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**INDUSTRY STANDARD OF THE
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JT/T 766.2-2019

**Shipborne terminal of BeiDou navigation satellite system - Part
2: Data exchange protocols**

北斗卫星导航系统船载终端 第2部分：数据交换协议 清晰版
(English Translation)

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1 Scope

This Part of JT/T 766 specifies the data exchange protocol for shipborne terminals of the BeiDou Navigation Satellite System, including interface, data format definitions, data content, descriptions.

This Part applies to shipborne terminals of the BeiDou Navigation Satellite System used in the transport industry.

2 Normative references

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

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

GB/T 2312-1980 Code of Chinese graphic character set for information interchange

- Primary set

JT/T 766.1 Shipborne terminal of BeiDou navigation satellite system - Part 1.

Technical requirements

NMEA 0183 V4.10 National marine electronics association 0183 Protocol (Version 4.10)

3.1 Terms and definitions

The terms and definitions defined in JT/T 766.1, as well as the following terms and definitions, apply to this document.

3.1.1

System acknowledgement

A confirmation given by the Beidou Satellite Navigation System distribution service platform to the sender (only a management terminal), indicating that the receiver has received the communication information sent by the sender.

3.1.2

Communication acknowledgment

An acknowledgment from the recipient to the sender, indicating that the recipient has received the communication information sent by the sender.

Note: The difference between a communication acknowledgment and a central acknowledgment is that the communication acknowledgment contains detailed parameters, facilitating communication control.

3.1.3

BeiDou navigation civil service platform

A platform that handles BeiDou satellite navigation positioning, timing, location reporting, SMS services; provides approved value-added services.

3.2 Abbreviations

The following abbreviations apply to this document.

ASCII - American Standard Code for Information Interchange

CGCS2000 - China Geodetic Coordinate System 2000

CRC - Cyclic Redundancy Check

ID - Identifier

UTC - Coordinated Universal Time

USB - Universal Serial Bus (USB)

4.1 RS-232 Interface

When the terminal uses the standard RS-232 interface, the interface signal definitions are shown in Table 1.

4.2 USB Interface

When the terminal uses the USB interface, the interface signal definitions are shown in Table 2; a schematic diagram of the USB interface is shown in Figure 1.

5 Data format

The terminal's data format includes instruction content, information content, checksum, end marker. The format content is represented in ASCII code, starting with "\$" and ending with "< 0X0D>< 0X0A>". Different information is separated by commas and transmitted as a string. See Table 3 for the data format.

6.1.1 Data format

The data format for querying user information is shown in Figure 2.

\$CXYH, Card No., User type, Checksum< 0X0D> < 0X0A>

Figure 2 -- Data format for querying user information

6.1.2 Description

The description of the user information data format is as follows.

- a) Card No.. Starts from 0, used in multi-card user machines, default 0;
- b) User type. 0 represents this card, 1 represents a subordinate card.

6.2.1 Data format

The data format for returning card user information is shown in Figure 3.

\$BKYH, Card No., Card address, Platform broadcast address, service frequency, Confidentiality flag, communication level, validity flag, checksum< 0X0D> < 0X0A>

Figure 3 -- Data format for returning card user information

6.2.2 Description

The description of the returned card user information is as follows.

- a) Card No.. Starts from 0, used in multi-card user terminals, default 0;
- b) Card address. Refers to the communication address of the terminal, represented by a decimal number, value "0000000" for no card;
- c) Platform broadcast address. Refers to the ID number of the management terminal to which the terminal belongs, represented by a decimal number, value "00000000" for no card;
- d) Service frequency. Minimum time interval between two inbound requests from the terminal, range 0 ~ 60, value "000" for no card;

- e) Confidentiality flag. 0 indicates no confidentiality, 1 indicates confidentiality;
- f) Communication level. Default 3, see Table 4;
- g) Validity flag. 0 indicates invalid, 1 indicates valid.

6.3.1 Data format

The data format for returning subordinate card user information is shown in Figure 4.

\$XSYH, Card No., Total frame number, current frame number, {User address}n,
Checksum< 0X0D> < 0X0A>

Figure 4 -- Data format for returning subordinate card user information

6.3.2 Description

User address, starting from 0, maximum 30 users per frame, the host continuously sends all frames.

6.4.1 Data format

The data format for querying terminal status is shown in Figure 5.

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