



M2Media, LLC - Agreement standard

Intelligent prevention system for active safety of operating vehicles

(Specifications for communication protocol)

1.Scope

This agreement is a supplement and extension to JT / T 808-2013 technical specification for Beidou compatible on-board terminal communication protocol of road transport vehicle satellite positioning system, which specifies the communication protocols between on-board terminal of active safety intelligent prevention and control system (hereinafter referred to as terminal) and supervision / monitoring platform (hereinafter referred to as platform), and between on-board terminal and peripherals, including protocol basis Message definition and data format.

2.Normative references

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

JT / T 808 terminal communication protocol and data format of satellite positioning system for road transport vehicles.

JT / T 1078-2016 video communication protocol for satellite positioning system of road transport vehicles.

GB / T 26773-2011 technical requirements and test methods for driving hazard early warning system of operating vehicles.

JT / T 883-2014 performance requirements and detection methods of lane departure alarm system of intelligent transportation system.

3. Terms, definitions and abbreviations

3.1 Abbreviations

The following abbreviations apply to this document.

ADAS: Advanced Driver Assistant System

DSM: Driving State Monitoring

TPMS: Tire Pressure Monitoring Systems

BSD: Blind Spot Detection

CAN: Controller Area Network

4 Terminal and platform protocol basis

4.1 Basic agreement

The communication mode, data type, transmission rules and message composition of the Protocol shall comply with the requirements of Chapter 4 in JT / T 808-2011.

Refer to Section 4.3 of JT / T 1078-2016 for message classification in the protocol.

The communication connection mode of command data message in the Protocol shall comply with the requirements of Chapter 5 in JT / T 808-2011.

The message processing mechanism of the command data message in the Protocol shall comply with the requirements in Chapter 6 of JT / T 808-2011.

The encryption mechanism of signaling data message in the Protocol shall comply with the requirements of Chapter 7 in JT / T 808-2011.

The Protocol shall meet the following requirements for platform and terminal communication parties:

—Unless expressly agreed, all messages shall be answered.

—If a special reply message is not specified, a general reply shall be adopted.

—For messages with subcontracting, the responder shall respond to each subcontracting message packet by packet.

4.2 Basic information query instruction

4.2.1 Query basic information

The query basic information message adopts 0x8900 message defined in 8.61 of JT / T 808-2011, as shown in Table 41.

Table 4-1. Query basic information data format

Start byte	Field	Data length	Description and requirements
0	Transparent message type	BYTE	See table 4-3 for the definition of transparent message type
1	Total number of peripheral ID lists	BYTE	
2	Peripheral ID	BYTE	See table 4-5 for the definition of peripheral ID

4.2.2 Upload basic information

x0900 message defined in 8.62 of JT / T 808-2011 is used for uploading basic information message. See table 4-2 for the added parameter settings

Table 4-2 Upload basic information data format

Start bytes	Field	Data length	Description and requirements
0	Transmission message type	BYTE	See Table 4-3 for the defined transmission message types
1	Total number of message lists	BYTE	
2	Peripheral message structure		See Table 4-4

Table 4-3 Transmission Message Type Definition Table

Transmission type	Definition	Description and requirements
Status query	0xF7	External peripheral status information: peripheral working status and equipment alarm information
Information Service	0xF8	Basic information of the peripheral sensor: company information, product code, version number, peripheral ID, customer code. The corresponding messages are shown in the table

Table 4-4 Transmission peripheral message structure

Start bytes	Field	Data length	Description and requirements
0	Peripheral ID	BYTE	The peripheral ID definition is shown in Table 4-5
1	Message length	BYTE	
2	The message content		See Table 4-6 when the transmission message type is 0xF7 See Table 4-7 for the transmission message type of 0xF8

Table 4-5 Expheral ID definition table

Peripheral name	Peripheral ID	Description and requirements
ADAS	0x64	Advanced driver assistance system
DSM	0x65	Driver status monitoring system
TPMS	0x66	Tire air pressure monitoring system
BSD	0x67	Blind spot monitoring system

Table 4-6 The peripheral status information

Start bytes	Field	Data length	Description and requirements
0	Working condition	BYTE	0x01: Normal operation 0x02: Position in readiness 0x03: Upgrade maintenance 0x04: Unit exception 0x10: Disconnect
1	Alarm status	DWORD	Bit setting: 0 indicates none, and 1 means none bit0: The camera is abnormal bit1: Primary memory exception bit2: Auxiliary memory exception bit3: Infrared complement is abnormal bit4: The speaker is abnormal bit5: Battery anomaly bit6~bit9: Reserve bit10: Communication module exception bit11: Locate module exception bit12~bit31: Reserve

Table 4-7 Peripheral system information

Start bytes	Field	Data type	Description and requirements
0	Company name length	BYTE	Length: 0~32 Name: Use the ASCII representation (for example, the software version number SV1.1.0 Represents it as 0x53 0x56 0x31 0x2E 0x31 0x2E 0x30) The customer code is the user code and is customized by the peripheral manufacturer
1	corporate name	BYTE[n1]	
1+n1	Product model length	BYTE	
2+n1	product model	BYTE[n2]	
2+n1+n2	Hardware version number length	BYTE	
3+n1+n2	Hardware version number	BYTE[n3]	
3+n1+n2+n3	Software version number length	BYTE	
4+n1+n2+n3	Software version number	BYTE[n4]	
4+n1+n2+n3+n4	Device ID length	BYTE	
5+n1+n2+n3+n4	equipment ID	BYTE[n5]	
5+n1+n2+n3+n4+n5	Customer code length	BYTE	
6+n1+n2+n3+n4+n5	customer code	BYTE[n6]	

4.3 The parameter sets the query instruction

4.3.1 Parameter settings instructions

The parameter setting message adopts the 0x8103 message defined in 8.8 in JT / T 808-2011, and the added parameter settings are shown in.

Table 4-8.

Table 4-8 Parameter item data format

Field	Data type	Description and requirements
Parameter ID	DWORD	Parameter ID definition and description, as shown in Table 4-5
Parameter length	BYTE	
Parameter values		

Table 4-9 Parameters set the definition and description of each parameter item

Parameter ID	Data type	Description and requirements
0xF364		Advanced driver assistance system parameters are shown in Table 4-10
0xF365		The driver status monitoring system parameters are shown in Table 4-11
0xF366		For the tire pressure monitoring system parameters, as shown in Table 4-12
0xF367		Blind area monitoring system parameters are shown in Table 4-13

Table 4-10 Advanced Driver Assistance System Parameters

Start bytes	Field	Data type	Description and description
0	Alarm judgment speed threshold	BYTE	Unit km/h, value range 0~60, default value 30, only for road deviation alarm, forward collision alarm, vehicle too close alarm and frequent lane change alarm.It means that the alarm function is enabled only when the vehicle speed is above this threshold The 0xFF means that this parameter is not modified
1	Alarm prompt volume	BYTE	0~8,8 Maximum, 0 mute, and a default value of 6 The 0xFF indicates that the parameters are not modified
2	Active photo-taking strategy	BYTE	0x00: Don't open 0x01: Take photos regularly 0x02: Set distance to take photos 0x03: Retain

			Default value 0x00, 0xFF The parameters are not modified.
3	Active and scheduled photo time interval	WORD	Unit second, value range 0-3600, default value 60, 0 means no capture, and 0xFFFF means not modifying the parameters The active photo policy is valid at 0x01
5	Active distance photo interval	WORD	Unit meter, value range 0~60000, default value 200, 0 means no capture, and 0xFFFF means not modifying the parameters The active photo policy is valid at 0x02
7	Number of single active photos	BYTE	Value range 1-10, default 3 The 0xFF indicates that the parameters are not modified
8	Single-time active photo-taking time interval	BYTE	Unit of 100ms, value range 1-5, default value 2, The 0xFF indicates that the parameters are not modified
9	Photo resolution	BYTE	0x01: 352×288 0x02: 704×288 0x03: 704×576 0x04: 640×480 0x05: 1280×720 0x06: 1920×1080 Default value 0x01, 0xFF Inmeans that parameters are not modified, This parameter is also suitable for the alarm trigger photo resolution.
10	Video recording resolution	BYTE	0x01: CIF 0x02: HD1 0x03: D1 0x04: WD1 0x05: VGA 0x06: 720P 0x07: 1080P Default value 0x01 0xFF The parameters are not modified This parameter is also suitable for the alarm trigger video resolution.
11	Alarm enable	DWORD	Alarm the energy position 0: Close 1: Open bit0:Level I alarm for obstacle detection bit1:Secondary alarm for obstacle detection bit2:Frequent lane change, level 1, and alarm bit3:Frequent lane change level secondary alarm bit4:Lane departure from Level 1 alarm

			bit5:Lane departure level secondary alarm bit6:Forward collision level I alarm bit7:Forward collision secondary alarm bit8:Pedestrian collision level I alarm bit9:Pedestrian collision secondary alarm bit10:The car is too close to the level of alarm bit11:The car is too close to the secondary alarm bit12~bit15: User Custom bit16:Road sign over-limit alarm bit17~bit29: User Custom bit30~bit31: Reserve Default value 0x00010FFF 0xFFFFFFFF The parameters are not modified
15	Event enabling	DWORD	Event enabling 0: Close 1: Open bit0:Road identification bit1:Take photos actively bit2~bit29: User Custom bit30~bit31: Reserve Default value 0x00000003 0xFFFFFFFF The parameters are not modified
19	Reserved fields	BYTE	Reserve
20	Obstacles alarm distance threshold	BYTE	Unit 100ms, Span 10-50, Default value 30 0xFF The parameters are not modified
21	Obstruction alarm grading speed threshold	BYTE	Unit km/h, value range 0~220, default value 50. Indicates that the alarm, otherwise it is the primary alarm The 0xFF indicates that the parameters are not modified
22	Video recording time before and after the obstacle alarm	BYTE	Unit second, value range 0-60, default value 5, 0 indicates no video recording, and 0xFF indicates no modified parameters
23	Number of obstacle alarm photos	BYTE	Value range 0-10, default value 3, 0 means no snap, and 0xFF means not modifying the parameters
24	Photo interval for obstacle alarm	BYTE	Unit 100ms, value range 1 to 10, default value 2, The 0xFF indicates that the parameters are not modified
25	Frequent lane change alarm judgment time period	BYTE	Unit seconds, value range 30 to 120, default value 60, The 0xFF indicates that the parameters are not modified
26	Judge the	BYTE	Lane change times 3~10, default 5,

