Delete Circular Area message body data is shown in Table 48.

Table 48 Deletion of circular area message body data format

start byte	fields	data type	description and requirements
0	Number of regions	BYTE	The number of regions contained in this message, not more than 125, more than 125 is recommended to use more than one message, 0 is to delete all round regions
1	Region I1	DWORD	
5		DWORD	
1 + (n -1) ✱	Regional In	DWORD	

84 Set the rectangular area that

Message ID:0x8602.

The Set Rectangular Area message body data format is shown in Table 49.

Table 49 Setting the data format of the message body for the rectangular area

start byte	fields	data type	description and requirements
0	Setting Properties	BYTE	0: update area. 1: additional area. 2: Modify the region
1	Total number of regions	BYTE	
2	Regional projects		The format of the area item data for rectangular areas is shown in table 50.

Table 50 Area item data format for rectangular areas

start byte	fields	data type	description and requirements
0	Area ID	DWORD	
4	regional properties	WORD	See Table 47 for definitions of regional attributes
6	Latitude of the upper left point	DWORD	Latitude in degrees multiplied by 10 to the sixth power, accurate to one millionth of a degree
10	Longitude of the upper left point	DWORD	Longitude in degrees multiplied by 10 to the sixth power, accurate to one millionth of a degree
14	Lower right dot latitude	DWORD	Latitude in degrees multiplied by 10 to the sixth power, accurate to one millionth of a degree
18	Longitude of the lower right point	DWORD	Longitude in degrees multiplied by 10 to the sixth power, accurate to one millionth of a degree
22	Starting time	BCD [6]	time range setting in the same circular area
28	End time	BCD [6]	time range setting in the same circular area

Table 50 (continued)

start byte	fields	data type	description and requirements
34	Maximum speed	WORD	The unit is kilometers per hour (km/h), and there is no such field if bit 1 of the area attribute is 0
36	Duration of overdrive	BYTE	The unit is seconds (s), and there is no such field if bit 1 of the region attribute is 0
37	Maximum speed at night	WORD	The unit is kilometers per hour (km/h), and there is no such field if bit 1 of the area attribute is 0
39	name length	WORD	
41	The name of the region	STRING	the name description of the region

85 Delete the rectangular area

Message D 0x8603.

The format of the Delete Rectangular Area message body data is shown in Table 51.

Table 51 Delete rectangular area message body data format

start byte	fields	data type	description and requirements
0	Number of regions	BYTE	The number of areas contained in this message, not more than 125, more than 125 is recommended to use more than one message, 0 is to delete all the rectangular areas
1	Region 1	DWORD	
5		DWORD	
1 + (n - 1) *	Regional In	DWORD	

86 Setting the polygon area

Message D 0x8604.

The Set Polygon Area message body data format is shown in Table 52.

Table 52 Setting the polygonal area message body data format

start byte	fields	data type	description and requirements
0	Area ID	DWORD	
4	regional properties	WORD	See Table 47 for definitions of regional attributes
6	Starting time	BCD[6]	time range setting in the same circular area
12	End time	BCD[6]	time range setting in the same circular area
18	Maximum speed	WORD	The unit is kilometers per hour (km/h), and there is no such field if bit 1 of the area attribute is zero
20	Duration of overdrive	BYTE	The unit is seconds (s), and there is no such field if bit 1 of the region attribute is 0
21	the total number of vertices in the region	WORD	
23	The vertex term		The data format of the vertex entries of the polygonal region is shown in Table 53, and the length of the n

Table 52 (continued)

start byte	fields	data type	description and requirements
23 +n	Maximum speed at night	WORD	The unit is kilometers per hour (km/h), there is no field if bit 1 of the region attribute is 0, n is the length of the total number of vertices in the region, and n is the length of the total number of vertices in the region
25 +n	name length	WORD	n is the length of the total number of vertices in the region
27 +n	The name of the region	STRING	The name description of the region,n is the length of the total number of vertices of the region

Table 53 Vertex term data format for polygonal regions

start byte	fields	data type	description and requirements
0	vertex latitude	DWORD	Latitude in degrees multiplied by 10 to the sixth power, accurate to one millionth of a degree
4	Vertex longitude	DWORD	Longitude in degrees multiplied by 10 to the sixth power, accurate to one millionth of a degree

87 Deleting polygonal areas

Message D 0x8605.

The format of the Delete Polygon Area message body data is shown in Table 54.

Table 54 Delete polygonal area message body data format

start byte	fields	data type	description and requirements
0	Number of regions	BYTE	The number of areas contained in this message, not more than 125, more than 125 is recommended to use more than one message, 0 is to delete all the rectangular areas
1	Region I1	DWORD	
5		DWORD	
1 + (n -1) ★	Regional In	DWORD	

8B Setting the course

Message D 0x8606.

See Table 55 for the Setup Route message body data format.

