

Protocol&Data Format

Based on JT/T 808-2013

Version	Change description	Change person	Change time
V1.0	This specification is a complement and improvement of JT/T 808-2011	LQ	20180822
V1.01	Add 0x0808 protocol	LQ	20180912
V1.02	Add 0x1004protocol, for apply Distribution server Add 0x1107protocol, for upload ICCID include ABC Change 0x0200 extra message field , avoid protocol conflict(0x04、0x05、0x06 改为 0xE4、0xE5、0xE6)。Delete the shock alarm。	LQ	20190926
V1.03	Add 0x0200 extra message field 0XE7 is extra status Add 0x8103's 0xf130、0xf131 protocol for set backup server IP&PORT。	LQ	20191008
V1.04	ADD 0x0200 extra message field 0XEE for 4G LBS data	LQ	20191011
V1.05	1.add 0x1005protocol for upload extra voltage and current to server 2.add 0x0D to 0x8105 protocol for check extra voltage and current, terminal reply 0x1005	LQ	20200211
V1.06	1.add 0x1006 protocol , for Synchronize gprs status to server when terminal sleep 2.add parameter ID: 0Xf141 under 0x810 setting protocol	LQ	20200327
V1.07	1.add SMS Penetrate command 0x8300 and sms Penetrate reply command 0x1300	LQ	20200713

1、protocol basis

1.1 communication way

The communication way of this protocol should comply with the relevant provisions of JT/T 794. Communication protocol is either TCP or UDP, the platform serves as the server and the terminal as the client. When the data communication link is abnormal, the terminal can communicate by SMS message.

1.2 data type

The data types used in the protocol message are shown in table 1:

Table 1: data type

Data type	Descriptions and requirements
BYTE	No symbol single byte integer (bytes, 8 bits)
WORD	No symbol double byte integer (word, 16 bits)
DWORD	No symbol four-byte integer (double word, 32 bits)
BYTE[n]	n bytes
BCD[n]	8421 code, n bytes
STRING	GBK encode, if no data, set blank

1.3 Transmission rules

The protocol uses the network byte sequence of big-endian to deliver the word and double word.

The transmission agreement is as follow:

--BYTE: transmitted in the form of byte stream;

--WORD: transmit the high 8 bits first, then the low 8 bits;

--DWORD: transmit the high 24 bits first, then the high 16 bits, at last the low 8 bits.

1.4 Constitution of messages

1.4.1 Message structure

Flag bit	header	Message body	Check code	Flag bit
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Figure 1: message structure diagram

1.4.2 flag bit

Use 0x7e to represent, if 0x7e appears in the check code, header and message body, it is to be escaped. The escape rules are defined as follows:

0x7e ←→ 0x7d follows by a 0x02;

0x7d←→0x7d follows by a 0x01.

The escape process is as follows:

When sending message: message encapsulation→ calculate and fill the check code→ escape;

When receiving message: escape restore→ validate check code→ message parse.

e.g.:

Sending a data package of 0x30 0x7e 0x08 0x7d 0x55, the package is encapsulated as follows:

0x7e 0x30 7d 0x02 0x08 0x7d 0x01 0x55 0x7e.

1. 4. 3 head

The header content is shown in table 2:

Table 2: Header content

Start byte	field	Data type	Descriptions and requirements
0	Message ID	WORD	
2	Message body attribute	WORD	See figure 2 for the message body attribute format structure diagram.
4	Terminal phone number	BCD[6]	Converse according to the terminal's own mobile phone number after installation. Add number in the front if the mobile phone number is less than 12 bits, the mainland phone number add 0, and the Hong Kong, Macao and Taiwan is based on their domain code.
10	Message serial number	WORD	Loop accumulates from 0 according to sending sequence.
12	Message package encapsulation item		If the relevant identification bit in the message body attribute determines the message sub-packageing, this item has content, otherwise it is not.

The message body attribute format structure diagram is shown in figure 2:

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Reserve		Sub-package	Data encryption way			Length of the message body									

Figure 2: message body attribute format structure diagram

Data encryption way:

--bit 10~bit 12 is data encryption identification bit;

- When all the three bits are 0, indicates that the message body is not encrypted;
- When the tenth bit is 1, indicates the message body is encrypted by the RSA algorithm;
- Others reserved.

Sub-package:

When the 13th bit in the message body attribute is 1, indicates the message body is a long message, sub-package delivery. The specific sub-packageing information is determined by the message package encapsulation item. If the 13th bit is 0, there's no message package encapsulation item field in the message header.

The message package encapsulation item is shown in table 3:

Table 3: message package encapsulation item

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Start byte	field	Data type	Descriptions and requirements
0	Total number of packages	WORD	The total number of packages after sub-packageing
2	Package No.	WORD	Starting from No.1

1.4.4 check code

The check code refers to a byte from the beginning of the header, exclusive or with the next byte until the previous byte of the check code.

2.JT808-2013 general protocol data format

2.1 Terminal general response (0x0001)

example:7e0001000599999999911800077fbc810300cb7e

Message ID: 0x0001.

Terminal general response message body data format is shown in table 4.

Table 4: Terminal general response message body data format

Start byte	field	Data type	Descriptions and requirements
0	Response serial number	WORD	The serial number of the corresponding platform message
2	Response ID	WORD	The ID of the corresponding platform message
4	Result	BYTE	0: success/ok; 1: failure; 2: incorrect information; 3: not supporting

Start byte	field	Data type	Descriptions and requirements
0	Province domain ID	WORD	Indicate the province where the terminal is installed, 0 is reserved, the default value is taken from the platform. The province domain ID adopts the first two of the six administrative division code specified in GB/T 2260.
2	City and	WORD	Indicate the city and county where the terminal

	county domain ID		is installed, 0 is reserved, the default value is taken from the platform. The province domain ID adopts the last four of the six administrative division code specified in GB/T 2260.
4	Manufacturer ID	BYTE[5]	5 bytes, terminal manufacturer code
9	Terminal type	BYTE[20]	20 bytes, the terminal type is defined by the manufacturer, when the digit isn't sufficient, append '0X00'.
17	Terminal ID	BYTE[7]	7 bytes, consists of capital letters and numbers, the terminal ID is defined by the manufacturer, when the digit isn't sufficient, append '0X00'.
24	License plate color	BYTE	License plate color, according to 5.4.12 in JT/T415-2006. When the license hasn't registered, set the value as '0'.
25	VIN	STRING	When the license plate color is 0, indicates vehicle VIN (vehicle Identification Number); otherwise indicates the license plate issued by the public security traffic management department.