	number of frequent lane change alarm		The 0xFF indicates that the parameters are not modified
27	Frequent lane change alarm grading speed threshold	BYTE	Unit km/h, the value range 0~220, the default value 50, indicates the alarm speed above threshold for secondary alarm, otherwise it is the primary alarm The 0xFF indicates that the parameters are not modified
28	Video recording time before and after the frequent lane change alarm	BYTE	Unit second, value range 0-60, default value 5, 0 indicates no video recording, and 0xFF indicates no modified parameters
29	Frequent lane change alarm number	BYTE	Value range 0-10, default value 3, 0 means no snap, and 0xFF means not modifying the parameters
30	Frequent lane change alarm and photo interval	BYTE	Range 1 to 10 per 100ms, default 2, The 0xFF indicates that the parameters are not modified
31	Lane departure alarm grading speed threshold	BYTE	Unit km/h, value range 0~220, default value 50. Indicates that the alarm, otherwise it is the primary alarm 0 indicates no video recording, and 0xFF indicates no modified parameters
32	Video recording time before and after the lane departure alarm	BYTE	Unit second, value range 0-60, default value 5, 0 indicates no video recording, and 0xFF indicates no modified parameters
33	Number of lane departure alarm photos	BYTE	Value range 0-10, default value 3, 0 means no capture, and 0xFF means no modification
34	Lane departure alarm photo interval	BYTE	Unit 100ms, value range 1 to 10, default value 2 The 0xFF indicates that the parameters are not modified
35	Forward collision alarm time threshold	BYTE	Unit of 100ms, take the value range of 10~50, currently using the national standard specified value of 27, the modification interface is reserved. The 0xFF indicates that the parameters are not modified

36	Forward collision alarm grading speed threshold	BYTE	Unit km/h, value range 0~220, default value 50. Indicates that the alarm, otherwise it is the primary alarm The 0xFF indicates that the parameters are not modified
37	Video recording time before and after the forward crash alarm	BYTE	Unit second, value range 0-60, default value 5, 0 indicates no video recording, and 0xFF indicates no modified parameters
38	Number of front collision alarm	BYTE	Value range 0-10, default value 3, 0 means no capture, and 0xFF means no modification
39	Forward collision alarm photo interval	BYTE	Unit 100ms, value range 1 to 10, default value 2, The 0xFF indicates that the parameters are not modified
40	Pedestrian collision alarm time threshold	BYTE	In 100ms, value range 10-50, default 30, The 0xFF indicates that the parameters are not modified
41	A pedestrian collision alarm enables a speed threshold	BYTE	Unit km/h, value range 0~220, default value 50. Alarm below this value and the function turns off. The 0xFF indicates that the parameters are not modified
42	Video recording time before and after the pedestrian crash alarm	BYTE	Unit second, value range 0-60, default value 5, 0 indicates no video recording, and 0xFF indicates no modified parameters
43	Number of photos of pedestrian collision alarms	BYTE	Value range 0-10, default value 3, 0 means no capture, and 0xFF means no modification
44	Pedestrian collision alarm photo interval	BYTE	Unit 100ms, value range 1 to 10, default value 2, The 0xFF indicates that the parameters are not modified
45	Vehicle distance monitoring alarm distance threshold	BYTE	In 100ms, value range 10-50, default 10, The 0xFF indicates that the parameters are not modified
46	Vehicle	BYTE	Unit km/h, value range 0~220, default value 50.

	distance monitoring alarm grading speed threshold		Indicates that the alarm, otherwise it is the primary alarm The 0xFF indicates that the parameters are not modified
47	The car is too close to the video recording time before and after the alarm	BYTE	Unit second, value range 0-60, default value 5, 0 indicates no video recording, and 0xFF indicates no modified parameters
48	The number of photos taken by the car is too close to the alarm	BYTE	Value range 0-10, default value 3, 0 means no snap, and 0xFF means not modifying the parameters
49	The car is too close to the alarm photo interval	BYTE	Unit 100ms, value range 1 to 10, default value 2, The 0xFF indicates that the parameters are not modified
50	Number of road signs	BYTE	Value range 0-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
51	Road signs identify photo intervals	BYTE	Unit 100ms, value range 1 to 10, default value 2 The 0xFF indicates that the parameters are not modified
52	Keep the field	BYTE[4]	

Table 4-11 Parameters of the driver status monitoring system

Start bytes	Field	Data type	Description and description
0	Alarm judgment speed threshold	BYTE	Unit km/h, value range 0-60, default value 30. It means that the alarm function is enabled only when the vehicle speed is above this threshold The 0xFF means that this parameter is not modified
1	Alarm volume	BYTE	0~8,8 Maximum, 0 mute, and a default value of 6 The 0xFF indicates that the parameters are not modified
2	Active photo-taking strategy	BYTE	0x00: Not turned on 0x01: Take photos regularly 0x02: Set photo 0x03: Plucard trigger 0x04: Keep it The Default value is 0x00,

			The 0xFF indicates that the parameters are not modified
3	Active and scheduled photo time interval	WORD	In second, range 60 to 60000, default 3600 The 0xFF indicates that the parameters are not modified
5	Active distance photo interval	WORD	Unit meter, value range 0~60000, default value 200 0 means no capture, and 0xFFFF means not modifying the parameters The Active photo-taking strategy is valid at 02.
7	Number of single active photos	BYTE	Take the value range of 1-10. Default value: 3, The 0xFF indicates that the parameters are not modified
8	Single-time active photo-taking time interval	BYTE	Unit of 100ms, value range 1-5, default value 2, The 0xFF indicates that the parameters are not modified
9	Photo resolution	BYTE	0x01: 352×288 0x02: 704×288 0x03: 704×576 0x04: 640×480 0x05: 1280×720 0x06: 1920×1080 The Default value is 0x01, 0xFF indicates no modifying parameters, This parameter is also suitable for the alarm trigger photo resolution.
10	Video recording resolution	BYTE	0x01: CIF 0x02: HD1 0x03: D1 0x04: WD1 0x05: VGA 0x06: 720P 0x07: 1080P Default value is 0x01 The 0xFF indicates that the parameters are not modified This parameter is also suitable for the alarm trigger video resolution.
11	Alarm enable	DWORD	Alarm the energy position 0: Close 1: Open bit0: Fatigue driving level 1 alarm bit1: Fatigue driving secondary alarm bit2: Call the phone with a level 1 alarm bit3: Call the secondary alarm

			bit4: Smoking level 1 alarm bit5: Smoking second-level alarm bit6: Divide by driving a primary alarm bit7: Divide by driving a secondary alarm bit8: Driver abnormal level 1 alarm bit9: Driver abnormal secondary alarm bit10~bit29: User Custom bit30~bit31: Retain Default value 0x000001FF 0xFFFFFFFF The parameters are not modified
15	Event enabling	DWORD	Event enable bit 0: Close 1: Open bit0: Driver replacement event bit1: Take a photo initiative bit2~bit29: User Custom bit30~bit31: Retain Default value 0x00000003 0xFFFFFFFF The parameters are not modified
19	Smoking alarm determines the time interval	WORD	Unit of seconds, take the value range from 0 to 3600. The default value is 180. Inmeans that only one smoking alarm is triggered during this interval. The 0xFF means that this parameter is not modified
21	Take the call and alarm to judge the time interval	WORD	Unit of seconds, take the value range from 0 to 3600. The default value is 120. Inmeans that only one call call is triggered during this interval. The 0xFF means that this parameter is not modified
23	Reserved fields	BYTE[3]	Keep the field
26	Fatigue driving alarm grading speed threshold	BYTE	Unit km/h, value range 0~220, default value 50. Indicates that the alarm, otherwise it is the primary alarm The 0xFF indicates that the parameters are not modified
27	Video recording time before and after the fatigue driving alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
28	Photo number of fatigue driving alarm	BYTE	Value range 0-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
29	Fatigue driving alarm photo interval time	BYTE	Unit 100ms, value range 1-5, default 2, The 0xFF indicates that the parameters are not modified
30	Call call alarm rating speed threshold	BYTE	Unit km/h, value range 0~220, default value 50. Indicates that the alarm, otherwise it is the primary alarm

			The 0xFF indicates that the parameters are not modified
31	Video recording time before and after receiving the call alarm	BYTE	Unit second, value range 0-60, default value 5, 0 indicates no video recording, and 0xFF indicates no modified parameters
32	Take a phone call to take photos of the driver's facial features	BYTE	Value range 1-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
33	Take a phone call to take photos of the driver's facial features photo interval	BYTE	In 100ms, value range 1 to 5, default value 2 The 0xFF indicates that the parameters are not modified
34	Smoking alarm grading vehicle speed threshold	BYTE	Unit km/h, value range 0~220, default value 50. Indicates that the alarm, otherwise it is the primary alarm The 0xFF indicates that the parameters are not modified
35	Video recording time before and after the smoking alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
36	Smoking alarm takes photos of the driver's facial features	BYTE	Value range 1-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
37	Smoking alarm takes photos of the driver's facial features between interval	BYTE	In 100ms, value range 1-5, default 2 The 0xFF indicates that the parameters are not modified
38	Divaction driving alarm graded speed threshold	BYTE	Unit km/h, value range 0~220, default value 50. Indicates that the alarm, otherwise it is the primary alarm The 0xFF indicates that the parameters are not modified
39	Time of video recording before and after the distracted	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters

	driving alarm		
40	Divide driving alarm photo number	BYTE	Value range 1-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
41	Divused driving alarm photo interval	BYTE	In 100ms, value range 1-5, default 2 The 0xFF indicates that the parameters are not modified
42	Abnormal graded speed threshold for driving behavior	BYTE	Unit km/h, value range 0~220, default value 50. Indicates that the alarm, otherwise it is the primary alarm The 0xFF indicates that the parameters are not modified
43	Driving behavior abnormal video recording time	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
44	The number of photos of abnormal driving behavior	BYTE	Value range 1-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
45	Photo interval for abnormal driving behavior	BYTE	In 100ms, value range 1-5, default 2 The 0xFF indicates that the parameters are not modified
46	Driver identification trigger	BYTE	0x00: Don't open 0x01: Timing trigger 0x02: Fixed-range trigger 0x03: Plug in the card to start the driving to trigger 0x04: Retain The default value is 0x01 0xFF The parameters are not modified
47	Keep the field	BYTE[2]	