Table 55 Setting the route message body data format

start byte	fields	data type	description and requirements
0	Route ID	DWORD	
4	route properties	WORD	The format of the route attribute data is shown in Table 56
6	Starting time	BCD[6]	time range setting in the same circular area
12	End time	BCD[6]	time range setting in the same circular area
18	the total number of inflection points of the route	WORD	

Table 55 (continued)

start byte	fields	data type	description and requirements
20	Inflection point term		The data format of the route inflection point entries is shown in Table 57, length n
20 +n	name length	WORD	
22 +n	The name of the route	STRING	the name description of the route

Table 56 Data format for route attributes

place	Marker
0	Whether to enable the judgment rule of start time and end time,0:No;1:Yes
1	Reservations
2	Whether the approach route is alarmed to the driver,0:No;1:Yes
3	Whether the route is alarmed to the platform, 0: no: 1: yes
4	Whether or not to alert the driver of the outgoing route,0:No;1:Yes
5	Whether to alert the platform of the route, 0: no: 1: yes
6~15	Reservations

Table 57 Data format for route inflection terms

start byte	fields	data type	description and requirements
0	Inflection point ID	DWORD	
4	The section ID	DWORD	
8	inflection point latitude	DWORD	The value of latitude in degrees multiplied by the sixth power of 10 to the nearest millionth of a degree
12	the longitude of the inflection point	DWORD	The value of longitude in degrees multiplied by the sixth power of 10 to the nearest millionth of a degree
16	roadway widths	BYTE	in meters (m),the section is from that inflection point to the next inflection point, the
17	roadway attributes	BYTE	The format of the road segment attribute data is shown in Table 58
18	roadway traveling over long broadsides	WORD	The unit is seconds (s), and if bit 0 of the section attribute is 0, there is no such field
20	roadway traveling less than the broad value of the	WORD	The unit is seconds (s), and if bit 0 of the section attribute is 0, there is no such field
22	Maximum speed on the roadway	WORD	The unit is kilometers per hour (km/h), and there is no such field if bit 1 of the roadway attribute is zero
24	Duration of speeding on roadways	BYTE	The unit is seconds (s), and there is no such field if bit 1 of the section attribute is 0
25	nighttime maximum speeds on roadways	WORD	The unit is kilometers per hour (km/h), and there is no such field if bit 1 of the roadway attribute is zero

Table 58 Road segment attribute data format

place	Marker
0	l:Travel time
1	l:speed limit
2	0:north latitude; 1:south latitude
3	0:east longitude; 1:west longitude
4~7	Reservations

89 Deletion of routes

Message ID:0x8607.

The Delete Route message body data format is shown in Table 59.

Table 59 Deletion of route message body data format

start byte	fields	data type	description and requirements
0	Number of routes	BYTE	The number of zones contained in this message should not exceed 125, more than 125 is recommended for multiple messages, 0 is to delete all routes, and 0 is to delete all routes
1	Route I1	DWORD	
5		DWORD	
1 + (n - 1) 4	Route In	DWORD	

8D query area or line data

Message ID:0x8608.

The message body data format is shown in Table 60.

Table 60 Query Area or New Road Data Message Body Data Format

start byte	fields	data type	description and requirements
0	query type	BYTE	1 = query for circular area data, 2 = query for rectangular area data, 3 = query for polygonal area data, 4 = query for line data
1	The number of IDs for the area or line to be queried	DWORD	0 means query all area or line data, greater than 0 means followed by the number of IDs of the area or line to be queried
5	D	DWORD	
9	D	DWORD	
1 + (n - 1) 4		DWORD	

8H Query area or line data response

Message ID:0x0608.

The message body data format is shown in Table 61.

Table 61 Query Area or New Road Data Answer Message Body Data Format

start byte	fields	data type	description and requirements
0	query type	BYTE	Same as the query types in Table 45-1
1	the number of data returned by the query	DWORD	indicates the amount of area or line data returned by the trailing query
5	DATA1	DWORD	If the query type is 1, the data format is Table 45 Setting the data format of the circular area message body. If the query type is 2, the data format is Table 49 Set Rectangular Area Message Body Data Format If the query type is 3, this data format sets the polygonal area message body data format for Table 52 If the query type is 4, this data format sets the route message body data format for Table 55
9	DATA2	DWORD	Same as DATA1
n		DWORD	Same as DATA1

8D the tachograph data acquisition command

Message D 0x8700.

The data format of the tachograph data acquisition command message body is shown in Table 62.

Table 62 Data format of the trip recorder data acquisition command message body

start byte	fields	data type	description and requirements
0	command word	BYTE	The command word list should comply with the relevant requirements in GB/T19056
1	data blocks		The content format of the data block shall conform to the complete data packet required by GB/T19056, and can be empty

8E tachograph data uploading

Message D 0x0700.

The data format of the tachograph data upload message body is shown in Table 63.

Table 63 Trip Log Data Upload Message Body Data Format

start byte	fields	data type	description and requirements
0	Answer stream number	WORD	the stream number of the corresponding tachograph data acquisition command message
2	command word	BYTE	corresponding to the command word issued by the platform
3	data blocks		The format of the content of the data block is shown in GB/T19056

84 The travel log parameter downlink command

Message ID:0x8701.

The data format of the Travel Log Parameter Download Command message body is shown in Table 64.