2.5 Terminal registration response (0x8100)

example: 7e810000129999999991187318000000313233343536373839303132333435f87e
Message ID: 0x8100.

Terminal registration response message body data format is shown in table 7.

Table 7: Terminal registration response message body data format

Start byte	field	Data type	Descriptions and requirements
0	Response serial number	WORD	The serial number of the corresponding terminal registration message

2	Result	BYTE	0: success; 1: vehicle has already been registered; 2: there's no specified vehicle in database; 3: terminal has already been registered; 4: there's no specified terminal in database
3	The authentication code	STRING	The field is only display after success (the length would not above 20bytes)

2.6 Terminal logout (0x0003)

example:7e00030000333333330010021137e

Message ID: 0x0003.

Terminal logout message body is null.

Platform general response

2.7 Terminal authentication (0x0102)

example:7e0102000f9999999991180000313233343536373839303132333435bd7e

Message ID: 0x0102.

Terminal authentication message data format is shown in table 8

Platform general response

Table 8: Terminal authentication message data format

Start byte	field	Data type	Descriptions and requirements
0	The authentication code	STRING	The terminal report authentication code after reconnect. (should same to 0x8100)

2.8 Terminal parameter setting (0x8103)

example:

7e8103001c613310262184c1d20202000000130c33392e3130342e36322e383100000018040001c84cb7e

Message ID: 0x8103.

Terminal parameter setting message body data format is shown in table 9

Platform general response

Table 9: Terminal parameter setting message body data format

Start byte	field	Data type	Descriptions and requirements
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0	Total number of parameters	BYTE	
1	Parameter item list		Parameter item format is shown in table 10

Table 10: Terminal parameter item data format

field	Data type	Descriptions and requirements
Parameter ID	DWORD	Definition and instruction of parameter ID is shown in table 11
Length of parameter	BYTE	
Value of parameter		If it is multi-valued parameter, a number of parameters of a same ID are used in the message, such as dispatch center phone number

Table 11: Terminal parameter setting definition and instruction of each parameter

Parameter ID	Parameter ID	Parameter ID
0x0001	DWORD	Terminal heartbeat sending interval, unit is second (s)
0x0002	DWORD	Time of TCP message response time-out, unit is second (s)
0x0003	DWORD	Resend time of TCP message
0x0010	STRING	Main server APN, wireless communication dials access point. If the network mode is CDMA, here is PPP dial number
0x0011	STRING	User name of main server wireless communication dialing
0x0012	STRING	Password of main server wireless communication dialing
0x0013	STRING	Address, ID or domain name of main server
0x0018	DWORD	Server's TCP port
0x0020	DWORD	Strategy of position reporting, 0: timing report; 1: report at a certain distance; 2: both timing and report at a certain distance
0x0021	DWORD	Scheme of position reporting, 0: according to the status of ACC; 1: according to the status of login and ACC, check the login status first, then the status of ACC
0x0027	DWORD	Report time intervals during dormancy, unit is second (s), >0
0x0028	DWORD	Report time intervals during emergency alarm, unit is second (s), >0

0x0029	DWORD	Report time intervals when default, unit is second (s), >0
0x002A-0x002B	DWORD	Reserve
0x002C	DWORD	Report distance interval when default, unit is meter (m), >0
0x002D	DWORD	Report distance intervals while the driver not login, unit is meter (m), >0
0x002E	DWORD	Report distance intervals during dormancy, unit is meter (m), >0
0x002F	DWORD	Report distance intervals during emergency alarm, unit is meter (m), >0
0x0030	DWORD	Angle of the inflection point, <180
0x0031	DWORD	Geo-fence radius (irregular displacement threshold), unit is meter
0x0040	STRING	Phone number of the monitor platform
0x0041	STRING	Phone number of reset, which can be used to call terminal to reset it
0x0042	STRING	Phone number of factory reset, which can be used to call terminal to let the terminal restore factory setting
0x0048	STRING	Phone number of monitor
0x0050	DWORD	Alarm blocked field, corresponding to the alarm sign in the position information report message, the corresponding alarm is blocked when the corresponding field is 1
0x0055	DWORD	The highest speed, unit is km/h 0=off
0x0056	DWORD	The periodic of over-speed, unit is second (s)
0x0057	DWORD	Continuous driving time limit, unit is second (s)
0x0058	DWORD	Accumulated driving time of the same day, unit is second (s)
0x0059	DWORD	Minimum rest time, unit is second (s)
0x005A	DWORD	Maximum parking time, unit is second (s)
0x005C	DWORD	The difference between fatigue driving alarm and warning, unit is second (s), >0
0x0081	DWORD	Province domain ID of vehicle
0x0082	DWORD	City domain ID of vehicle
0x0083	STRING	Registration number of motor vehicle issued by public security traffic management department
0x0084	BYTE	The license plate color, according to 5.4.12 in JT/T415-2006
0XF100	BYTE	Cut line alarm switch (0 off 1 on) default on
0XF101	STRING	Set admin number
0XF102	BYTE	Low battery alarm (0 off 1 on) default on
0XF103	BYTE	OTA Switch (0 off 1 on) default off
0XF104	BYTE	Tracking data upload setting

