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**Test methods of M2M platform for logistic informatization
service in mobile network**

移动通信网络面向物流信息服务的M2M平台测试方法

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1 Scope

The document describes the test methods of the M2M platform for logistics information services in a mobile communication network, carrying out function testing on the four function modules of the logistics platform, namely the core functions, the extended functions, the platform portal and interface management, and carrying out performance testing on the platform as a whole.

It applies to logistics information service platforms based on M2M technology.

2 Normative references

The content of the following document constitutes, through normative reference in the text, indispensable provisions of this document. For dated references, only the edition corresponding to that date applies; for undated references, the latest edition, including all amendments, applies.

GB/T 32404-2015 Overall technical framework of logistics information service in mobile communication network based on M2M technology.

3 Terms and definitions

This document has no terms and definitions that need to be defined.

4 Abbreviations

The following abbreviations apply to the document.

3G: the third generation mobile telecommunication. 4G: the fourth generation mobile telecommunication. BSS: business support system. GIS: geographic information systems. GPRS: general packet radio service. LBS: location based service. M2M: machine to machine, machine to man. OSS: operation support system. QoS: quality of service. SI/SP: service integrator, service provider. USSD: unstructured supplementary service data.

5 Test methods

5.1 Test environment. The networking structure of the M2M system for logistics information services in a mobile communication network is shown in Figure 1, which places the application system, the logistics M2M platform server, the logistics M2M terminal, the communication network and the client around a communication cloud. The interface design of that system follows the interface requirements of 5.2 of GB/T 32404-2015, and a logistics M2M system test environment made up of the application system, the logistics M2M platform server, the logistics M2M terminal, the communication network and the client is built, deployed as follows. The logistics M2M platform includes one host server and an ethernet network is built, gateways and firewalls being deployable according to need. The application system connects to the network through the logistics M2M platform. The logistics M2M terminals include handheld terminals of several brands, accessing 3G, 4G or GPRS wide area networks or a wireless local area network. The communication networks used for the system test are the GPRS network and the 3G and 4G data networks. The client may use a wireless local area network and be deployed inside the local area network of the logistics M2M platform, or it may gain wide area access through a data network.

5.2 Preconditions for the test. Before the test, the terminal equipment is installed and the deployment of the logistics M2M platform and of the application system is completed. Stress test tools are used to carry out the performance test.

5.3 Description of the test structure. Figure 2 is the architecture diagram of the logistics M2M platform, in which the test content covers the following four parts: a) the core functions; b) the extended functions; c) the platform portal; d) interface management.

6 Platform function testing

6.1.1.1 Registration of the logistics M2M terminal is given in Table 1. The table is laid out as a two column form whose left column names the field and whose right column carries the

content. Test case number: 6.1.1.1. Test item: logistics M2M terminal management. Test subitem: registration of the logistics terminal. Purpose of the test: to verify the registration function of the logistics terminal. Preconditions: the system can log in normally; connection to the server is normal; the interface buttons and input boxes can be used normally; a logistics terminal that has formed a subscription relationship with the platform can work normally. Test steps: enter the logistics terminal management interface and click registration; enter the terminal serial number, the IMEI number and IMSI of the communication module, the status and other information, then click registration; view the list of registered logistics terminals. Pass criterion: the platform returns a registration success message and the list of registered logistics terminals can be seen. The explanation field of Table 1 is empty.

6.1.1.2 Deregistration of the logistics M2M terminal is given in Table 2. Test case number: 6.1.1.2. Test item: logistics M2M terminal management. Test subitem: deregistration of the logistics terminal. Purpose of the test: to verify the deregistration function of the logistics terminal. Preconditions: the system can log in normally; connection to the server is normal; the interface buttons and input boxes can be used normally; a logistics terminal that has formed a subscription relationship with the platform can work normally. Test steps: enter the logistics terminal management interface, select a registered logistics terminal and click deregistration; log in to the logistics platform with the logistics terminal just deregistered. Pass criterion: the deregistered logistics terminal cannot log in to the logistics platform. Explanation: terminal deregistration may be initiated by the terminal itself or through the platform administrator, and the platform updates the registration identifier of the terminal to deregistered.

6.1.1.3 Login of the logistics M2M terminal is given in Table 3. Test case number: 6.1.1.3. Test item: logistics M2M terminal management. Test subitem: login of the logistics terminal. Purpose of the test: to verify the login function of the logistics terminal. Preconditions: the system can log in normally; connection to the server is normal; the interface buttons and input boxes can be used normally; a logistics terminal that has formed a subscription relationship with the platform can work normally. Test steps: enter the correct terminal login information on the logistics terminal and click login; enter incorrect terminal login information on the logistics terminal and click login. Pass criteria: for the first step the platform returns a login success message; for the second step the platform returns a login failure message. Explanation: on a successful login the platform updates the terminal status to logged in.

6.1.1.4 Logout of the logistics M2M terminal is given in Table 4.