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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/Z 17215.651-2022

Electricity metering data exchange - The DLMS/COSEM suite - Part 51: Application layer protocols

电测量数据交换 DLMS/COSEM组件 第51部分：应用层协议

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part

1.Structure and Drafting Rules for Standardization Documents" drafting. GB/T 17215 "Alternating Current Measuring Equipment" is divided into several parts, GB/T 17215.6 "Electrical Measurement Data Exchange DLMS/COSEM Components has published the following sections.

10.Intelligent measurement standardization framework;

11.Templates for DLMS/COSEM communication configuration standards;

31.Use of local area network based on twisted pair carrier signal;

46.Data link layer using HDLC protocol;

--- Part 47: DLMS/COSEM transport layer based on IP network;

51.Application layer protocol;

52.Communication Protocol Management Distribution Line Message Specification (DLMS) Server;

--- Part 53: DLMS/COSEM application layer;

61.Object Identification System (OBIS);

--- Part 62: COSEM interface class;

69.Common information model message set (IEC 61968-9) and DLMS/COSEM (IEC 62056) data model and agreement Mapping between sessions;

73.Wired and wireless M-Bus communication configurations for local and community networks;

1 Scope

GB/Z 17215.651-2022 specifies the application layer of DLMS/COSEM, the protocol suite that smart electricity meters use to talk to the systems that read them. Its defining feature is independence from the medium: the same application layer runs over power line carrier, radio, cellular and optical ports, so a utility can change the communication technology underneath - as it inevitably does across a twenty-year meter population - without changing how meter data is modelled or how the meter is addressed. That layer is where the

association between client and meter is established and secured, where objects are read and written, and where the compact encodings that matter on a constrained link are defined. This document describes the application layer architecture typically used to communicate with metering devices, regardless of the physical medium and lower-layer protocols, and applies to the protocols at the application layer. As a GB/Z it is a guiding technical document. Under ICS 17.220.20 and CCS N22, it is written for meter manufacturers, for the head-end and AMI system vendors on the other side of the link, and for the utilities specifying interoperable metering.

This document describes the architectural application layer typically used to communicate with metering devices, regardless of the associated physical What is the medium and low-level protocol. This document applies to protocols at the application layer other than the DLMS (Distribution Line Message Specification) model (covered by DL/T 790.441-2004).

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document. ISO /

IEC 8824.1990 Abstract Syntax Notation One (ASN.1) Specification for Open Systems Interconnection of Information Processing Systems One(ASN.1)] DL/T 790.441-2004 Distribution Automation Using Distribution Line Carrier Part 4-

41.Data Communication Protocol Application Layer Protocol Discussion - Distribution Line Telegram Specification (

IEC 61334-4-41.1996, IDT)

3 Terms, Definitions and Abbreviations

3.1 Terms and Definitions The terms and definitions defined in DL/T 790.441-2004 apply to this document.

3.2 Abbreviations The abbreviations defined in DL/T 790.441-2004 apply to this document.

4 Summary

4.1 Basic terms All communications involve two sets of equipment, denoted by the terms "calling system" and "called system". The caller is the one who decides to originate with the far A system that communicates with another party system (called the called party). These designations remain in effect throughout the correspondence. Communication is broken down into a certain number of transactions. Each transaction is represented by a

transmission from a sender to a receiver. In these transaction sequences During this period, the calling party and the called party act as sender and receiver in turn. The terms "client" and "server" have the same meaning as in the DLMS model (see DL/T 790.441-2004). The server is acting as The VDE (Virtual Distribution Equipment, see DL/T 790.441-2004) system is used to submit all special service requests, and the client computer is through a A system in which one or more services request the use of a server for a specific purpose. The case involving the calling party client and the called party server is undoubtedly the most common case, but based on the calling party server and the called party Communication with remote clients is also possible, especially for reporting emergency alert events.

4.2 Sublayer and protocol The described application layer model is subdivided into three sublayers of transport, application and DLMS. The names of each sublayer and protocol are shown in Table 1.