Table 64 Data format for the trip recorder parameter downlink command message body

start byte	fields	data type	description and requirements
0	command word	BYTE	For the list of command words, see the relevant requirements in GB/T19056
1	data blocks		The format of the content of the data block is shown in GB/T19056

85 Electronic waybill reporting

Message ID:0x0701.

The data format of the e-Waybill reporting message body is shown in Table 65.

Table 65 Electronic waybill reporting message body data format

start byte	fields	data type	description and requirements
0	length of electronic waybill	DWORD	
4	the contents of the electronic waybill		electronic waybill data packages

86 reporting requests for driver identification information

Message ID:0x8702.

The body of the Report Driver Identity Information Request message is empty.

87 Driver identification information collection and reporting

Message ID:0x0702.

This command is triggered automatically when the terminal license C card is inserted or removed. After receiving the 0x8702 command, use this command to answer. Driver identity information collection and reporting message body data format is shown in Table 66.

Table 66 Data format for the driver identification information reporting message body

start byte	fields	data type	description and requirements
0	State	BYTE	0x01:License IC card inserted (driver on duty); 0x02:License IC card withdrawn (driver off duty)
1	Time	BCD [6]	Card insertion/removal time, YYMM-DDhh-mmss; the following fields are valid and populated only when the status is 0x01, the
7	IC card reading results	BYTE	0x00:IC card read successfully. 0x01: Card reading failed because the card key authentication was not passed. 0x02: Card reading failed because the card is locked. 0x03: Card reading failed because the card was pulled out. 0x04: Failed to read the card due to data validation error. The following fields are valid when the IC card read result is equal to 0x00

Table 66 (continued)

start byte	fields	data type	description and requirements
8	the length of the driver's name	BYTE	n
9	driver's name	STRING	driver's name
9 +n	Practitioner's license code	STRING	Length: 20 bits, 0x00 if not enough.
29 +n	the length of the name of the licensing authority	BYTE	m
30 +n	the name of the licensing authority	STRING	The name of the licensing body that issued the practitioner's certificate
30 +n +m	the validity period of the document	BCD [4]	YYYYMMDD
34 +n +m	driver's identification number	STRING	The length is 20 bytes, if it is not enough, make up 0x00.

Note: n denotes the length of the driver's name, and m denotes the length of the name of the licensing organization.

88 Batch upload of location data

Message ID:0x0704.

The data format for batch upload of positioning data is shown in Table 67.

Table 67 Data format for batch upload of positioning data

start byte	fields	data type	Description
0	number of data items	WORD	Number of positional reporting data items included, value greater than zero
1	The location data type	BYTE	0: Normal position batch report, 1: Blind patch report
2	location reporting data items		See table 68 for definitions

Table 68 Data formats for position reporting data items

start byte	fields	data type	Description
0	position reports the length of the data body	WORD	position reports the length of the data body
2	Position reporting datasets	BYTE[n]	For definitions see 8 21 Location Information Reporting,n is the length of the location reporting data body

89 CAN bus data upload

Message ID:0x0705.

The CAN bus data upload data format is shown in Table 69.

Table 69 CAN bus data upload data format

start byte	fields	data type	Description
0	number of data items	WORD	Number of CAN bus data items included, value greater than 0
2	CAN bus data reception time	BCD [5]	Article 1 CAN bus data reception time,hh-mm--mms
7	CAN bus data items		The format of the data items is shown in table 70

Table 70 CAN bus data item data format

start byte	fields	data type	Description
0	CAN ID	DWORD	bit31 denotes CAN channel number, 0:CAN1, 1:CAN2; bit30 denotes frame type, 0:standard frame, 1:extended frame; bi29 denotes data acquisition mode, 0:raw data, 1: average value of acquisition interval; bi28-bt0 denotes CAN bus ID, 0:raw data, 1: average value of acquisition interval; bi28-bt0 denotes CAN bus ID, 0:raw data, 1: average value of acquisition interval; bi28-bt0 denotes CAN bus ID
4	CANDATA	BYTE [8]	CAN data

8D multimedia event information uploading

Message ID:0x0800

See Table 71 for the Multimedia Event Message Upload data format.

Table 71 Multimedia event message upload message body data format

start byte	fields	data type	description and requirements
0	Multimedia Data ID	DWORD	Values greater than 0
4	multimedia types	BYIE	0:image; 1:audio; 2:video
5	multimedia format encoding	BYIE	0:JPEG; 1:TIF; 2:MP3; 3:WAV; 4:WMV; others reserved
6	event item code	BYIE	0: platform issued commands; 1: timed action; 2: robbery alarm triggered; 3: collision rollover alarm triggered; 4: door open to take a picture; 5: door closed to take a picture; 6: door open to close, vehicle speed from less than 20km to more than 20km; 7: fixed-distance photo
7	Channel ID	BYIE	

851 multimedia data uploading

Message ID:0x0801.

The Multimedia Data Upload message body data format is shown in Table 72.