Table 4-12 Tire pressure monitoring system parameters

Start bytes	Field	Data type	Description and description
0	Tyre specifications and models	BYTE[12]	Example: 195 / 65R15 91V 12 characters, expressed in ASC.Default value is 900R20'
12	Tire pressure unit	WORD	0x00: kg/cm2 0x01: bar 0x02: Kpa 0x03: PSI Default is 0x03. The 0xFFFF indicates that the parameters are not modified
14	Normal tire	WORD	Unit of same fetal pressure unit, default value of 140

	pressure value		The 0xFFFF indicates that the parameters are not modified
16	Tire pressure imbalance threshold	WORD	Unit% (percentage), take the value range of 0 to 100 (to reach the cold air pressure value), the default value of 20 The 0xFFFF indicates that the parameters are not modified
18	Slow air leakage door limit	WORD	Unit% (percentage), take value range 0 to 100 (reach cold air pressure value), default value 5 The 0xFFFF indicates that the parameters are not modified
20	Low pressure threshold	WORD	Unit of same fetal pressure unit, default value of 110 The 0xFFFF indicates that the parameters are not modified
22	High pressure threshold	WORD	Unit of same fetal pressure unit, default value of 189 The 0xFFFF indicates that the parameters are not modified
24	High temperature threshold	WORD	Unit degrees Celsius, with the default value of 80 The 0xFFFF indicates that the parameters are not modified
26	Voltage threshold	WORD	Unit% (percentage), value range 0-100, default value 10, The 0xFFFF indicates that the parameters are not modified
28	Timed reporting time interval	WORD	Unit seconds, 0-3600, default 60, 0 means not reporting, 0xFFFF means not modifying parameters
30	Reserved items	BYTE[6]	Retention items complement zero

Table 4-13 Parameters of the blind area monitoring system

Start bytes	Field	Data type	Description and description
0	The rear approaches the alarm time threshold	BYTE	Unit of seconds, take the value range from 1 to 10 The 0xFF indicates that the parameters are not modified
1	The rear side line is close to the alarm time threshold	BYTE	Unit of seconds, take the value range from 1 to 10 The 0xFF indicates that the parameters are not modified

4.3.2 Query parameter instructions

The query parameter message adopts 0x8103 / 0x8106 message defined in 8.8 in JT 808-2011. For the specified terminal parameter message body data format, see Table 15 in JT / T 808-2011, and the terminal responds with 0x0104 instruction.

4.4 Alarm instruction

The alarm report is reported at the same time as the location information. As the additional information of 0x0200 location information report, the JT / T 20808-2011 Table 20 is shown in Table 4-14.

Table 4-14 Additional Information Definitions Table Extensions

Additional information ID	Additional information length	Description and requirements
0x64		Advanced driver assistance system alarm information, as defined in Table 4-15
0x65		The alarm information of the driver status monitoring system is shown in Table 4-17
0x66		The tire pressure monitoring system alarm information, as shown in Table 4-18
0x67		The alarm information of the blind area monitoring system is shown in Table 4-20

4.4.1 Advanced driver assistance system alarm

Table 4-15 Format of advanced driver assistance alarm information data

Start bytes	Field	Data type	Description and requirements
0	Report to the police ID	DWORD	According to the alarm order, the cycle accumulates from 0, without distinguishing the alarm types.
4	Sign the state	BYTE	0x00: Not available 0x01: Start flag 0x02: End flag This field is only for alarms or events with start and end flag type, and the alarm type has no start and end flag, then the bit is not available and filled in 0x00.
5	Alarm / event type	BYTE	0x01: Forward collision alarm 0x02: The lane deviates from the alarm

			0x03: The car overapproaches the alarm 0x04: Pedestrian collision alarm 0x05: Frequent lane change alarm 0x06: Road sign over-limit alarm 0x07: Obstruction alarm 0x08~0x0F: User Custom 0x10: Road sign identification event 0x11: Active capture of the event 0x12~0x1F: User Custom
6	Alarm level	BYTE	0x01: First-level alarm 0x02: Second-level alarm
7	The car in front of the speed	BYTE	unit Km/h.Range 0~250, valid only when the alarm types are 0x01 and 0x02.
8	Front car / pedestrian distance	BYTE	In unit of 100ms, range from 0 to 100, it is only valid for alarm types of 0x01,0x02, and 0x04.
9	Deviation type	BYTE	0x01: Left-side deviation 0x02: Right-side deviation Only valid if the alarm type is 0x02
10	Road sign identification type	BYTE	0x01: Speed limit sign 0x02: The height limit mark 0x03: Weight-limit mark Effective only when the alarm types are 0x06 and 0x10
11	Road sign identification data	BYTE	Data that identify the road signs
12	Speed of a motor vehicle	BYTE	Unit Km/h.Range of 0~250
13	Altitude	WORD	Elevation in meter (m)
15	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
19	Longitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
23	Date time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
29	Vehicle status	WORD	See table 5-9
31	Alarm ID No	BYTE[16]	See alarm identification number in the table 4- 16

Table 4-16 Alarm identification number format

Start bytes	Field	Data length	Describe
0	Terminal ID	BYTE[7]	Seven bytes, consisting of capital letters and numbers

7	Time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
13	Serial number	BYTE	No number of alarm at the same time point, accumulated from cycle 0
14	Number of accessories	BYTE	The number of accessories corresponding to the alarm
15	Reserve	BYTE	

4.4.2 The driver status monitoring system alarms

Table 4-17 Data format of alarm information data of driving status monitoring system

Start bytes	Field	Data length	Description and requirements
0	Report to the police ID	DWORD	According to the alarm order, the cycle accumulates from 0, without distinguishing the alarm types.
4	Sign the state	BYTE	0x00: Not available 0x01: Start flag 0x02: End flag This field is only for alarms or events with start and end flag type, and the alarm type has no start and end flag, then the bit is not available and filled in 0x00
5	Alarm / event type	BYTE	0x01: Fatigue driving alarm 0x02: Call the alarm 0x03: Smoking alarm 0x04: distracted driving alarm 0x05: The driver has an abnormal alarm 0x06~0x0F: User Custom 0x10: Auto capture automatically 0x11: Driver change event 0x12~0x1F: User Custom
6	Alarm level	BYTE	0x01: First-level alarm 0x02: Level II alarm
7	The degree of fatigue	BYTE	Range of 1~10. The larger the value indicates the greater the fatigue, only valid when the alarm type is 0x01
8	Reserve	BYTE[4]	Reserve
12	Speed	BYTE	Unit Km/h.Range of 0~250
13	Altitude	WORD	Elevation in meter (m)
15	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
19	Longitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
23	Date time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
29	Vehicle status	WORD	See table 5-9

31	Alarm identification number	BYTE[16]	The definition of the alarm identification number is shown in Table 4-16
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4.4.3 The tire pressure monitoring system alarms

Table 4-18 Warning information data format of the tire pressure monitoring system

Start bytes	Field	Data length	Description and requirements
0	Report to the police ID	DWORD	According to the alarm order, the cycle accumulates from 0, without distinguishing the alarm types.
4	Sign the state	BYTE	0x00: Not available 0x01: Start flag 0x02: End flag This field is only for alarms or events with start and end flag type, and the alarm type has no start and end flag, then the bit is not available and filled in 0x00
5	Speed	BYTE	Unit Km/h.Range of 0~250
6	Altitude	WORD	Elevation in meter (m)
8	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
12	Longitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
16	Date time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
22	Vehicle status	WORD	See table 5-9
24	Alarm identification number	BYTE[16]	The definition of the alarm identification number is shown in Table 4-16
39	Total number of alarms / event list	BYTE	
40	Alarm / event information list		See Table 4-19

Table 4-19 List format of alarm / event information for tire pressure monitoring system

Start bytes	Field	Data length	Describe
0	Tire pressure alarm position	BYTE	Alarm tire position number (Number Z from 00 from the front left wheel, regardless of whether TPMS is installed)
2	Alarm / event type	WORD	0 Represents no alarm, and 1 indicates an alarm Tire pressure bit0: tire pressure (regularly reported) The bit1: too high tire pressure alarm The bit2: too low tire pressure alarm The bit3: too high tire temperature alarm The bit4: the sensor has an abnormal alarm

			The bit5: the tire pressure imbalance alarm The bit6: Slow air leakage alarm The bit7: Low battery power alarm The bit8~bit15: the custom
4	Tire pressure	WORD	Unit Kpa
6	Tire temperature	WORD	Unit °C
8	Battery level	WORD	Unit %

4.4.4 Blind area monitoring system alarm

Table 4-20 Defdefined data format of blind area monitoring system

Start bytes	Field	Data length	Description and requirements
0	Report to the police ID	DWORD	According to the alarm order, the cycle accumulates from 0, without distinguishing the alarm types.
4	Sign the state	BYTE	0x00: Not available 0x01: Start flag 0x02: End flag This field is only for alarms or events with start and end flag type, and the alarm type has no start and end flag, then the bit is not available and filled in 0x00.
5	Alarm / event type	BYTE	0x01: Rear approach the alarm 0x02: Left rear approaches the alarm 0x03: the right rear approaches the alarm
6	Speed	BYTE	Unit Km/h.Range of 0~250
7	Altitude	WORD	Elevation in meter (m)
9	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
13	Longitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
17	Date time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
23	Vehicle status	WORD	See table 5-9
25	Alarm identification number	BYTE[16]	The definition of the alarm identification number is shown in Table 4-16

4.5 Alarm attachment upload instructions

News ID: 0x9208。

Message type: a signaling data message.

After receiving the alarm / event information with attachments, the platform issues the attachment upload instruction to the terminal, as shown in Table 4-21.

Table 4-21 File upload instruction data format

Start bytes	Field	Data length	Description and requirements
0	Attachment Server IP address length	BYTE	length k
1	Attachment Server IP address	STRING	Server IP address
1+k	Attachment Server Terminal (TCP)	WORD	Server-side slogan when using TCP transport
3+k	Attachment Server Terminal (UDP)	WORD	Server-side slogan when using UDP transport
5+k	Alarm identification number	BYTE[16]	The number of alarm identification number is defined in Table 4-16
21+k	Alarm number	BYTE[32]	The unique number assigned by the platform to the alarm
53+k	Reserve	BYTE[16]	

After receiving the alarm attachment issued by the platform, the terminal sends a general response message to the platform.