0xF105	BYTE	LOG upload switch (0 off 1 on) default off
0xF106	BYTE	Turn off alarm (0 off 1 on) default on
0xF107	1+2+1+2	Terminal tracking way settings(not available for asset tracker) tracking way(BYTE):1,2,3,4 four mode Short connect periodic (WORD):10~65535(mins), Flight mode switch(BYTE): 0:off 1: on Connect time after track car mode(WORD):0~65535(mins), default is 5mins
0xF108	BYTE	Monitor switch (0 off 1 on) default on
0xF109	DWORD	Fuel connection status 1 on- 0-off (breaking off the fuel connection)
0xF110	DWORD	GPS upload interval unit is second (s),>120
0xF111	BYTE	terminal LED control 1-on 0-off
0xF112	BYTE	Shock alarm value setting n (0 off ,default value is 28) default off
0xF113	BYTE	Once above one speed means movement (set speed)default off
0xF114	BYTE	Voice control recording switch (0 off 1 on) default off
0xF115	1+2	Real time tracking mode (BYTE)0: upload based on timer 1: upload based on distance Time interval(s:min 10s, max120s)/distance interval(m:min 200m, max 1000m) (WORD)
0xF116	BYTE	Current Language 0: EN 1: CN, default is CN
0xF117	DWORD	Sleep time interval, unit is minute(m) 0-no sleep; N-stop more than N minutes to sleep;
0xF118	BYTE	Terminal left battery level(0-100,only for check)
0xF119	BYTE	In a time reach the number (n) means movement(note:shock sensor setting)
0xF130	STRING	Backup server address, IP or domain
0xF131	DWORD	Backup server TCP port
0xF142	BYTE	Set the device time zone, which affects the corresponding time of the reported positioning data. The value is the time zone multiplied by 4 and then shifted to the left by 1 bit. The lowest bit is used to identify the east and west time zones. The lowest bit is 0-east time zone 1-west time zone, 64-east Eight District, 65-West Eight District

2.9 Check terminal parameter (0x8104)

example: 7e81040000333333330010021957e

Message ID: 0x8104.

Check terminal parameter message body is null.

0x0104 command response, **format follow 2.11**

2.10 Check specified terminal parameters (0x8106)

example: 7e810600003333333300100210200010002967e

Message ID: 0x8106.

Check specified terminal parameters message body data format is shown in table 80, terminal use 0x0104 instructions for response. **format follow 2.11**

Table 80: Check specified terminal parameters message body data format

Start byte	field	Data type	Descriptions and requirements
0	Total number of parameter	BYTE	Total number of parameter is n
1	Parameter ID list	BYTE[4*n]	Arrange in order of parameter, e.g. 'parameter ID1 parameter ID2.....parameter IDn'

2.11 Check terminal parameter response (0x0104)

Example:7e010400093333333300100213F650202000000010400000032000000300400000
00F4A7e

Message ID: 0x0104.

Check terminal parameter response message body data format is shown in table 12.

Table 12: Check terminal parameter response message body data format

Start byte	field	Data type	Descriptions and requirements
0	Response serial number	WORD	Check message serial number of corresponding terminal parameter
2	Number of response parameter	BYTE	
3	Parameter item list		Parameter item format and definition is shown in table 9

2.12 Terminal control (0x8105)

example: 7e8105000033333333001002105917e

Message ID: 0x8105.

Terminal control message body data format is shown in table 13. **Terminal general response**

Table 13: Terminal control message body data format

Start byte	field	Data type	Descriptions and requirements
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0	Command	BYTE	Terminal control command instruction is shown in table 14
1	Command parameter	STRING	Command parameter format see below for details, each field is separated by a half angle ‘,’ each STRING field is processed with GBK encoding before the message is composed

Table 14: Terminal control command instruction

Command	Command parameter	Descriptions and requirements
3	null	Terminal power off
4	null	Terminal reset
5	null	Terminal factory reset
6	null	Turn off data communication
7	null	Close all wireless communication
8	null	Into sleep (note:customize)
9	null	Wake up (note:customize)

2.13 Location information report (0x0200)

example:

7e0200005599999999118003b00000008000000000015989f606cbf01c000000000000980820
20011501040000000004020101050100eb2101cc00262c0e3101262c0e6326262c0e6124262c
0deb2225fc0fac2225fc110a1f06010030011031010a847e

Message ID: 0x0200. Platform general response

Location information report message body is composed of location basic information and location additional information item list, the message structure diagram is shown in figure 3:

Location basic information	Location additional information item list
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Figure 3: Location report message structure diagram

Location additional information item list is composed of each location additional information items or not, it's determines by the length field in the header.

Location basic information data format is shown in table 16.

Table 16: Location basic information data format

Start byte	field	Data type	Descriptions and requirements
0	Alarm sign	DWORD	Definition of alarm sign bit is shown in table 18
4	Status	DWORD	Definition of status bit is shown in table 17
8	Latitude	DWORD	Unit is degree, times the sixth power of 10, accurate to one millionth degree
12	Longitude	DWORD	Unit is degree, times the sixth power of 10, accurate to one millionth degree
16	Altitude	WORD	Altitude, unit is meter (m)

18	Speed	WORD	1/10km/h
20	Direction	WORD	0-359, due north is 0, clockwise
22	Time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT+8 time, the time involved in this standard is in this time zone)

Table 17: Definition of status bit

bit	status
0	0: ACC off;1:ACC on
1	0: Not positioning; 1: Positioning
2	0: North latitude; 1: South latitude
3	0: East longitude; 1: West longitude
4-9	reserve
10	0: Vehicle oil line is normal; 1: Vehicle oil line disconnect
11-17	reserve
18	0: No GPS positioning; 1: GPS positioning
19	0: No Beidou positioning; 1: Beidou positioning
20	0: No GLONASS positioning; 1: GLONASS positioning
21	0: No Galileo positioning; 1: Galileo positioning
22	0: car in stop status; 1: car in move status