Table 72 Multimedia Data Upload Message Body Data Format

start byte	fields	data type	description and requirements
0	Multimedia ID	DWORD	values greater than zero
4	multimedia types	BYIE	0:image; 1:audio; 2:video
5	multimedia format encoding	BYIE	0: JEG 1: TF 2: M3 3: WAV 4: WMV
6	event item code	BYIE	0: platform sends command; 1: timed action; 2: robbery alarm trigger; 3: collision rollover alarm trigger, 4: open the door; 5: close the door
7	Channel ID	BYIE	
8	Location information reporting (0x0200) message body	BYTE [28]	The data representing the basic information about the location of the multimedia data is shown in Table 23.
36	multimedia packets		

82 Multimedia data upload response

Message ID:0x8800.

The format of the Multimedia Data Upload Answer message body data is shown in Table 73.

Table 73 Multimedia Data Upload Answer Message Body Data Format

start byte	fields	data type	description and requirements
0	Multimedia ID	DWORD	value is greater than 0, there are no subsequent fields if all packets are received
4	the total number of retransmitted packets	BYTE	
5	retransmit the list of package IDs		not more than 125 items, the absence of which indicates that all packets have been received

83 The camera immediately shoots the order

Message ID:0x8801.

The format of the Camera Immediate Recording Command message body data is shown in Table 74.

Table 74 Camera Immediate Recording Command Message Body Data Format

start byte	fields	data type	description and requirements
0	Channel ID	BYTE	values greater than zero
1	Shooting orders	WORD	0: stop recording; 0xFFFF: video recording; other: number of pictures taken
3	photo interval/recording time	WORD	The unit is second (s),0 means take pictures or keep recording at the minimum interval
5	Save the sign	BYTE	1: Saving. 0:real-time uploads
6	Resolution ^a	BYTE	0x00: minimum resolution 0x01:320 x240; 0x02:640 x480; 0x03:800 x600; 0x04:1024 x768; 0x05:176 x144; [QF]; 0x06:352 x288; [CF]; 0x07:704 x288; [HALFD1]; 0x08:704 x576; [D1]; 0xf: maximum resolution
7	image/video quality	BYTE	The value ranges from 1 to 10, with 1 being the minimum mass loss and 10 being the maximum compression ratio
8	Brightness	BYTE	0 ~255
9	Contrast	BYTE	0 ~127
10	Saturation	BYTE	0 ~127
11	Chromaticity	BYTE	0 ~255

^a If the terminal does not support the resolution required by the system, the closest resolution is taken and uploaded.

84 The camera immediately shoots a command response that

Message ID:0x0805.

See Table 75 for the data format of the answer message body of the Camera Immediate Recording command, which is used to answer the Camera Immediate Recording command 0x8801 issued by the monitoring platform.

Table 75 Camera Immediate Recording Command Answer Data Format

start byte	fields	data type	description and requirements
0	Answer stream number	WORD	corresponds to the message stream number of the platform's camera Immediate Shot command
2	Results	BYTE	0:Success;1:Failure;2:Channel not supported. The following fields are only valid if the result = 0, the
3	Number of IDs	WORD	
4	ID list	BYTE [4*n]	n denotes the number of successfully captured multimedia

85 Storing multimedia data retrieval

Message ID:0x8802.

See Table 76 for the format of the stored multimedia data retrieval message body data, and set the start time/end time to 00-00- if not according to the time range.

00 00 00 00

Table 76 Stored Multimedia Data Retrieval Message Body Data Format

start byte	fields	data type	description and requirements
0	multimedia types	BYTE	0:image; 1:audio; 2:video
1	Channel ID	BYTE	0 means retrieve all channels of this media type
2	event item code	BYTE	0: platform issued command; 1: timed action; 2: robbery alarm trigger; 3: collision rollover alarm trigger; other reserved
3	Starting time	BCD [6]	YYMMDDh h -mm:ss
9	End time	BCD [6]	YYMMDDh h -mm:ss

86 Storing multimedia data retrieval responses

Message ID:0x0802.

The format of the Stored Multimedia Data Retrieval Answer Message Body data is shown in Table 77.

Table 77 Stored Multimedia Data Retrieval Answer Message Body Data Format

start byte	fields	data type	description and requirements
0	Answer stream number	WORD	the stream number of the corresponding multimedia data retrieval message
2	Total number of multimedia data items	WORD	the total number of multimedia data items that satisfy the search criteria
4	search term		The format of the multimedia search item data is shown in Table 78

Table 78 Data format for multimedia search items

start byte	fields	data type	description and requirements
0	Multimedia ID	DWORD	Values greater than 0
4	multimedia types	BYTE	0:image; 1:audio; 2:video
5	Channel ID	BYTE	
6	The event item code	BYTE	0: platform issued command; 1: timed action; 2: robbery alarm trigger; 3: collision rollover alarm trigger; other reserved
7	Location information reporting (0x0200) message body		A report message indicating the starting moment of the shot or recording, the

87 Storing multimedia data upload commands

Message ID:0x8803

The format of the Stored Multimedia Data Upload Command message body data is shown in Table 79.