4.6 Upload the alarm attachment

4.6.1 Vehicle status data record file

The vehicle status data recording file is a binary file to records the vehicle status data in the form of continuous data block. See Table 4-22 for data format.

Table 4-22 Vehicle status data block data format

Start bytes	Field	Data length	Description and requirements
0	Total number of data blocks	DWORD	Record the total number of data blocks in the file
4	Current data block serial number	DWORD	The serial number of the current data block in the record file
8	Alarm sign	DWORD	Refer to Table 24 of JT / T 808-2013
12	Vehicle status	DWORD	Refer to Table 25 of JT / T 808-2013
16	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million

20	Longitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
24	Satellite elevation	WORD	Satellite altitude in m (m)
26	Satellite speed	WORD	1/10km/h
28	Satellite direction	WORD	0-359, due north of 0, clockwise
30	Time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
36	X-axis acceleration	WORD	Multiply g by 2 times in 10, accurate to one percent g
38	Y axis acceleration	WORD	Multiply g by 2 times in 10, accurate to one percent g
40	Z-axis acceleration	WORD	Multiply g by 2 times in 10, accurate to one percent g
42	X-axis angular velocity	WORD	Multiply degrees per second by 2 times of 10 to one percent per second
44	Y axis angular velocity	WORD	Multiply degrees per second by 2 times of 10 to one percent per second
46	Z-axis angular velocity	WORD	Multiply degrees per second by 2 times of 10 to one percent per second
48	Pulse velocity	WORD	1/10km/h
50	OBD velocity	WORD	1/10km/h
52	File status	BYTE	0: Empty gear 1-9: Shift 10: Invert 11: Parking gear
53	Acceleration pedal stroke value	BYTE	Range 1-100, in unit%
54	Brake pedal stroke value	BYTE	Range 1-100, in unit%
55	On-position	BYTE	0: No brake 1: Brake
56	Transmitter speed	WORD	Unit RPM
58	Steering wheel Angle	WORD	The steering wheel angle, positive clockwise and negative counterclockwise.
60	Steering lamp status	BYTE	0: No direction light is played 1: Left-turn direction light 2: Turn right to the direction lamp
61	Reserve	BYTE[2]	
63	Check bit	BYTE	Add up from the first character to the character before the checkbit, and then take the accumulated low 8 bits as the checkcode

4.64.2 Alarm attachment information message

message ID:0x1210.

Message type: a signaling data message.

The terminal connects to the attachment server according to the attachment upload instruction and sends the alarm attachment information message to the server. The message body data format is shown in Table 4-23.

Table 4-23 The alarm attachment information and message data format

Start bytes	Field	Data length	Description and requirements
0	Terminal ID	BYTE[7]	Seven bytes, consisting of uppercase letters and numbers, this terminal ID defined by the manufacturer, with "0x00" in 10 digits
7	Alarm identification number	BYTE[16]	Identification number of the alarm is defined in Table 4-16
23	Alarm number	BYTE[32]	The unique number assigned by the platform to the alarm
55	Information type	BYTE	0x00: Normal alarm file information 0x01: Supplementary transmission of the alarm file information
56	The number of accessories	BYTE	Number of accessories associated with the alarm
57	Annex Information List		See Table 4-24

After the attachment server receives the alarm attachment information message uploaded by the terminal, it sends a general response message to the terminal.If the terminal is abnormally disconnected from the attachment server in the process of uploading the alarm attachment, it is necessary to resend the alarm attachment information message when restoring the link. The attachment file in the message is the attachment file that was not uploaded and completed before the disconnection.

Table 4-24 The alarm attachment message data format

Start bytes	Field	Data length	Description and requirements
0	The file name length	BYTE	Length k
1	Filename	STRING	File name string

1+k	File size	DWORD	The size of the current file
-----	-----------	-------	------------------------------

The file name naming rule is:

<File Type> _ <Channel Number> _ <Alarm Type> _ <Serial Number> _ <Alarm number> _
<name suffix>

The field is defined as follows:

File type: 00 —— picture; 01 —— audio; 02 —— video; 03 —— text; 04 —— Other.

Channel number: 0~37 indicates the video channels defined in Table 2 in the JT / T 1076 standard.

64 Represents the ADAS module video channel.

65 Represents the DSM module video channel.

The attachment is unrelated to the channel, and then fill in 0 directly.

Alarm type: The encoding consisting of the peripheral ID and the corresponding module alarm type, for example, the forward collision alarm is represented as "6401".

Serial number: File number used to distinguish the same channel, the same type.

Alarm number: Unique number assigned by the platform for the alarm.

Suffix: Picture file is jpg or png, audio file is wav, video file is h264, and text file is bin.

After the attachment server receives the alarm attachment message instruction reported by the terminal, it sends a general response message to the terminal.

4.6.3 File information upload

Message ID:0x1211.

Message type: a signaling data message.

After the terminal sends the alarm attachment information instruction to the attachment server and gets the reply, it sends the attachment file information message to the attachment server. See Table 4-25 for the message body 4 data format.

Table 4-25 Attachment file information message data format

Start bytes	Field	Data length	Description and requirements
0	The file name length	BYTE	The file name length is 1
1	Filename	STRING	Filename

1+1	File type	BYTE	0x00: Picture 0x01: Audio 0x02: Video 0x03: Text 0x04: Other
2+1	File size	DWORD	Size of the currently uploaded file.

After the attachment server receives the attachment file message instruction reported by the terminal, it sends a general reply message to the terminal.

4.6.4 File data upload

Message type: code-stream data message.

After the terminal sends the file information upload instruction to the attachment server and gets the reply, the file data to the attachment server. whose load package format is shown in Table 4-26.

Table 4-26 file stream load packet format definition

Start bytes	Field	Data length	Description and requirements
0	Frame head identification	DWORD	Fixed to 0x30 0x31 0x63 0x64
4	Filename	BYTE[50]	Filename
54	Data offset	DWORD	Data offset for the current transfer file
58	Data length	DWORD	Length of the load data
62	Data body	BYTE[n]	The default length is 64K, and the file is less than 64K is the actual length

The attachment server does not need to respond when receiving the file code stream reported by the terminal.

4.6.5 File upload complete message

Message ID:0x1212.

Message type: a signaling data message.

When the terminal completes a file data transmission to the attachment server, it sends the file completion transmission message to the attachment server. For the message body data format, see Table 4-27.

Table 4-27 File sends the complete message body data structure

Start bytes	Field	Data length	Description and requirements
0	The file name length	BYTE	1
1	Filename	STRING	Filename
1+I	File type	BYTE	0x00: Picture 0x01: Audio 0x02: Video 0x03: Text 0x04: Other
2+I	File size	DWORD	Size of the currently uploaded file.

4.6.6 The file upload completes the message response

Message ID:0x9212.

Message type: a signaling data message.

When the attachment server receives the completion message reported by the terminal, it sends the file to the terminal to upload the complete message response. See Table 4-28 for the reply elimination data structure.

Table 4-28 The file upload completes the message response data structure

Start bytes	Field	Data length	Description and requirements
0	The file name length	BYTE	1
1	Filename	STRING	Filename
1+I	File type	BYTE	0x00: Picture 0x01: Audio 0x02: Video 0x03: Text 0x04: Other
2+I	Upload results	BYTE	0x00: Complete 0x01: Supplement transmission is required
3+I	Number of supplementary transmission packets	BYTE	The number of packets to be replicated, the value is 0 with no complement
4+I	Ppass packet list		See Table 4-29

Table 4-29 Supplementary transmission of data package information and data structure

Start bytes	Field	Data length	Description and requirements
0	Data offset	DWORD	Offset of data in the file
1	Data length	DWORD	Length of the data that is needed to be replicated

If there is data that needs to be transmitted, the terminal shall upload the file and data through the file and data, and then report the file to upload the message until the file and data transmission is completed.

After all the files are sent, the terminal actively disconnects from the attachment server.

4.7 Terminal upgrade

4.7.1 Terminal upgrade mode

The terminal upgrades the terminal control command in JT / T 808. The upgrade file naming rules are as follows:

<Device Type> _ <Factory number> _ <Device Model> _ <Dependent Software version number> _ <Software version number>_ <name suffix>.

The field is defined as follows:

Device type: 01 — terminal; 02 — reserved; 03 — ADAS; 04 — DSM; 05 — BSD; 06 — TPMS。

Manufacturers number: Equipment manufacturer name number, composed of numbers and letters.

Equipment model: the equipment model defined by the equipment manufacturer, composed of numbers and letters.

Dependent software version number: The dependent software version required for software upgrading, composed of numbers and letters.

Software version number. The software version of this upgrade, composed of numbers and letters.

Suffix name: Equipment manufacturer to customize the upgrade file suffix name, composed of numbers and letters.

4.7.2 Terminal upgrade result response

Message ID:0x0108.

Message type: a signaling data message.

See the reply message for data format in Table 4-30.

Table 4-30 Terminal upgrade result response data format

Start bytes	Field	Data length	Description and requirements
0	Upgrade type	BYTE	0x00: Terminal 0x0C: Road transport card IC card reader 0x34: Beidou positioning module 0x64: Advanced driver assistance system 0x65: Driving status monitoring system 0x66: The tire pressure monitoring system 0x67: Blind spot monitoring system
1	Upgrade results	BYTE	0x00: Success 0x01: Failure 0x02: Cancel 0x10: Target device was not found 0x11: The hardware model is not supported 0x12: The software version is the same 0x13: The software version is not supported

4.8 Peripherals immediate photo instructions

Message ID:0x8801.

The platform issues the 0x8801 immediate photo command to the terminal, which responds to the platform using 0x0805, and then determines whether the command is a control peripheral photo immediately according to the channel ID field in the command. See Table 4-31 for the message body data format.