Table 18: Definition of alarm sign bit

Bit	Definition	Processing specification
0	1: Emergency alarm, trigger after triggering alarm switch	Zero clearing after receive the response
1	1: Over speed alarm	The sign is maintained until the alarm condition is relieved
2	1: Driving alarm malfunction	The sign is maintained until the alarm condition is relieved
3-4	reserve	
5	1: GNSS antenna was not connected or cut	The sign is maintained until the alarm condition is relieved
6	1: GNSS antenna short circuited	The sign is maintained until the alarm condition is relieved
7	1: The terminal main power undervoltage (low battery alarm)	The sign is maintained until the alarm condition is relieved
8	1: The terminal main power is turned off(cut line alarm)	The sign is maintained until the alarm condition is relieved
18	1: The accumulated over speed driving time of the day	The sign is maintained until the alarm condition is relieved
19	1: Timeout parking	The sign is maintained until the alarm condition is relieved

27	1: Illegal ignition of vehicle	Zero clearing after receive the response
28	1: Illegal displacement of vehicle	Zero clearing after receive the response

Location additional information item format is shown in table 19。

Table 19: Location additional information item format

field	Data type	Descriptions and requirements
Additional information ID	BYTE	1-255
Length of additional information	BYTE	
Additional information		Definition of additional information is shown in table 20

Table 20: Definition of additional information

Additional information ID	Length of additional information	Descriptions and requirements
0x01	4	Mileage, DWORD, 1/10km, corresponding to the odometer reading of the car
0x02	2	Fuel capacity, WORD, 1/10L, corresponding to the fuel gauge of the car
0x30	1	BYTE, strength of wireless communication network signal
0x31	1	BYTE, GNSS positioning satellite number
0xE4	2	Command format: status, battery level status: one byte 0-connect extra power (charging) 1-disconnect extra power, use internal battery (not charging) Battery level: one byte Battery percentage
0XE5	1	1:move 0: stop
0XE6	1	1:this location need send SMS 0: this location no need send SMS
0XE7	8	Status additional information, 8 bytes, 0-1 byte is alarm status, 2-3 byte is switch status, 4-7 byte is reserve alarm status: 0x0001 shock alarm The lower 4 bits of the second byte of the switch status indicate the external switch status 0006 (0110), bit0-off, bit1-on, bit2-on, bit3-on

0xEB	2+1+(2+2+1)N	<p>Command format: country code, operator code,[cell ID1, tower ID 1, signal strength 1,.....cell ID6, tower ID 6, signal strength 6]</p> <p>country code:2 bytes, HEX, example 0x01CC=460 operator code: 1 byte, HEX, example 0x00 Cell ID: 2 bytes, HEX, High bit in front, low bit in back, example 0x262C tower ID: 2 bytes, HEX, High bit in front, low bit in back, example 0x04BA signal strength: 1 byte, HEX, example 0x58, Original value</p> <p>Note:max 6 LBS information</p>
0xEC	(6+1)N	<p>Command format: 【mac address1, signal strength 1; mac address6, signal strength6】</p> <p>Mac address (unit BYTE) :6 bytes; c8, 3a, 35, 00, be, 08 Signal strength (unit BYTE) : 1 byte</p> <p>Note: max 6 wifi address</p>
0xED	14	<p>CDMA LBS information</p> <p>SID:2 bytes NID: 1 byte BID:2 bytes LAT:4 bytes LONG: 4 bytes Signal strength: 1 byte</p>
0xEE	10	<p>4G LBS information</p> <p>MCC:460 2 bytes MNC:00 1 byte LAC: 2 byte CELLID: 4 bytes Signal strength: 1byte</p>

2.14 Location information query (0x8201)

example: 7e820100089999999999118000c0e7e

Message ID: 0x8201.

Location information query message body is null.

2.15 Location information query response (0x0201)

example: 7e0201005599999999118003b6f320000008000000000015989f606cbf01c0000000
0000098082020011501040000000004020101050100eb2101cc00262c0e3101262c0e632626
2c0e6124262c0deb2225fc0fac2225fc110a1f06010030011031010ad87e

Message ID: 0x0201.

Location information query response message body data format is shown in table 24.

Table 24: Location information query response message body data format

Start byte	field	Data type	Descriptions and requirements
0	Response serial number	WORD	Serial number of corresponding location information query message
2	Location information report		Location information report is shown in 2.12

2.16 Temporary location tracking control (0x8202)

example: 7e820200059999999911885eb00050000003c5b7e

Message ID: 0x8202.

Temporary location tracking control message body data format is shown in table 25. **terminal general response**

Table 25: Temporary location tracking control message body data format

Start byte	field	Data type	Descriptions and requirements
0	Time interval	WORD	Unit is second (s), stop tracking if is 0 which does not need to carry a subsequent field
2	Location tracking validity	DWORD	Unit is second (s), after received location tracking control message, terminal sends location report according to the time interval from the message before validity

2.17 Manually confirm alarm message (0x8203)

example: 7e820300059999999911885eb000500000000667e

Message ID: 0x8203

Manually confirm alarm message body data format is shown in table 35。terminal general response

Table 35: Manually confirm alarm message body data format

Start byte	field	Data type	Descriptions and requirements
0	Alarm message serial number	WORD	Alarm message serial number needs to be confirmed manually, 0 for all messages of this type of alarm
2	Manually confirm alarm type	DWORD	Definition is shown in table 36

Table 36: Definition of manually confirm alarm type

bit	Definition
0	1: Confirm emergency alarm
1-2	Reserve
3	1: Confirm risk warning
4-19	Reserve
20	1: Confirm enter and exit area alarm
27	1: Confirm vehicle illegal ignition alarm
28	1: Confirm vehicle illegal displacement alarm

2.18 Call back (0x8400)

Message ID: 0x8400.

Call back message body data format is shown in table 39。terminal general response

Table 39: Call back message body data format

Start byte	field	Data type	Descriptions and requirements
0	Sign	BYTE	0: Ordinary calls; 1: Monitoring
1	Phone number	STRING	The maximum is 20 bytes

2.19 Phone book setting (0x8401)

Message ID: 0x8401.