Table 79 Stored Multimedia Data Upload Command Message Body Data Format

start byte	fields	data type	description and requirements
0	multimedia types	BYTE	0:image; 1:audio; 2:video
1	Channel ID	BYTE	
2	The event item code	BYTE	0:Platform issued command;1:Timed action;2:Robbery alarm triggered;3:Touch Crash rollover alarm triggered; other reservations
3	Starting time	BCD [6]	YYMMDD hh:mm
9	End time	BCD [6]	YYMMDD hh:mm
15	Delete the sign	BYTE	0: retained; 1: deleted

88 The recording start command

Message ID:0x8804

The recording start command message body data format is shown in Table 80.

Table 80 Recording Start Command Message Body Data Format

start byte	fields	data type	description and requirements
0	recording commands	BYTE	0:stop recording;0x01:start recording
1	recording time	WORD	The unit is seconds (s),0 means recording all the time
3	Save the sign	BYTE	0:upload in real time; 1:save
4	audio sample rate	BYTE	0:8K; 1:11K; 2:23K; 3:32K; others reserved

89 A single stored multimedia data retrieval upload command that

Message ID:0x8805

The format of the single stored multimedia data retrieval upload command message body data is shown in Table 81.

Table 81 Single Storage Multimedia Data Retrieval Upload Command Message Body Data Format

start byte	fields	data type	description and requirements
0	Multimedia ID	DWORD	Values greater than 0
4	Delete the sign	BYTE	0: retained 1: deleted

86 Data Downward Transmission

Message ID: 0x8900.

The data format for the Data Downstream Passthrough message body is shown in Table 82.

Table 82 Data format for data downlink passthrough message bodies

start byte	fields	data type	description and requirements
0	Transmission message type	BYTE	The passthrough message type is defined in Table 83
1	The contents of the rumor		

Table 83 Transparent message type definition table

Transmission message type	Definition	description and requirements
GNSS module detailed positioning data	0x00	GNSS module detailed positioning data
Road Transportation Permit IC card information	0x0B	The upload message of the IC card information of the road transportation certificate is 64Byte, and the download message is 24Byte. The authentication timeout of the IC card authentication of the road transportation certificate is 30s. No reissue after the time limit
Serial Port 1 Transparent	0x1	Serial port 1 transmits messages
Serial 2 Transparent	0x2	Serial port 2 transmits messages
user-defined passthrough	0x10 ~ 0xFF	user-defined passthrough messages

86 Data uplink transmissions

Message ID: 0x0900.

The data format of the data uplink passthrough message body is shown in Table 84.

Table 84 Data format for data uplink passthrough message bodies

start byte	fields	data type	description and requirements
0	Transmission message type	BYTE	The passthrough message types are defined in the Passthrough Message Type Definitions table
1	The contents of the rumor		

86 Data compression and reporting

Message ID: 0x0901.

The data format of the data compression reporting message body is shown in Table 85.

Table 85 Data compression upload message body data format

start byte	fields	data type	description and requirements
0	compressed message length	DWORD	
4	Compress the message body		The compressed message body is the message to be compressed after the GZP compression algorithm

~~85~~ Platform RSA public key

Message D 0x8A00.

The platform RSA public key message body data format is shown in Table 86.

Table 86 Platform RSA public key message body data format

start byte	fields	data type	description and requirements
0	e	DWORD	Platform RSA public key e,n called in e
4	n	BYTE [128]	RSA public key e,n called in n, the

~~86~~ terminal RSA public key

Message D 0x0A00.

The endpoint RSA public key message body data format is shown in Table 87.

Table 87 Terminal RSA public key message body data format

start byte	fields	data type	description and requirements
0	e	DWORD	The terminal RSA public key e,n is called in e, the
4	n	BYTE [128]	RSA public key e,n called in n, the

Appendix A
(Normative appendix)
Vehicle-mounted terminal and external device communication protocols

~~A1~~ Equipment

~~A11~~ Mainframe

The host shall comply with the requirements of JTIT794.

~~A2~~ From the machine

The slave should include a variety of point-to-point serial communication external devices, such as scheduling displays, intelligent peripherals, fuel detection devices, collision rollover detection devices.

~~A2~~ communication protocols

~~A3~~ Frame format definition

The frame format that should be followed for all slave-to-master communications is shown in Table 1.

Table A1 Frame format

Marker bits	The check digit	Version number	Manufacturer's number	peripheral type number	command type	user data	Marker bits
1 b yte	1 b yte	2 b yte	2 b yte	1 b yte	1 b yte	n b yte	1 b yte

The components and requirements of the frame format are as follows.

- a) Identifier bit: 0x7e shall be used, if 0x7e and 0x7d appear in the check digit, message header and message body, then it shall be escaped, and the escaping rules are defined as follows.
 - 1) First escape 0x7d, converted to a fixed two-byte data: 0x7d 0x01.
 - 2) Then escape 0x7e and convert to fixed two-byte data: 0x7d 0x02.

The escaping process is as follows.

- 1) When sending a message: first encapsulate the message, then calculate and fill in the checksum, and finally do the escaping process.
- 2) When receiving a message: first, the message is escaped and restored, then the checksum is verified, and finally the message is parsed.