Table 4-31 immediate photo instruction message body data format

Start bytes	Field	Data length	Description and requirements
0	Channel ID	BYTE	0x00~0x25: The host uses the camera channel for taking photos 0x64: Control the ADAS photo-taking 0x65: Control the DSM for photo-taking
1	Shooting command	WORD	0 Stop stopping filming.The 0xFFFF indicates the video recording.Other means the number of photos,

			only when the host photo is valid
3	Photo interval / video recording time	WORD	Seconds, 0 indicates the lowest interval or all the video, only when the host takes photos
5	Save the logo	BYTE	1: Save 0: Real-time upload Only valid when the host takes photos
6	Resolving power	BYTE	0x01:320*240 0x02:640*480 0x03:800*600 0x04:1024*768 0x05:176*144, [Qcif] 0x06:352*288, [Cif] 0x07:704*288, [HALF D1] 0x08:704*576, [D1] Only valid when the host takes photos
7	Image / video quality	BYTE	1 – 10, 1 Represents the lowest mass loss, and 10 indicates the largest compression ratio, Only valid when the host takes photos
8	Brightness	BYTE	0-255, valid for host photos only
9	Contrast ratio	BYTE	0-127, valid for host photos only
10	Saturation	BYTE	0-127, valid for host photos only
11	Chroma	BYTE	0-255, valid for host photos only

5 Equipment communication protocol

5.1 Scope of application

The communication agreement between terminals and peripherals is applicable to the communication between on-board terminals and peripherals. The peripherals include not limited to TPMS and BSD and other equipment. For the independent operation of ADAS and DSM equipment, the communication agreement is recommended to use the integrated equipment that meets the functional requirements of the active security and intelligent prevention and control system.

5.2 Communication mode

Network communication is recommended between the terminal and the peripherals. The network communication uses the TCP protocol. For the peripherals that do not support the network communication, the RS232, RS485, or CAN communication can be used. When using RS232 or RS485, the interface parameters are configured with a baud rate of 115200, a data bit of 8, a stop bit of 1, no check, and no flow control. Use a standard frame 11-bit identifier for using the CAN

communication, with a baud rate of 500K.

5.3 Transmission agreement

- a) The data type and transmission rules used in the protocol message are in accordance with Chapter 4 in JT / T808-2011.
- b) When using the network communication, the terminal should be used as the service end in the communication network and the peripherals as the client. When the terminal is used as a service end, the IP address is recommended as 192.168.100.100, and the port number is 8888.
- c) For network communication, a serial number shall be included in the message frame, and the serial number of the receiver reply message shall correspond to the serial number of the message sent by the sender.
- d) In RS485 or CAN communication, the message can be sent by at least 100ms before the next or response message. The device with high real-time requirements is not within this range.
- e) When the RS485 communication mode is adopted, the terminal is the main machine in the communication and reads the peripheral information by query-response. The terminal alarm response message can be used as the query command and upload the alarm message if the alarm is no alarm, the alarm query command is used to respond directly.
- f) After receiving the information, the receiver shall first verify the message data. If the test fails, no operation and response shall be conducted.
- g) After the terminal is started, it is necessary to query the existence of the peripheral every 3 seconds interval. If the peripheral exists, then query the detailed information of the peripheral, and synchronize the working parameters of the peripheral.
- h) After the connection is established, the terminal shall confirm whether the peripheral communication is normal through the query instruction at a time interval of no higher than 60s. In case of abnormal communication, it shall actively send the peripheral working status information to the platform.
- i) The terminal shall send the real time status to the vehicle at an interval of no more than 500ms.
- j) All messages shall be answered except the terminal.

- k) A communication timeout is triggered if the message recipient exceeds 1000ms to the sender.
- l) Except for the real-time vehicle state message, the terminal sends an external response. If the communication timeout occurs, the message needs to be re-sent for three consecutive times, then the external connection is disconnected, and the terminal needs to check whether the peripheral exists.
- m) When the peripheral sends a message to the terminal, if the communication timeout occurs, the message needs to be resent and timeout for three consecutive times, it is determined that the terminal is disconnected, and the message should be saved to wait for the reissue after the communication is normal.

5.4 Message frame format

Table 5-1 Message Frame format

Identifier	Check code	Serial number	Manufacturer No	Peripheral number	Function code	Data content	Identifier
BYTE	BYTE	WORD	WORD	BYTE	BYTE	BYTE[n]	BYTE
0x7e	See note	See note	See note	See table 5-2	See table 5-3	See subsections 4.5 ~ 4.7	0x7e

Remarks:

Flag bit: indicated using 0x7e, if the test code, message header and message body appear 0x7e, then the escape processing, the processing rules are as follows:

After 0x7e <————> 0x7d, it is followed by a 0x02.

After 0x7d <————> 0x7d, it was followed by a 0x01.

The escape process is as follows:

When sending a message: the message encapsulation ———> calculates and populates the check code ———> escape.

When receiving message: escape restore ———> verify check code ———> resolve message.

Instance 1:

A packet of 0x30 0x7e 0x08 0x7d 0x55 is encapsulated as follows: 0x7e 0x30 0x7d 0x02 0x08 0x7d 0x01 0x55 0x7e.

Verification code: take the accumulated sum from the manufacturer number to the user data, and then take the accumulated low 8 bits as the verification code.

Instance 1:

If the cumulative sum is 0x1388, the check code is 0x88.

Serial number: accumulate by cycle from 0 in sending order.

Manufacturer number: the manufacturer code of the external slave.

External number: the unique type number for each peripheral. The data of the difference for the peripheral interface is shown in Table 5-2.

Table 5-2 Peripheral number definition table

Peripheral name	Peripheral number	Description and requirements
Radio broadcast	0x00	Radio number
ADAS	0x64	Advanced driver assistance system
DSM	0x65	Driver status monitoring system
TPMS	0x66	Tire air pressure monitoring system
BSD	0x67	Blind spot monitoring system

Table 5-3 Functional Code Definition Table

Function code	Definition	Description and requirements
0x2F	Query instructions	For the terminal to query if the peripherals exist
0x30	Restore the default parameter instruction	用于终端恢复外设参数到出厂设置状态
0x31	Real-time data instruction	用于终端向外设发送速度、时间、位置及车辆状态等数据
0x32	Query the peripheral basic information	For the terminal to query the peripheral company information, product code, version number, equipment ID and other information
0x33	Upgrade the peripherals program	To upgrade the data interaction
0x34	Query parameter	For the terminal to query the peripheral parameters
0x35	Set up parameters	For the terminal to set the peripheral parameters
0x36	Event / alarm reporting	For peripheral event / alarm data reporting
0x37	Peripheral status query	For the terminal to query the peripheral working status information
0x38	Outset status reported	For peripheral reporting of working status information
0x50	Request the multimedia data	For the terminal to request multimedia data to the peripherals
0x51	Upload the multimedia data	Use for the peripheral to upload multimedia data to the terminal
0x52	Take pictures of instructions immediately	For terminal control peripherals for immediate photography

5.5 General instruction

5.5.1 Query instructions

Function code: 0x2F

See Table 5-4 for terminal.

Table 5-4 Definition of the query instruction format

Peripheral number	Function code	Data area
See table 5-2	0x2F	Empty

After receiving the terminal table 5-4 instruction, the peripheral device shall be responsive, and the specific response instruction format is shown in Table 5-5.

Table 5-5 Definition of the query response instruction format

Peripheral number	Function code	Data area
See table 5-2	0x2F	Empty

5.5.2 The peripheral restores the default parameter instruction

Function code: 0x30

The default parameter command format is shown in Table 5-6.

Table 5-6 Restore the default parameter instruction format definition

Peripheral number	Function code	Data area
See table 5-2	0x30	Empty

After receiving the terminal table 56 instruction, the peripheral shall be responsive according to the instruction requirements, and the specific response instruction format is given in Table 5-7.

Table 5-7 Restore the default parameter instruction response format definition

Peripheral number	Function code	Data area
See table 5-2	0x30	Empty

5.5.3 Real-time data instruction

Function code: 0x31

The real-time data instruction format to peripheral real-time data is shown in Table 5-8.

Table 5-8 Definition of real-time data instruction format

Peripheral number	Function code	Data area
See table 5-2	0x31	See table 5-9

5-2		
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Table 5-9 Definition of real-time data content format

Start bytes	Field	Data type	Description and description
0	Speed	BYTE	Unit km/h.Range of 0~250
1	Reserve	BYTE	
2	Mileage	DWORD	Unit: 0.1km.Range 0~99999999
6	Reserve	BYTE[2]	
8	Altitude	WORD	Elevation in meter (m)
10	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
14	Longitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
18	Date time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
24	Vehicle status	WORD	By position indicates the other state of the vehicle: Bit0 ACC status, 0: Off, 1: On Bit1 Left turn state, 0: Off, 1: On Bit2 right turn state, 0: Off, 1: On Bit3 Wiper status, 0: off, 1: on Bit4 Brake state, 0: Unbrake, 1: brake Bit5 no card inserted status, 0: no card inserted, 1: no card inserted Bit6~Bit9 Custom Bit10 location status, 0: Unlocated, 1: located Bit11~bit15 Custom

5.5.4 Read the peripheral basic information instructions

Function code: 0x32

The instruction format is shown in Table 5-10.

Table 5-10 Read the peripheral basic information instruction format definition

Peripheral number	Function code	Data area
See table 5-2	0x32	Empty

After receiving the terminal table 5-10 instruction, the peripheral configuration shall be responsive, and the specific response instruction format is shown in Table 5-11.

Table 5-11 Definition of the peripheral response basic information instruction format

Peripheral number	Function code	Data area
See table 5-2	0x32	See table 5-2

Table 5-12 External basic information content format definition

Start bytes	Field	Data type	Description and requirements
0	Company name length	BYTE	Length: 0~255 Name: ASCII representation (for example, software version number SV1.1.0 is: 0x53 0x56 0x31 0x2E 0x31 0x2E 0x30) The Customer code is the user code, custom-defined by the equipment manufacturer
1	Corporate name	BYTE[n1]	
1+n1	Product code length	BYTE	
2+n1	Product code	BYTE[n2]	
2+n1+n2	Hardware version number length	BYTE	
3+n1+n2	Hardware version number	BYTE[n3]	
3+n1+n2+n3	Software version number length	BYTE	
4+n1+n2+n3	Software version number	BYTE[n4]	
4+n1+n2+n3+n4	Device ID length	BYTE	
5+n1+n2+n3+n4	Equipment ID	BYTE[n5]	
5+n1+n2+n3+n4+n5	Customer code length	BYTE	
6+n1+n2+n3+n4+n5	Customer code	BYTE[n6]	

5.5.5 Upgrade instructions

Function code: 0x33

The terminal-feed peripheral upgrade protocol instructions are shown in Table 5-13.