Phone book setting message body data format is shown in table 40。terminal general response

Table 51: Phone book setting message body data format

Start byte	field	Data type	Descriptions and requirements
0	Setting type	BYTE	0: Delete all the contacts that stored in the terminal; 1: Update phone book (delete all the contacts in the terminal, and append contacts from the message); 2: Append phone book; 3: Modify phone book (indexed with contact)
1	Total number of contacts	BYTE	
2	Contact item		Phone book contact item data format is shown in table 41

Table 41: Phone book contact item data format

Start byte	field	Data type	Descriptions and requirements
0	Sign	BYTE	1: Incoming call; 2: Outgoing call; 3: Incoming/outgoing call
1	Length of numbers	BYTE	
2	Phone numbers	STRING	Length is n
2+n	Length of contacts	BYTE	
3+n	Contacts	STRING	Coded by GBK

2.20 Positioning data batch upload (0x0704)

Message ID: 0x0704.

Positioning data batch upload data format is shown in table 76。Platform general response

[Example pls check the attachment](#)

Table 76: Positioning data batch upload data format

Start byte	field	Data type	Descriptions and requirements
0	Numbers of data item	WORD	Including numbers of location report data item, >0
2	Type of location data	BYTE	0: Normal location batch report; 1: Blind area report
3	Location report data item		Definition is shown in table 77

Table 77: Location report data item data format

Start byte	field	Data type	Descriptions and requirements
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			when the digit isn't sufficient, append '0X00'
34	Terminal SIM card ICCID	BCD[10]	Terminal SIM card ICCID number
44	Length of the terminal hardware version No.	BYTE	n
45	The terminal hardware version No.	STRING	
45+n	Length of the terminal firmware version No.	BYTE	m
46+n	The terminal firmware version No.	STRING	
46+n+m	GNSS module attribute	BYTE	bit0, 0: GPS positioning is not supported, 1: GPS positioning is supported; bit1, 0: Beidou positioning is not supported, 1: Beidou positioning is supported; bit2, 0: GLONASS positioning is not supported, 1: GLONASS positioning is supported; bit3, 0: Galileo positioning is not supported, 1: Galileo positioning is supported
47+n+m	Communication module attribute	BYTE	bit0, 0: GPRS communication is not supported, 1: GPRS communication is supported; bit1, 0: CDMA communication is not supported, 1: CDMA communication is supported; bit2, 0: TD-SCDMA communication is not supported, 1: TD-SCDMA communication is supported; bit3, 0: WCDMA communication is not supported, 1: WCDMA communication is supported; bit4, 0: CDMA2000 communication is not supported, 1: CDMA2000 communication is supported; bit5, 0: TD-LTE communication is not supported, 1: TD-LTE communication is supported; bit7, 0: other communication way is not supported, 1: other communication way is

			supported
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3.Custom protocol data format

3.1 Request synchronization time（0x0109）

example:7e010900007777777740200057b7e

message ID: 0x0109。

message body is null。

note: platform response format for request synchronization follow [3.2](#)

3.2 Request synchronization time response（0x8109）

example: 7e8109000877777777943bbb207e208160f1f0c00547e

message ID: 0x8109。

Start byte	field	Data type	Descriptions and requirements
0	year	WORD	Example:2016 the first byte is 0x07,the second byte is 0xe0 （2 bytes）
2	month	BYTE	1 byte in hex
3	day	BYTE	1 byte in hex
4	hour	BYTE	1 byte in hex
5	minute	BYTE	1 byte in hex
6	second	BYTE	1 byte in hex

3.3 Set periodic positioning（0x8110）

example:

7e8110009e77777777402bfab03000007000431353a313831353a323531353a333131353a3336010431353a313831353a323531353a333131353a3336020431353a313831353a323531353a333131353a3336030431353a313831353a323531353a333131353a3336040431353a313831353a323531353a333131353a3336050431353a313831353a323531353a333131353a3336060431353a313831353a323531353a333131353a3336637e

message ID: 0x8110

Start byte	field	Data type	Descriptions and requirements
0	Current system day of the week	BYTE	Example 0 is sunday
1	Positioning type	BYTE	0=periodic positiong, 1=real time tracking , if value is 1,the below field is interval

			(note:pramater is WORD)
2	The number of periodic positioning packet	WORD	The number of periodic positioning packet
4	periodic positioning packet		table 42 periodic positioning packet format

table 42 periodic positioning packet format

Start byte	field	Data type	Descriptions and requirements
0	day of the week	BYTE	Example:monday
1	the number of time for current day of the week periodic positioning	BYTE	the number of time for current day of the week periodic positioning
2	the first time of current day of the week periodic positioning	STRING	Example 10:00
8	the second time of current day of the week periodic positioning	STRING	example 11:00

note: **terminal general response**

3.4 Request periodic positioning time (0x0110)

example: 7e0110000033333333009000a227e

message ID: 0x0110

message body is null.

note: platform response for set periodic positioning, **format follow 3.3**

3.5 Upload the power saving mode modified by SMS to the server (0x0112)

(A6S customized function)

example:7e011200066133100970100008020000000005317e

message ID: 0x0112

Start byte	field	Data type	Descriptions and requirements
0	Power save mode	BYTE	Positioning mode(BYTE):1,2,3,4 four

			mode 1.normal mode(real time tracking) both of GPS,GPRS OFF,upload LBS data every 5mins 2.periodic positioning mode 3.smart power save mode 4.super power save mode
1	Short connect periodic	WORD	10~65535(min)
3	Flight mode on/off	BYTE	0: off 1: on
4	Connect time after track car mode	WORD	0~65535 (min) , default is 5 mins

note: terminal general response

3.6 Request the server to issue location information (0x8111)

example:

7e8111004d33333333001b753001208150a3027033030310040e5b9bfe4b89ce79c8120e6b7b1e59cb3e5b88220e9be99e58d8ee58cba20e5b7a5e4b89ae8b7af20e99da0e8bf91e79b9be7919ee59586e58aa1e5a4a7e58ea6707e

message ID: 0x8111

Start byte	field	Data type	Descriptions and requirements
0	Position type	BYTE	Position type(0is LBS; 1is GPS; 2 is wifi ; 3 is stop LBS ; 4 is stop GPS; 5 is stopWIFI)
1	Position time	BCD[6]	Position time,fix length 6 ; YY-MM-DD-hh-mm-ss
7	The length of VIN	BYTE	The length of VIN
8	VIN	STRING	VIN , length is N1
N1+8	The length of position address	WORD	The length of position address
N1+8+2	position address	STRING	position address (UTF8)

note: terminal general response

3.7 Recording time sent by the server (0x8116)

example: 7e811600093131304491140f260a00e0bd4fc7f45659627e

message ID: 0x8116

Terminal response 0x0116 recording status

Start byte	field	Data type	Descriptions and requirements
0	Recording time	BYTE	0-60s(0=recording untill server send 0x8115,every packet 10s for upload)
1	Session ID	STRING	Differentiate different users to operate the same terminal

3.8 Terminal answer recording (0x0116)

example:7e0116000977777777948006a000000ad0420e05759227e

message ID: 0x0116

0	Recording time	BYTE	0=Free 1=recording by current user , 2=recording by other user
1	Session ID	STRING	Length is 8

3.9 Terminal reports short recording data (0x0117)

example:7e0117038e77777777948006c0801000ad0420e057592321414d520a0c0a3c3f96d98367e9468ea245320c0a3c3f96d98367e9468ea245320cfa423ff8aa653fef9bf1efd40a0c70f02b4d674b1dd06bfb87452a0cfacbf55c9ecc5bad952950f25080cdc955473afd2d810492e6b9c9e0cb5bd5dcfa516ff6c5403382d900c05ec52ef63c2fc037b2516ce340cfa884dda3fd8dc5496843eba0c0542597b673d39bb3109ba14940c3c421fdbe794bf4974121303a20c4f7c10d0938413cc9d4b43de640c03bf277b6c7753e8a0f92aeba20ca1584a05903c6f81ad002cd7c00c187c47249c09efa4944f834c400c6aa547251e03a22aacf7e628ce0c03164724900684a70344dd089c0c40cb4744ea1f1cdc8ebabdf180c06a5463833a7956e30efa7c3360c050446c7151ffc13a6b277b32e0c38bf45db604574a4a46e41a2ca0cd86047c93607ea637642709d5e0cd79b4644b1fc16ecd2093d4d80cd89d5124ae5f8fcb764dc8cb3e0c80e04e499d1db14bd9141c5b560c06b14b50afeea01cda382726da0c06d64f451d8950d1e6c5b1b5820c03e057649107a487331a6e65e80c84485765150f7365cbf6458d6c0c063b5f259c0f82ebc427f31bbe0cb9ce5f28bf0ac26af2f7f21ed00cb90f5f29118743c7489c2766020cb9b15f891e8ef260e8ac0e643c0c03e06728aa0685c2027c289bd80cb9e05f252d8d41fae5d36c310c0c03ce5f291e8ae17aee78564ebe0c06885f459787e9ee0d537f44860c58f2621b6a54752336a92c5ed00c4049625b686f915ee312b4466e0c5a4d69fa2321b7b7c4cd22f1460cfaca2e993a57b40d3ec2971a200c5a036a4f6e6aee8316d4a5d6d20c5acd5dc5c6fea396ec3be548740c5a036c7b4f97d90128ba74c95a0c70025eda3b6fd2bfc13b7a5e8c0cb108619b5d1f6315e86b9cd2520c783f5db13b3a929ccb045a84a00c89215689af6a889f334adcf4420c71ab4b89ee2eeaf15951dd1d80cf1214f8d3605c8b4740459d16c0c72bd4fd97e39063e5fc4780b460c22bd55cb6f43ee4644be1f841e0cda42b5b1ffd37a4bb42c1e25520c5b07ce4bee6e79135c916696760c53044704af19a14cd08b7e2bfe0c03364625199b727be694207e100c06424f251d29a7f0e85a236f0c0c060f4f291b0e67faf47ecb0e0a0c06884f51240f8378d60619c4860c40484d236d3f929ed32c4a802a0c58f322db60eb71dfc5d06d83680c803b534d1169a694fb6cdcc5220c70ce2744a71ba046c4ada30a7e

message ID: 0x0117

Start byte	field	Data type	Descriptions and requirements
------------	-------	-----------	-------------------------------

0	The total number of the packet	BYTE	
1	Packet no.	BYTE	
2	Session ID	STRING	The user who request server
10	Recording file	N	Max 900 bytes recording data, if below, follow the real