Example: To send a packet with content 0x30 0x7e0x08 0x7d 0x55, the encapsulation is as follows: 0x7e0x30 0x7d 0x02 0x08 0x7d 0x01 0x55 0x7e.

- b) Check digit: The sum of the accumulated data from the manufacturer's number to the user's data, and then the lower 8 bits of the sum are taken as the check digit.

Example: The sum is 0x1388, then the checksum is 0x88.

- c) Version Number: Identifies the communication protocol version.
- d) Manufacturer's number: The manufacturer's code of the peripheral slave.
- e) Peripheral type number: each peripheral only corresponds to a type number, which is used by the host's peripheral interface driver to distinguish what kind of data is sent from the peripheral; the peripheral type number is shown in Table A2.
- f) Command type: peripheral and host for a variety of data interaction information type, command type is divided into two categories of general protocol and proprietary protocol. Common protocol mainly includes the slave and the host of the basic, necessary, common types of information interaction; proprietary protocol defines each type of peripheral and host-specific types of information interaction; command type see Table A3.

- g User data: peripheral and host interaction data, in addition to the above parts of the customized content by the specific business functions.
- h The data in a communication frame is represented in a big-endian representation.

Table A2 Peripheral Type Numbering Table

peripheral type	No	peripheral type	No
Industry information terminals	0x01	Interface Extender	0x07
Dispatch display	0x02	load detectors	0x08
Car navigation display	0x03	Passenger flow detectors	0x09
oil level detector	0x04	General Purpose Sensors	0x0A
acceleration detector	0x05	General Purpose Sensors	0x0B
burglar alarms	0x06	customized by the manufacturer	0x0C ~ 0xFF

Table A3 Table of command types

protocol type	business function types	command type
peripheral generic protocols	power-up indication/answer	0x01
	link probe/answer	0x02
	peripheral power control/answer	0x03
	Query the peripheral version number information	0x04
	Peripheral self-test/answer	0x05
	Peripheral firmware update/answer	0x06
	Reservations	0x07 ~ 0xFF
proprietary agreements	Road Transportation Permit IC Card Authentication Request/Response	0x40
	Notification/response of IC card reading result of road transportation license	0x41
	Card pull notification/answer	0x42
	Active trigger to read I-card/answer	0x43
reservation agreements	Reservations	0x44 ~ 0xFF

A22 Add rules for peripheral protocols, the

Additions and modifications to peripheral protocols should follow the following rules.

- a Send and answer protocols for the same function use the same command type; the
- b For peripheral devices with many command types, when adding a new command type, try to consider using variable parameters to reduce the command type

Occupancy.

AS The generic protocol description

AS1 Slave power-up indication

See Table A 4 for slave power-up instructions.

Table A4 Slave Power-Up Indicator Table

Step	command type	Description	user data	Data direction
1	01H	Power-up indication response	without	Downside
2	01H	power-up indication	without	Upside

Peripheral link probing

See Table A 5 for peripheral link probing commands.

Table A5 Peripheral Link Probing Command Table

Step	command type	Description	user data	Data direction
1	02H	Link Probing	Link maintenance time. The high byte comes before, the low byte comes after; the unit of high byte is minute (min), the unit of low byte is second (s); it is recommended that the link probe time is 15s~30s; after the link timeout, the master will cancel the registration information of the slave, and the link maintenance time will be 15s~30s	Upside
2	02H	Link Probe Answer	without	Downside

slave power control

See Table A 6 for slave power control commands.

Table A6 Slave Power Control Indication Table

Step	command type	Description	user data	Data direction
1	03H	slave power control	Control type. 0x00:Slave exits power saving mode. 0x01: the slave enters the power saving mode	Downside
2	03H	Slave Power Control Answer	Response Type. 0x01: operation successful. 0x02:Operation failed (Slave could not enter power saving mode or exit power saving mode due to special circumstances)	Upside

To query the slave version number information

The Query Slave Version Number Information command is shown in Table A 7.

Table 7 Command table for querying slave version number information

Step	command type	Description	user data	Data direction
1	04H	To query the slave version number information	without	Downside
2	04H	Query the slave version number message response	Slave version number, WORD e.g.: 0x0207, means 2 07 version	Upside

AS Slave self-test

The slave self-test instruction is shown in Table A 8. The timeout of this instruction is 1s, and if there is no response, it will be reissued at most three times. When the terminal receives the self-test failure, it will set the corresponding alarm flag and make voice prompt or screen display.

Table A8 Slave self-test command table

Step	command type	Description	user data	Data direction
1	05H	Slave self-test	Self-test slave type, data type BYTE, as defined in Table A 2	Downside
2	05H	information on the results of the self-test	Self-test slave type, data type BYTE, as defined in Table A 2	Upside
			Self-test result, data type is BYTE. 0x01: self-test success; 0x02: self-test failure	

AS Slave firmware updates

See Table A 9 for slave firmware update instructions.