Table 5-13 Upgrade the instruction data format

Peripheral number	Function code	Data area	
See table 5-2	0x33	Message ID (1 byte)	Total number of packages (2 bytes) + package serial number (2 bytes) + upgrade package content, as

			described below
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Upgrade Process Description:

a) Start the upgrade subcommand description:

Start upgrade subcommand: Message ID is 0x01, and the remaining data area content is empty.

Clear source subcommand: Message ID is 0x02 and the remaining data area is empty.

Transfer file bun command: message ID is 0x03, the remaining data area is described below.

Execute the new program subcommand: Message ID is 0x04, and the remaining data area content is empty.

b) Format description:

The on-board terminal sends the upgrade file (the data area structure is: total number of packages (2 bytes) + package serial number (2 bytes) + upgrade package content). The upgrade package content length of each package should not exceed 1,024 bytes. When TCP / IP communication is used, the length of the upgrade package can not be limited. The file content of the first upgrade package is the check code (occupying 4 bytes) of the upgrade file, which is the sum of all the bytes of the upgrade file. After the peripheral receives all the upgrade documents and verify the verification code, confirm to the terminal and start the upgrade and reply. Keep the equipment parameters unchanged after the upgrade.

c) For the upgrade (peripheral) reply data content, see Table 5-14:

Answer content: 0x00 —— was successful; 0x01 —— failed.

Table 5-14 Upgrade the instruction peripheral response data format

Peripheral number	Function code	Data area	
See table 5-2	0x33	Message ID (1 bytes)	When the message ID is 0x03, the data area content is: total package number (2 bytes) + package serial number (bytes) + reply content (1 byte)
			When the message ID is not 0x03, the data area content is: reply content (1 byte)

5.6 The parameter sets the query instruction

5.6.1 Query the active security auxiliary system parameter instruction

Function code: 0x34

The parameter instruction format for the terminal query active security auxiliary system is shown in Table 5-15.

Table 5-15 Query the format definition of the active security auxiliary system parameters

Peripheral number	Function code	Data area
0x64	0x34	Empty

After receiving the instruction in Table 5-15, the peripheral shall respond according to the content of the instruction. The specific response data format is defined in Table 5-16.

Table 5-16 Definition of the response parameter instruction format

Peripheral number	Function code	Data area
0x64	0x34	See Table 517

Table 5-17 Definition of the Active Security Assist System parameters format

Start bytes	Field	Data type	Description and description
0	Alarm enabling speed threshold	BYTE	Unit km/h, the value range of 0~60, the default value of 30 indicates that the alarm function only when the speed is above this threshold, only for road deviation alarm, forward collision alarm, vehicle over distance alarm and frequent lane change alarm. The 0xFF means that this parameter is not modified
1	Alarm prompt volume	BYTE	0~8,8 Maximum, 0 mute, with a default value of 6, The 0xFF indicates that the parameters are not modified
2	Active photo-taking strategy	BYTE	0x00: Not turned on 0x01: Take photos regularly 0x02: Set photo 0x03: Hold on The Default value is 0x00, The 0xFF indicates that the parameters are not

			modified
3	Active and scheduled photo time interval	WORD	Unit seconds, value range 0~3600, default value 1800 0 means no capture, and 0xFFFF means not modifying the parameters The Active photo-taking strategy is valid at 01
5	Active distance photo interval	WORD	Unit meter, take the value range of 0 ~ 60,000, the default value of 100 0 means no capture, 0xFFFF means not modifying the parameters, The Active photo-taking strategy is valid at 02.
7	Number of single active photos	BYTE	Take the value range of 1-10. Default: 3 sheets The 0xFF indicates that the parameters are not modified.
8	Single-time active photo-taking time interval	BYTE	In 100ms, value range 1 to 5, default value 2 The 0xFF indicates that the parameters are not modified.
9	Photo resolution	BYTE	0x01: 352×288 0x02: 704×288 0x03: 704×576 0x04: 640×480 0x05: 1280×720 0x06: 1920×1080 The Default value is 0x01, 0xFF indicates no modifying parameters, This parameter is also suitable for the alarm trigger photo resolution.
10	Video recording resolution	BYTE	0x01: CIF 0x02: HD1 0x03: D1 0x04: WD1 0x05: VGA 0x06: 720P 0x07: 1080P Default value is 0x01 The 0xFF indicates that the parameters are not modified This parameter is also suitable for the alarm trigger photo resolution.
11	Reserved fields	BYTE[9]	Reserved for future extensions to configure parameters of a non-individual alarm type
20	Obstacles alarm distance	BYTE	In 100ms, value range 10-50, default 30 The 0xFF indicates that the parameters are not

	threshold		modified
21	Video recording time before and after the obstacle alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
22	Number of obstacle alarm photos	BYTE	Value range 0-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
23	Photo interval for obstacle alarm	BYTE	Unit 100ms, value range 1 to 10, default value 2 The 0xFF indicates that the parameters are not modified
24	Frequent lane change alarm judgment time period	BYTE	Unit seconds, value range 30 to 120, default value 60 The 0xFF indicates that the parameters are not modified
25	Judge the number of frequent lane change alarm	BYTE	Lane change times are 3~10, with a default value of 5 The 0xFF indicates that the parameters are not modified
26	Video recording time before and after the frequent lane change alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
27	Frequent lane change alarm number	BYTE	Value range 0-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
28	Frequent lane change alarm and photo interval	BYTE	In 100ms, value range 1 to 10, default 2 The 0xFF indicates that the parameters are not modified
29	Video recording time before and after the lane departure alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
30	Number of lane departure alarm photos	BYTE	Value range 0-10, default value 3 0 means no capture, and 0xFF means no modification
31	Lane departure alarm photo interval	BYTE	Unit 100ms, value range 1 to 10, default value 2 The 0xFF indicates that the parameters are not modified
32	Forward collision alarm time threshold	BYTE	Unit of 100ms, the value range of 10~50, currently use the national standard provisions 27, reserved modification interface, not modified in the actual use

33	Video recording time before and after the forward crash alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
34	Number of front collision alarm	BYTE	Value range 0-10, default value 3 0 means no capture, and 0xFF means no modification
35	Forward collision alarm photo interval	BYTE	Unit 100ms, value range 1 to 10, default value 2 The 0xFF indicates that the parameters are not modified
36	Pedestrian collision alarm time threshold	BYTE	In 100ms, value range 10-50, default 30
37	Video recording time before and after the pedestrian crash alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
38	Number of photos of pedestrian collision alarms	BYTE	Value range 0-10, default value 3 0 means no capture, and 0xFF means no modification
39	Pedestrian collision alarm photo interval	BYTE	Unit 100ms, value range 1 to 10, default value 2 The 0xFF indicates that the parameters are not modified
40	Vehicle distance monitoring alarm distance threshold	BYTE	In 100ms, value range 10-50, default 30 The 0xFF indicates that the parameters are not modified
41	The car is too close to the video recording time before and after the alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
42	The number of photos taken by the car is too close to the alarm	BYTE	Value range 0-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
43	The car is too close to the alarm photo interval	BYTE	In 100ms, value range 1 to 10, default 2 The 0xFF indicates that the parameters are not modified
44	Road signs	BYTE	Value range 0-10, default value 3

	identify the number of photos		0 means no snap, and 0xFF means not modifying the parameters
45	Road signs identify photo intervals	BYTE	In 100ms, value range 1 to 10, default 2 The 0xFF indicates that the parameters are not modified
46	Keep the field	BYTE[4]	

5.6.2 Query the driver behavior detection system parameter instruction

Function code: 0x34

See the information for the terminal query driver behavior detection system parameter instruction format in Table 5-18.

Table 5-18 Query the parameter format definition of the driver behavior detection system

Peripheral number	Function code	Data area
0x65	0x34	Empty

After receiving the terminal table 5-18 instruction, the peripheral shall be responsive according to the content of the instruction. See the specific response data format defined in Table 5-19.

Table 5-19 Definition of the instruction format for the response parameters

Peripheral number	Function code	Data area
0x65	0x34	See table 5-20

Table 5-20 Definition of the parameter format of the driver behavior detection system

Start bytes	Field	Data type	Description and description
0	Alarm enabling speed threshold	BYTE	Unit km/h, value range 0-60, default value 30. It means that the alarm function is enabled only when the vehicle speed is above this threshold. The 0xFF means that this parameter is not modified
1	Alarm prompt volume	BYTE	0~8, 8 最大, 0 静音, 默认值 6 0xFF 表示不修改参数
2	Active photo-taking strategy	BYTE	0x00: Not turned on 0x01: Take photos regularly 0x02: Set photo

			<p>0x03: Plucard trigger</p> <p>0x04: Keep it</p> <p>The default value is 0x00.</p> <p>The 0xFF indicates that the parameters are not modified.</p>
3	Active and scheduled photo time interval	WORD	<p>In second, value range 0-60000, default value 3600</p> <p>0 means no capture, and 0xFFFF means not modifying the parameters</p> <p>The Active photo-taking strategy is valid at 01.</p>
5	Active distance photo interval	WORD	<p>Unit meter, value range 0~60000, default value 200</p> <p>0 means no capture, and 0xFFFF means not modifying the parameters</p> <p>The Active photo-taking strategy is valid at 02.</p>
7	Number of active photos taken each time	BYTE	<p>Take the value range of 1-10. Default: 3 sheets</p> <p>The 0xFF indicates that the parameters are not modified.</p>
8	Time interval for each active photo session	BYTE	<p>In 100ms, value range 1 to 5, default value 2</p> <p>The 0xFF indicates that the parameters are not modified.</p>
9	Photo resolution	BYTE	<p>0x01: 352×288</p> <p>0x02: 704×288</p> <p>0x03: 704×576</p> <p>0x04: 640×480</p> <p>0x05: 1280×720</p> <p>0x06: 1920×1080</p> <p>The default value is 0x01,</p> <p>0xFF indicates no modifying parameters,</p> <p>This parameter is also suitable for the alarm trigger photo resolution.</p>
10	Video recording resolution	BYTE	<p>0x01: CIF</p> <p>0x02: HD1</p> <p>0x03: D1</p> <p>0x04: WD1</p> <p>0x05: 720P</p> <p>0x06: 1080P</p> <p>Default value is 0x01</p> <p>The 0xFF indicates that the parameters are not modified</p> <p>This parameter is also suitable for the alarm trigger video resolution.</p>
11	Reserved fields	BYTE[10]	Reserved for future extensions with parameters of non-individual alarm type
21	Smoking alarm determines the	WORD	<p>Unit of seconds, take the value range from 0 to 3600.</p> <p>The default value is 180. In means that only one</p>