note: platform response follow 3.13

3.10 Terminal reports real-time (voice-activated) recording data (0x0118)

example: 7e011803947777777794800f5080100000000000000001808221019102321414d520a0c0a3c3f96d98367e9468ea245320c0a3c3f96d98367e9468ea245320c0a3c3f96d98367e9468ea245320c38983ff8ef57eec58d2c06a2320c0b7c2ec4e747fbc2aacf9e08180cb50f12ff61a09fee66f3e9701e0c3858fbfb6b3b94cbf49e5487160ca44293cb6eb3dcfaed881ffd700c4050e7df4dfdc17aaabaeb30ee0c08e0c07ffccc6572bfff401a5380ce2ce87dbef067c18eb15963e4c0c7cbc57b13b49c45ca9b40cccce0cb1135771cdc7d770790838e6380cb1bc5ab14ff316315cad43895a0c70135e4daf9557b06c0608d67c0cb1bc2e9b650d955f9512888a1a0c54135ddb9db196366a651110ce0cb1bc5ed35f4c54dba7a161a0600c7090229b6dbff1f69bd314dfaa0c5a3bd5f363c20dfdc5b72c02240c5888d5fff140396b906f7111fc0c0d43029637e1d86612c701a3520c7c2e5f7ddfl14f5ed127ef58180c8efb5a8e57eb3cdfa5e84667080ce2ac13cecb2efbbd1163ac0680c05156f5febac8415acf6f00c220cb539727f7b793d4e585a5907ae0cf13b13f2778136fc55540f13940c49cc0fbd7e4058e8cba07bf780c58ceccbbf6b46671725b585a780ca454f7fbfd8149793b4d882560cfa4233de4fb855flaead0417040cc0c83e9f7b643f60b8dde5250e0cda3b00fb475895f38d6859f01a0ce65435fe7fd127f779f343b82e0cb8831cf3738075ea8ed5ba4f660c803b5fee47a0e6fa66cb955c880c80d7179f3b4cdd4446859132da0c06ce13df6bd169336e16beb7680c70cebad77eea151d8cad30df900cc088aedf6b7059e68d03987c380cb13b5597776b751dacbb4101620cfac5aab5fce5958ca64d3bac0c70ce5f7fcb4087f463ad724ef60cb536a9fef5d92435ae4389a9de0cc0d60a93bfa3f97fb232039a920c40e420fffd0809600d061f3e9c0cdad618f36bf6a7704b647f88a40ca4641edf6f2c3d8c4c3bcd2ec80cb15f5ffeb740054b2fc58529a20c75645d9b475ced0b75d37b5fc00c753b68bbf4747af1921db021ac0fae0368f7ec50ead69800d129a0c5aec00d76f03b8b0970bd3a2ec0cfa8332d27fe97dca5787db2c100cb9ce6cbe4ff1f0799417b08f220c03f27385d3c13ebe0565d93a8e0c034d7549b226d77bd382f6644a0c03297789ef075dd51de3fd29c60ce6ce754f6e2e8305ab67f753ee0c713b7a6f3faa83a30500f376660c083622dae42730bdabdd35657a0cb5831bd3ede6a071b765004c9c0c09e015934e54b1b5bdd427f27e

message ID: 0x0118

Platform response: 0x8118, follow 3.12

Start byte	field	Data type	Descriptions and requirements
0	The number of total packet	BYTE	
1	Packet no.	BYTE	

2	Session ID	STRING	The user who request server
10	time	BCD[6]	180226120030 (=recording time is 2018.02.26,12:00:30)
16	Recording file	N	Max 900 bytes recording data, if below, follow the real

3.11 Terminal reports the recording data upload completion notification (0x0119)

example: 7e011900007777777779480284af7e

message ID: 0x0119

Platform general response

message body is null

3.12 Server sends recording data response (0x8118)

example: 7e8118000f3131304491140f070400d0bdd085f45659180821173116a97e

message ID: 0x8118

Start byte	field	Data type	Descriptions and requirements
0	The current packet no.	BYTE	If never receive this response, max send 3 times, then send next packet
1	Session ID	STRING	Send user ID who received the recording, length is 8
9	time	BCD[6]	180226120030 (=recording time is 2018.02.26,12:00:30)

3.13 Server sends recording data response (0x8117)

example: 7e811700093131300741851113070000000000000000697e

message ID: 0x8117

Start byte	field	Data type	Descriptions and requirements
0	The current packet no.	BYTE	If never receive this response, max send 3 times, then send next packet
1	Session ID	STRING	Send user ID who received the recording, length is 8

3.14 Recording canceled by server (0x8115)

example: 7e811500087777777779480b8300b03c7be8f15659047e

message ID: 0x8115

Cancel the current recording terminal response 0x0115, format follow 3.15

Start byte	field	Data type	Descriptions and requirements
0	SessionId	STRING	Recording user ID,length is 8

3.15 Terminal reply to recording cancellation (0x0115)

example:7e01150009777777777948006b0000b03c7be8f15659fd7e

message ID: 0x0115

该消息一般为服务器下发录音取消或者设备主动取消录音时上报,只有服务器下发录音取消时才需要回复。

Start byte	field	Data type	Descriptions and requirements
0	Cancel result	BYTE	0=cancel success, 1=cancel fail,terminal finish recording,uploading to server 2=cancel fail,terminal recording,not require by current user 3=terminal never recording
1	Session ID	STRING	Recording user ID,length is 8, same to the Session ID send by server

3.16 SMS admin number (0x0818)

Terminal update SMS admin number , Platform general response

message ID: 0x0818

Start byte	field	Data type	Descriptions and requirements
0	The length of the number	BYTE	
1	number	STRING	

3.17 One key sleep (0x8135)

message body is null, terminal general response
message ID: 0x8135

3.18 One key wake up (0x8145)

message body is null, terminal general response
message ID: 0x8145

3.19 One key restart (0x8155)

message body is null, terminal general response
message ID: 0x8155

3.20 Battery level update when sleep (0x0210)

Example: 7e021000077777777792901c964180822154904837e

message ID: 0x0210

Send every hour when sleep , Platform general response

Start byte	field	Data type	Descriptions and requirements
0	Battery percentage	BYTE	0-100
1	time	BCD[6]	YY-MM-DD-hh-mm-ss(GMT+8)

3.21 Standard 808 protocol notice (0x0808)

example: 7e0808000099999999118000c857e

message body is null, The server does not need to respond (sent after the authentication is successful, the device must ensure that the data is sent successfully), used to notify the server that the protocol used by this device is the standard 808 protocol
message ID: 0x0808

3.22 Request distributor server (0x1004)

example: 7e1004000099999999118000c857e

message body is null, The server does not need to answer, it is used to request the server to distribute the server

message ID: 0x1004

3.23 upload ICCID (0x1107)

(for upload ICCID include AB)

message ID: 0x1107。

Start byte	field	Data type	Descriptions and requirements
0	length	BYTE	length (20)
1	content	STRING	ICCID 20 digi
21	length	BYTE	
22	Terminal no.	STRING	Length is n, for example A5
22+N	length	BYTE	
23+N	version	STRING	JTV1.0.0
note: Platform general response			

3.24 upload external voltage¤t (0x1005)

message ID: 0x1005。

Start byte	field	Data type	Descriptions and requirements
0	External voltage	WORD	WORD, external voltage, unit is 0.01V, example 12.85V=1285=0x0505
2	External current	WORD	WORD,terminal external current, unit is mA,
4	reserve	WORD	reserve
6	note	BCD[6]	Length fix 6 ; YY-MM-DD-hh-mm-ss
note: platform no need response			