Table A9 Slave Firmware Update Command Table

Step	command type	Description	user data	Data direction
1	06H	updating the slave module FinWae	Total number of message packets, WORD	Downside
			Package number, WORD, starting at 1	
			packet data, with a maximum length of 256 bytes	
2	06H	Confirmation of information	package serial number, WORD	Upside
			Answer result, BYTE. O: correct. 1: not this firmware program, terminate upgrade. 2: Reissue (after three times, terminate this promotion)	

AS Querying peripheral properties

The query peripheral attribute instruction is shown in Table A 10. The timeout of this instruction is 1s, and if there is no response, it will be retransmitted up to three times.

Table A10 Query Peripheral Attributes Instruction List

Step	command type	Description	user data	Data direction
1	07H	Querying peripheral properties	without	Downside
2	07H	Query Peripheral Attribute Answer	Peripheral manufacturer number, 5 BYTE	Upside
			Peripheral hardware version number, 3 BYTE	
			Peripheral software version number, 3 BYTE	

Note: Example of version number, 0x010B02 means V1 12 2.

A4 IC Card Authentication Specialized Protocol Description

A41 Road Transportation Permit IC Card Authentication Request

When the module detects that a card is inserted and the module is reset or re-powered up, and the physical card number of the C card in the card slot is inconsistent with the card number read last time, the terminal shall automatically trigger the upward instruction of C card authentication request for road transport license. When the command is uplinked and the status bit of C card authentication request is 0x00, the timeout is <35s, k¼status and downlink, the timeout is <1s, and if there is a response, U is reissued three times. The authentication request shall 2¼ the following requirements.

- a) When the status bit is 0x00, the terminal sends 64 bytes of basic card information and authentication information to the authentication center, and according to the following differences

The condition returns a 1 or 25 byte result message to the reader module.

- 1) When the response result of IC card authentication request returned by the terminal to the card reader module is 0x00, the card reader module starts to read the card information, and then automatically activates the 41H command to feed back the result to the terminal, and the terminal prompts the driver for the corresponding result by voice, and uses the 0x0702 command to send the driver's identity information to the authentication center and the monitoring platform after the successful reading of the card.
- 2) When the response result of C card authentication request returned by the terminal to the card reader module is 0x01, wait for 20min and use 43H command to trigger the card reader module to read the IC card actively.
- 3) When the answer to the C-card authentication request returned by the terminal to the card reader module is 0x02, the card reader module retransmits 40H three times. iii

After the unsuccessful attempts, the terminal will end the process and the driver will be prompted with the corresponding result.

- 4) When the answer to the C card authentication request returned by the terminal to the card reader module is 0x03, the process ends and the terminal voice prompts the driver for the corresponding result.

- b) When the status bit is not 0x00, the terminal ends the process and voice prompts the driver for the corresponding result. The instructions for requesting the authentication of the road transportation certificate C card are shown in Table A 11.

Table A1 Road Transportation Certificate C-Card Authentication Request Instruction Sheet

Step	command type	Description	user data	Data direction
1	40H	IC Card Authentication Request	Status bit, data type is BYTE. 0x00: IC card read successfully. 0x01: IC card not inserted. 0x02: IC card reading failed. 0x03: Non-license IC card; 0x04: IC card locked. The data area is valid when the status bit is 0x00, and represents basic card information and authentication information (64 bytes).	Upside
2	40H	IC Card Authentication Request Answer	IC card authentication request response result, BYTE. 0x00: Successful completion of authentication request. 0x01: Terminal not on-line. 0x02: Terminal transmitting authentication center timeout without response. 0x03: The terminal acknowledges receipt of the message (C-card authentication request for card reading Results =0x01 -0x04 when). The data area is valid when the response result of the IC card authentication request is 0x00, and indicates that the IC card authentication request returns the verification data (24 bytes).	Downside

A42 Notification of the results of the reading of the IC card of the Road Transport License

The Road Transportation Permit C-Card Reading Result Notification Instructions are shown in Table A 12.

Table A12 Instruction table for notification of IC card reading result of road transportation license

Step	command type	Description	user data	Data direction
1	41H	IC card reading result notification	IC card reading result, BYTE. 0x00: IC card read successfully, there is follow-up data at this time. 0x01: Card reading failed because the card key authentication has not been passed. 0x02: Card reading failed because the card is locked. 0x03: Card reading failed because the card was pulled out. 0x04: Failed to read the card due to data validation error. The data area is valid when the IC card reading result is 0x00, which indicates the driver's identity information, see Table A.13.	Upside
2	41H	Driver identification information received as confirmation that	without	Downside

The timeout of this command is 1s, if there is no response, it will be re-sent at most three times. When the terminal receives the reading result of C card, it should follow the following rules

Processing.

- a) When the terminal receives a C-card reading result of 0x00, it uses the 0x0702 command to send the driver identity information to the authentication center and the attribution platform.
- h) When the terminal receives the IC card reading result is not 0x00, it will end the process and voice prompt the driver for the corresponding result.