	time interval		smoking alarm is triggered during this interval. The 0xFFFF means that this parameter is not modified
23	Take the call and alarm to judge the time interval	WORD	Unit of seconds, take the value range from 0 to 3600. The default value is 120. In means that only one call call is triggered during this interval. The 0xFFFF means that this parameter is not modified
25	Video recording time before and after the fatigue driving alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
26	Photo number of fatigue driving alarm	BYTE	Value range 0-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
27	Fatigue driving alarm photo interval time	BYTE	In 100ms, value range 1 to 5, default value 2 The 0xFF indicates that the parameters are not modified
28	Reserve	BYTE	Reserved fields
29	Video recording time before and after calling the alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
30	Take a phone call to take photos of the driver's facial features	BYTE	Value range 1-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
31	Take a phone call to take photos of the driver's facial features photo interval	BYTE	In 100ms, value range 1 to 5, default value 2 The 0xFF indicates that the parameters are not modified
32	Video recording time before and after the smoking alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
33	Smoking alarm takes the number of photos of the driver's complete facial	BYTE	Value range 1-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters

	features		
34	Smoking alarm take driver complete facial feature photo interval	BYTE	In 100ms, value range 1-5, default 2 The 0xFFFF indicates that the parameters are not modified
35	Video recording time before and after the alarm	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
36	Divide driving alarm photo number	BYTE	Value range 1-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
37	Divused driving alarm photo interval	BYTE	In 100ms, value range 1 to 5, default value 2 The 0xFF indicates that the parameters are not modified
38	Driving abnormal video recording time	BYTE	In second, value range 0-60, default 5 0 indicates no video recording, and 0xFF indicates no modified parameters
39	Number of photos of driving	BYTE	Value range 1-10, default value 3 0 means no snap, and 0xFF means not modifying the parameters
40	Abnormal driving photo interval	BYTE	In 100ms, value range 1-5, default 2 The 0xFF indicates that the parameters are not modified
41	Keep the field	BYTE[2]	

5.6.3 Query the tire pressure monitoring system instructions

Function code: 0x34

See Table 5-21 for the terminal query tire pressure monitoring system parameter instruction format.

Table 5-21 Query the parameter format definition of the tire pressure monitoring system

Peripheral number	Function code	Data area
0x66	0x34	Empty

After receiving the terminal table 521 instruction, the peripheral device shall respond according to the content of the instruction, as defined in Table 5-22.

Table 5-22 Definition of the instruction format of the response parameters

Peripheral number	Function code	Data area
0x66	0x34	See table 5-23

Table 5-23 Format definition of tire pressure monitoring system parameters

Start bytes	Field	Data type	Description and description
0	Tyre specifications and models	BYTE[12]	Example: 195 / 65R15 91V 12 characters, expressed in ASC.Default value is 900R20'
12	Tire pressure unit	WORD	0x00: kg/cm2 0x01: bar 0x02: Kpa 0x03: PSI Default is 0x03. The 0xFFFF indicates that the parameters are not modified
14	Normal tire pressure value	WORD	Unit of same fetal pressure unit, default value of 140 The 0xFFFF indicates that the parameters are not modified
16	Tire pressure unbalance alarm threshold	WORD	Unit% (percentage), take the value range of 0 to 100 (to reach the cold air pressure value), the default value of 20 The 0xFFFF indicates that the parameters are not modified
18	Slow air leakage alarm threshold	WORD	Unit% (percentage), take the value range of 0 to 100 (to reach the cold air pressure value), the default value of 5 The 0xFFFF indicates that the parameters are not modified
20	Low voltage alarm threshold	WORD	Unit of same fetal pressure unit, default value of 110 The 0xFFFF indicates that the parameters are not modified
22	High voltage alarm threshold	WORD	Unit of same fetal pressure unit, default value of 189 The 0xFFFF indicates that the parameters are not modified
24	High temperature alarm threshold	WORD	Unit degrees Celsius, with the default value of 80 The 0xFFFF indicates that the parameters are not modified
26	Voltage alarm threshold	WORD	Unit% (percentage), value range 0-100, default value 10, The 0xFFFF indicates that the parameters are not modified

28	Timed reporting time interval	WORD	Unit seconds, 0-3600, default 60, 0 means not reporting, 0xFFFF means not modifying parameters
30	Reserved items	BYTE[6]	Retention items complement zero

5.6.4 Query the blind area monitoring system instruction

Function code: 0x34

See Table 524 for the system instruction format of the query blind spot monitoring parameters.

Table 5-24 Query the parameter format definition of the blind spot monitoring system

Peripheral number	Function code	Data area
0x67	0x34	Empty

After receiving the instruction in Table 5-24, the peripherals shall respond according to the content of the instruction, and see the specific response data format defined in Table 5-25.

Table 5-25 Definition of response parameters

Peripheral number	Function code	Data area
0x67	0x34	See table 5-26

Table 5-26 Definition of the parameter format of the blind area monitoring system

Start byte	Field	Data type	Description and description
0	The rear approaches the alarm time threshold	BYTE	Unit seconds, range 1 to 10, default 2 The 0xFF indicates that the parameters are not modified
1	The rear side line is close to the alarm time threshold	BYTE	Unit seconds, range 1 to 10, default 2 The 0xFF indicates that the parameters are not modified

5.6.5 Set the Advanced driver assistance system parameter instruction

Function code: 0x35

See table 5-27 for the command format of setting parameters of advanced driving assistance system at the terminal.

Table 5-27 sets the advanced driver assistance system parameter instruction format definition

Peripheral number	Function code	Data area
0x64	0x35	See table 5-17

After receiving the instruction in Table 5-27, the peripherals shall respond according to the content of the instruction, with the specific response data format defined in Table 5-28.

Table 5-28 Definition of the response parameters' instruction format

Peripheral number	Function code	Data area
0x64	0x35	1 byte: 0- -success, 1- -failure

5.6.6 Set the driver status monitoring system parameter instruction

Function code: 0x35

The parameter instruction format for the terminal setting driver status monitoring system is shown in Table 5-29.

Table 5-29 sets the definition of the driver status monitoring system

Peripheral number	Function code	Data area
0x65	0x35	See table 5-20

After receiving the instruction in Table 5-29, the peripherals shall respond according to the content of the instruction. The specific response data format definition is shown in Table 5-30.

Table 5-30 Definition of the response parameter instruction format

Peripheral number	Function code	Data area
0x65	0x35	1 byte: 0- -success, 1- -failure

5.6.7 Set the tire pressure monitoring system parameter instruction

Function code: 0x35

Terminal setting tire pressure monitoring system parameter instruction format is shown in Table 5-31.

Table 5-31 defines the tire pressure monitoring system

Peripheral number	Function code	Data area
0x66	0x35	See table 5-23

After receiving the instruction in Table 5-31, the peripherals shall respond according to the content of the instruction, with the specific response data format defined in Table 5-32.

Table 5-32 Definition of response parameters

Peripheral number	Function code	Data area
0x66	0x35	1 byte: 0- -success, 1- -failure

5.6.8 Set the blind area monitoring system parameter instruction

Function code: 0x35

See Table 5-33 for the blind spot monitoring system.

Table 5-33 sets the parameters of blind area monitoring system

Peripheral number	Function code	Data area
0x67	0x35	See table 5-26

After receiving the instruction in Table 5-33, the peripheral device shall respond according to the contents of the instruction, as defined in Table 5-34.

Table 5-34 Definition of response parameters

Peripheral number	Function code	Data area
0x64	0x35	1 byte: 0- -success, 1- -failure

5.7 Event and alarm instructions

5.7.1 Advanced driver assistance system alarm command

Function code: 0x36

The upload to terminal events and alarm command format are shown in Table 535.

Table 5-35 Definition of the event and alarm command format

Peripheral number	Function code	Data area
0x64	0x36	See table 5-37

After receiving the instruction in Table 5-35, the terminal shall respond according to the content of the instruction, with the specific response data format defined in Table 5-36.

Table 5-36 Definition of events and alarm response format

Peripheral number	Function code	Data area
0x64	0x36	Empty

Table 5-37 Definition of event and alarm content format

Start byte	Field	Data length	Description and requirements
0	Report to the police ID	DWORD	According to the alarm order, the cycle accumulates starting from 0 on.
4	Sign the state	BYTE	0x00: Not available 0x01: Start flag 0x02: End flag This field is only for alarms or events with start and end flag type, and the alarm type has no start and end flag, then the bit is not available and filled in 0x00.
5	Alarm / event type	BYTE	0x01: Forward collision alarm 0x02: Lane departure alarm 0x03: The car overapproaches the alarm 0x04: Pedestrian collision alarm 0x05: Frequent lane change alarm 0x06: Road sign over-limit alarm 0x07~0x0F: User Custom 0x10: Road sign identification event

			0x11: Active capture of the event 0x12~0x1F: User Custom
6	Front vehicle speed	BYTE	Unit Km/h, range 0 to 250, only valid for alarm types of 0x01 and 0x02.
7	Front car / pedestrian distance	BYTE	In unit of 100ms, range from 0 to 100, it is only valid for alarm types of 0x01,0x02, and 0x04.
8	Deviation type	BYTE	0x01: Left-side deviation 0x02: Right-side deviation Only valid if the alarm type is 0x02
9	Road sign recognition type	BYTE	0x01: Speed limit sign 0x02: The height limit mark 0x03: Weight-limit mark Effective only when the alarm types are 0x06 and 0x10.
10	Road sign identification data	BYTE	Data that identify the road signs.
11	Speed	BYTE	Unit Km/h.Range of 0~250
12	Altitude	WORD	Elevation in m (m)
14	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
18	Longitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
22	Date time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
28	Vehicle status	WORD	See table 5-9
30	Total number of alarm additional multimedia message lists	BYTE	
31	Multimedia information list		Media information list format is shown in Table 5-38

Table 5-38 Definition of the media information list format

Start bytes	Field	Data length	Describe
0	Multimedia type	BYTE	0x00: Picture 0x01: Audio 0x02: Video
1	Multi-media ID	DWORD	>0

5.7.2 The driver status monitoring system alarm command

Function code: 0x36

The format for terminal events of the driver status monitoring system are shown in Table 5-39.