3.25 Synchronization of gprs on/off when sleep (0x1006)

note: for synchronization gprs on/off SMS setting to server

message ID: 0x1006。

Start byte	field	Data type	Descriptions and requirements
0	Gprs on/off when sleep	BYTE	0=gprs on when sleep 1=gprs off when sleep
1	reserve	WORD	reserve

note: Platform general response

3.26 Text message send from server (0x8300)

message ID:0X8300

Test message format follow table 26

note: if the sign is 0, for SMS Penetrate: urgent

Table 26 the data format of the test message send from server

Start byte	field	Data type	Descriptions and requirements
0	sign	BYTE	The define of sign follow table 27
1	Text message	STRING	Max 102 bytes, processed with GBK encoding

Table 27 The define of test message sign

bit	sign
0	1: urgent
1	reserve
2	1: terminal LCD display
3	1: terminal TTS speak&read
4	1: Advertising LCD display
5-7	reserve

3.27 SMS response penetrate protocol (0x1300)

message ID: 0X1300

SMS response penetrate message data format follow table 28

Table 28 The data format of SMS response penetrate message

Start byte	field	Data type	Descriptions and requirements
0	Response serial number	WORD	Same to the serial number of the server message
2	Test message	STRING	Response message content , max 256bytes, processed with unicode

Appendix A

4.Message comparison table

No.	Message body name	message ID	No.	Message body name	message ID
1	Terminal general response	0x0001	14	Location information query response	0x0201
2	Platform general response	0x8001	15	Temporary location tracking control	0x8202
3	Terminal heartbeat	0x0002	16	Call back	0x8400
4	Terminal registration	0x0100	17	Phone book setting	0x8401
5	Terminal registration response	0x8100	18	Sleep notification	0x0105
6	Terminal layout	0x0003	19	Back to factory setting notification	0x0106
7	Terminal Authentication	0x0102	20	ICCID upload	0x0107
8	Set Terminal parameters	0x8103	21	Check specified terminal parameters	0x8106
9	Check Terminal parameters	0x8104	22	Sleep wake up notification	0x0108
10	Check Terminal parameters Response	0x0104	23	Set time for wake up when sleep	0x8107
11	Terminal control	0x8105	24	Request synchronization time	0x0109
12	Location information report	0x0200	25	Request synchronization time response	0x8109
13	Location information query	0x8201	26	Set periodic positioning	0x8110
			27	Request periodic positioning time	0x0110
31			28	Request the server to issue location information	0x8111
33	Recording time sent by the server	0x8116	32	Terminal answer recording	0x0116
35	Terminal reports short recording data	0x0117	34	Server sends recording data response	0x8117
41	Recording canceled by server	0x8115	36	Terminal reply to recording cancellation	0x0115
52	SMS admin number	0x0818	51	One key sleep	0x8135
61	One key wake up	0x8145	53	One key restart	0x8155
	Battery level update when sleep	0x0210	62	Positioning data batch upload	0x0704

5.attachment

1、Positioning data batch upload example:

```
hex = 7E
0704 //table 2 message id
00E1 //table 2 Message body attribute (the length of total packet)
02222333112 //table2 phone number
00D9 //table 2 message serial number
0003 //table 76 Numbers of data item, total 3 data (the length of total packet from
here)
01 //table 76 Type of location data
0048 //table 77 Length of location report data body(each data length)
00000000 //table 16 Alarm sign(each data length from here)
004C0001 //table 16 status
01598A80 //table 16 latitude
06CBEFF5 //table 16 longitude
0000 //table 16 altitude
0000 //table 16 speed
0000 //table 16 direction
200330190948 //table 16 time
0104000002EE //table 19 mileage
300116 //table 19 GSM
310100 //table 19 Number of satellites
E4020162 //table 19 battery level
E50101
E60100
E7080000000000000000 //table 19 status additional information
EE0A01CC01262C0CBC089B00 //table 19 4G LBS information
0048 //second data from here
00000000
004C000101598A8006CBEFF5000000000000002003301909530104000002EE300116310
100E4020162E50101E60100E7080000000000000000EE0A01CC01262C0CBC089B00
0048 //third data from here
00000000004C000101598A8006CBEFF5000000000000002003301910040104000002EE3
00116310105E4020161E50101E60100E7080000000000000000EE0A01CC01262C0CBC
089B00 (the length of total packet and the length of each data end here)
3E //check code
7E
```


2、date length example:

```
7E
0704
0200 ← this is the total length
013130623411
0002
0006
01
0055 ← this is the length of each data
00000000
00000001
00000000
00000000
000000000000
200416151658
010400000000
30011F310100
E4020064
E50101
E60100
EB2101CC00410A28CB014015276C31410A9D512D4015276B2B410A27DB2A0000000000

005500000000000000010000000000000000000000000000000020041615172801040000000030011F310100E4020064E50101E60100EB2101CC00410A28CB014015276C31410A9D512E410A27DB2C4015276B2900000000000
005500000000000000010000000000000000000000000000000020041615175801040000000030011F310100E4020064E50101E60100EB2101CC00410A28CB014015276C31410A9D512E410A27DB2B4015276B2700000000000
005500000000000000010000000000000000000000000000000020041615191801040000000030011A310100E4020064E50101E60100EB2101CC00410A28CB01000000000000000000000000000000000000000000000000000
005500000000000000010000000000000000000000000000000020041615194801040000000030011F310100E4020064E50101E60100EB2101CC00410A28CB01410A9C9CF2C410A9C882B410A9D512A4015276C2A410A27DB2A
005500000000000000010000000000000000000000000000000020041615201301040000000030011F310100E4020064E50101E60100EB2101CC00410A28CB01000000000000000000000000000000000000000000000000000
7A7E
```

(pls save on desktop to check the clear details)