Table A13 Driver Identification Information Form

start byte	fields	data type	description and requirements
0	the length of the driver's name	BYTE	
1	driver's name	STRING	driver's name
1 +n	practitioner's license number	STRING	The length is 20 digits and n is the length of the driver's name
21 +n	the length of the name of the licensing authority	BYTE	n is the length of the driver's name
22 +n	the name of the licensing authority	STRING	the name of the licensing authority, n is the length of the driver's name
22 +n+m	the validity period of the document	BCD [4]	The format is YYYYMMDD, n is the length of the driver's name, m is the length of the issuing organization's name

a43 card dial-out notification

See Table A.14 for card pull notification instructions.

TABLE A14 CARD DIAL OUT NOTIFICATION INSTRUCTION SHEET

Step	command type	Description	user data	Data direction
1	42H	card pullout notification	without	Upside
2	42H	Acknowledgement of receipt of card pullout notification	without	Downside

The timeout of this command is 1s, if there is no response, it will be re-sent at most three times.

When the terminal receives the card pull-out notification, it uses the 0x0702 command to send the driver off-duty message to the authentication center and the monitoring platform.

A44 Active trigger read C-card

The instruction of actively triggering reading IC card is shown in Table A.15. The timeout of this instruction is 1s, and if there is no response, it will be reissued at most three times. When the terminal is not online or it takes time to upload IC card authentication information, etc., the card reading module will automatically trigger the 40H instruction to re-read the card after receiving this instruction.

Table A15 Active Trigger Read IC Card Command Table

Step	command type	Description	user data	Data direction
1	43H	actively triggered to read the IC card	without	Downside
2	43H	active trigger to read the I-card confirmation message	without	Upside

Appendix B

(normative appendix) message cross-reference tables

See Table B1 for a message cross-reference table of terminal communication protocols.

Table B1 Message comparison table

Serial number	The name of the message body	Message ID	Serial number	The name of the message body	Message ID
1	Terminal Generic Response	0 8001	30	information services	0 8304
2	Platform Generic Response	0 8001	31	Query server time response	0 8004
3	Terminal heartbeat	0 8002	32	Callback	0 8400
4	The server retrospectively transmits a packetized request that	0 8003	33	Setting up the phone book	0 8401
5	terminal supplementary transmission of a sub-packet request	0 8005	34	Vehicle control	0 8500
6	terminal registration	0 8100	35	Vehicle Control Response	0 8500
7	terminal registration response	0 8100	36	Set the circular area that	0 8600
8	Terminal write-offs	0 8003	37	Delete the circular area	0 8601
9	querying the server time	0 8004	38	Set the rectangular area that	0 8602
10	Terminal authentication	0 8102	39	Delete the rectangular area	0 8603
11	Setting terminal parameters	0 8103	40	Setting the polygon area	0 8604
12	Querying the terminal parameters, the	0 8104	41	Deleting polygonal areas	0 8605
13	Query terminal parameter response	0 8104	42	Setting the course	0 8606
14	terminal control	0 8105	43	Deletion of routes	0 8607
15	Queries the specified terminal parameters	0 8106	44	tachograph data acquisition commands	0 8700
16	To query the terminal properties, the	0 8107	45	tachograph data upload	0 8700
17	Query terminal attribute response	0 8107	46	Tachograph parameter downlink command	0 8701
18	Issuance of terminal upgrade packages	0 8108	47	manually acknowledging alarm messages	0 8203
19	notification of the results of terminal upgrades	0 8108	48	The server initiates a link detection request to the terminal that	0 8204
20	Location information reporting	0 8200	49	Text message sent	0 8300
21	location information query	0 8201	50	Driver identification information collection and reporting	0 8702
22	Location information query response	0 8201	51	reporting requests for driver identification information	0 8702
23	temporary position tracking control	0 8202	52	Batch upload of location data	0 8704
24	event settings	0 8301	53	CAN bus data upload	0 8705
25	incident reporting	0 8301	54	multimedia event information uploading	0 8800
26	Ask a question and send it	0 8302	55	multimedia data uploading	0 8801
27	Question and answer	0 8302	56	Multimedia data upload response	0 8800
28	Info on Demand menu settings	0 8303	57	The camera immediately shoots the order	0 8801
29	information on demand/cancellation	0 8303	58	The camera immediately shoots a command response that	0 8805

Table B1 (continued)

Serial number	The name of the message body	Message ID	Serial number	The name of the message body	Message ID
59	Storing multimedia data retrieval	0x8802	68	Data uplink transmissions	0x9900
60	Storing multimedia data retrieval responses	0x8802	69	Data compression and reporting	0x9901
61	query area or line data	0x8608	70	Platform RSA public key	0x8A00
62	Query area or line data response	0x8608	71	terminal RSA public key	0x8A00
63	Electronic waybill reporting	0x8701	72	platform downside messages are retained	0x8F00 ~ 0x8FFF
64	Storing multimedia data uploads	0x8803	73	Terminal uplink message retention	0x8F00 ~ 0x8FFF
65	The recording start command	0x8804	74	vendor-defined uplink messages	0x8D00 ~ 0x8FFF
66	A single stored multimedia data retrieval upload command that	0x8805	75	vendor-defined downstream messages	0x8F00 ~ 0x8FFF
67	Data Downward Transmission	0x8900			