Table 5-39 Definition of event and alarm command format

Peripheral number	Function code	Data area
See table 5-2	0x36	See table 5-41

Upon receiving the instruction in Table 5-39, the terminal shall respond according to the contents of the instruction, with the specific response data format defined in Table 5-40.

Table 5-40 Definitions of events and alarm response format

Peripheral number	Function code	Data area
See table 5-2	0x36	空

Table 5-41 Definition of event and alarm content format

Start byte	Field	Data length	Description and requirements
0	Report to the police ID	DWORD	According to the alarm order, the cycle accumulates starting from 0 on.
4	Sign the state	BYTE	0x00: Not available 0x01: Start flag 0x02: End flag This field is only for alarms or events with start and end flag type, and the alarm type has no start and end flag, then the bit is not available and filled in 0x00.
5	Alarm / event type	BYTE	0x01: Fatigue driving alarm 0x02: Call the alarm 0x03: Smoking alarm 0x04: distracted driving alarm 0x05: The driver has an abnormal alarm 0x06~0x0F: User Custom 0x10: Active capture of the event

			0x11: Driver change event 0x12~0x1F: User Custom
6	Fatigue degree	BYTE	Represents fatigue, range 1~10, the greater the fatigue, only when the alarm type is 0x01.
7	Reserve	BYTE[4]	Reserve
11	Speed	BYTE	Unit Km/h.Range of 0~250
12	Altitude	WORD	Elevation in m (m)
14	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
18	Longitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
22	Date time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
28	Vehicle status	WORD	See table 5-9
30	Total number of additional multimedia information lists for the alarm	BYTE	
31	Multimedia information list		Media information list format is shown in Table 5-42

Table 5-42 Definition of the media information list format

Start byte	Field	Data length	Describe
0	Multimedia type	BYTE	0x00: Picture 0x01: Audio 0x02: Video
1	Multimedia ID	DWORD	>0

5.7.3 Tire pressure monitoring system instructions

Function code: 0x36

The format for terminal events and alarm instructions uploaded by the tire pressure monitoring system are shown in Table 5-43.

Table 5-43 Definition of event and alarm command format

Peripheral number	Function code	Data area
See table 5-2	0x36	See table 5-465

Upon receiving the instruction in Table 5-43, the terminal shall respond according to the content of the instruction, as defined in Table 5-44.

Table 5-44 Definition of events and alarm response format

Peripheral number	Function code	Data area
See table 5-2	0x36	空

Table 5-45 Definition of event and alarm content format

Start byte	Field	Data length	Description and requirements
0	Report to the police ID	DWORD	According to the alarm order, the cycle accumulates starting from 0 on.
4	Sign the state	BYTE	0x00: Not available 0x01: Start flag 0x02: End flag This field is only for alarms or events with start and end flag type, and the alarm type has no start and end flag, then the bit is not available and filled in 0x00.
5	Speed	BYTE	Unit Km/h.Range of 0~250
6	Altitude	WORD	Elevation in m (m)
8	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
12	Longitude	DWORD	以度为单位的纬度值乘以 10 的 6 次方，精确到百万分之一度
16	Date time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT+8 时间)
22	Vehicle status	WORD	See table 5-9
24	Total number of alarms / event list	BYTE	
25	Alarm / event information list		See table 5-46

Table 5-46 Tire pressure monitoring and alarm / event information list format

Start bytes	Field	Data length	Describe
0	Tire pressure alarm position	BYTE	Alarm tire position number (Number Z from 00 from the front left wheel, regardless of whether TPMS is installed)
1	Alarm / event type	WORD	0 Represents no alarm, and 1 indicates an alarm Tire pressure bit0: tire pressure (regularly reported)

			The bit1: too high tire pressure alarm The bit2: too low tire pressure alarm The bit3: too high tire temperature alarm The bit4: the sensor has an abnormal alarm The bit5: the tire pressure imbalance alarm The bit6: Slow air leakage alarm The bit7: Low battery power alarm The bit8~bit15: reserved
3	Tire pressure	WORD	Unit Kpa
5	Tire temperature	WORD	Unit °C
7	Battery level	WORD	Unit %

5.7.4 Blind zone monitoring system instruction

Function code: 0x36

The format for terminal events and alarm instructions uploaded by the blind spot monitoring system are shown in Table 5-47.

Table 5-47 Definition of event and alarm command format

Peripheral number	Function code	Data area
See table 5-2	0x36	See table 5-49

Upon receiving the instruction in Table 5-47, the terminal shall respond according to the content of the instruction, and see the specific response data format defined in Table 5-48.

Table 5-48 Definition of events and alarm response format

Peripheral number	Function code	Data area
See table 5-2	0x36	Empty

Table 5-49 Definition of event and alarm content format

Start byte	Field	Data length	Description and requirements
0	Reserve	BYTE	Reserve
4	Sign the state	BYTE	0x00: Not available

			0x01: Start flag 0x02: End flag This field is only for alarms or events with start and end flag type, and the alarm type has no start and end flag, then the bit is not available and filled in 0x00.
5	Alarm / event type	BYTE	0x01: Rear approach the alarm 0x02: Left rear approaches the alarm 0x03: the right rear approaches the alarm
6	Speed	BYTE	Unit Km/h.Range of 0~250
7	Altitude	WORD	Elevation in meter (m)
9	Latitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
13	Longitude	DWORD	The latitude in degrees is multiplied by six times of 10 to one in a million
17	Date time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT + 8 Time)
23	Vehicle status	WORD	See table 5-9

5.8 Perieral working status instruction

5.8.1 Query the peripheral working status instruction

Function code: 0x37

The terminal request peripheral working status instruction format is shown in Table 5-50

Table 5-50 Definition of the Multimedia Instructions Format

Periphera l number	Functio n code	Data area
See table 5-2	0x37	Empty

After receiving the instruction of the terminal table 5-50, the peripheral shall respond according to the content of the instruction, and see the specific response data format defined in Table 5-51.

Table 5-51 Definition of the multimedia instruction format

Periphera l number	Functio n code	Data area
See table	0x37	See table 5-54 for working status

5-2		
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5.8.2 The peripheral will upload the working status instruction

Function code: 0x38

See Table 5-52 for the peripheral upload working status instruction format

Table 5-52 upload working status instruction format

Periphera I number	Function code	Data area
See table 5-2	0x38	See table 5-54 for working status

After receiving the instruction in the peripheral tables 5-52, the terminal shall respond according to the content of the instruction, as defined in Table 5-53.

Table 5-53 upload working status instruction format

Periphera I number	Function code	Data area
See table 5-2	0x38	Empty

Table 5-54 Peripheral working status

Start byte	Field	Data length	Description and requirements
0	Working condition	BYTE	0x01: Working normally 0x02: Standby state 0x03: Upgrade and maintenance 0x04: Device exception
1	Alarm status	DWORD	Bit setting: 0 indicates none, and 1 means none The bit0: The camera is abnormal The bit1: Primary memory exception The bit2: Secondary memory exception The bit3: infrared tonic abnormality The bit4: The speaker is abnormal The bit5: an abnormal battery Reserfor bit6~bit9 Excnormal bit10: abnormal communication module The bit11: Define the module exception B. bit12~bit31: reserved

5.9 Multimedia instruction

5.9.1 Request a multimedia data instruction

Function code: 0x50

The terminal request multimedia data instruction format is shown in Table 5-55.

Table 5-55 Definition of the multimedia instruction format

Peripheral number	Function code	Data area	
		Message ID	Multimedia ID
见表 5-2	0x50	For 1 byte, see Table 5-57	DWORD

After receiving the terminal table 5-55 instruction, the peripheral shall be responsive according to the content of the instruction. See the specific response data format defined in Table 5-56.

Table 5-56 Definition of the multimedia instruction response format

Peripheral number	Function code	Data area
See table 5-2	0x50	Empty

Table 5-57 Multimedia Message ID Definition table

Message ID	Definition	Description and requirements
0x00	Request pictures	After receiving the command, the peripheral will reply to the image data to the terminal
0x01	Request audio	After receiving the command, the peripheral replies to the audio data to the terminal
0x02	Request video	After receiving the instruction, the peripheral will reply the video data (including audio data) to the terminal

5.9.2 Transfer of multimedia data instructions

Function code: 0x51

See Table 5-58 for the peripheral transmission multimedia data instruction format.

Table 5-58 Definition of the instruction format for transmitting multimedia data

Peripheral number	Function code	Data area		
		Message ID	Multimedia ID	Multimedia data format
See table 5-52	0x51	For 1 byte, see Table 5-57	DWORD	See table 5-59

Table 5-59 Multimedia Data Format

Start bytes	Field	Data length	Description and requirements
0	Total number of packages	WORD	Total number of packets of multimedia data The total number of packets is 0, indicating that there is no corresponding data
2	Package serial number	WORD	The current multimedia packet number, the package number starts from 0
4	Multimedia data	BYTE[n]	It is recommended that the actual data per package is not more than 1024 bytes, if it is network communication is not limited

After receiving the instruction in Table 5-58, the terminal shall reply to the response result, see Table 5-60.

Table 5-60 Receive multimedia data response format definitions

Peripheral number	Function code	Data area		
		Message ID	Multimedia ID	Response results
See table 5-2	0x51	For 1 byte, see Table 557	DWORD	See table 5-61

Table 5-61 receives the format definition of the multimedia data response results

Start bytes	Field	Data length	Description and requirements
0	Total number of packages	WORD	Total number of packets of multimedia data The total number of packets is 0, indicating that there is no corresponding data
2	Package serial number	WORD	The current multimedia packet number, the package number starts from 0
4	Response results	BYTE	0: Success 1: Failure

5.10 Take pictures of instructions immediately

Function code: 0x52

The terminal-issue immediate photo instruction format is shown in Table 5-62.

Table 5-62 Terminal issue immediate photo instruction format definition

Peripheral number	Function code	Data area
See table 5-2	0x52	Nothing

After receiving the immediate photo instruction, the peripheral shall respond according to the content of the instruction. The specific response data format definition is shown in Table 5-63.

Table 5-63 Definition of the peripheral control instruction response format

Peripheral number	Function code	Data area
See table 5-2	0x52	0: Success 1: Failure

After receiving the instruction to take photos immediately, the peripheral will take photos according to the relevant parameters of the active photography function. After the photo is completed, report the active capture event.
