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NSAI Standards

Irish Standard
I.S. EN 13757-4:2019

Communication systems for meters - Part 4: Wireless M-Bus communication

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I.S. EN 13757-4:2019 is the adopted Irish version of the European Document EN 13757-4:2019, Communication systems for meters - Part 4: Wireless M-Bus communication

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13757-4

May 2019

ICS 33.200; 35.100.10; 35.100.20

Supersedes EN 13757-4:2013

English Version

Communication systems for meters - Part 4: Wireless M-Bus communication

Systèmes de communication pour compteurs - Partie 4 : Communication sans fil M-Bus

Kommunikationssysteme für Zähler - Teil 4: Drahtlose M-Bus-Kommunikation

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European foreword

This document (EN 13757-4:2019) has been prepared by Technical Committee CEN/TC 294 "Communication systems for meters", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2019, and conflicting national standards shall be withdrawn at the latest by November 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13757-4:2013.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

The main changes since EN 13757-4:2013 are as follows:

— Referenced standards have been updated to the most recent versions;

— Mode N, in the 169 MHz band has been extended to cover more frequencies see Clause 10;

— New C-field function code (Send User Data – No reply) added see 12.5.4;

— Extended timing tolerances for synchronous transmission see 12.6.2;

— Optional Forward Error Correction in the Link Layer added see 12.8;

— CI field for selectable Extended Link Layer added see 13.2;

— Management functions for link control added see Clause 14.

The standard is not affected by any of the requirements in Directive 2004/22/EC as it only covers the basic transmission of information from the meter to an external entity. The standard ensures that data transmitted cannot be modified without it being detected. Confidentiality, integrity and authenticity are provided by the capabilities specified in other parts of the EN 13757 series of standards. The standard does not specify any of the metering capabilities of the meter nor the metrological capabilities of the meter.

The standard enables encrypted transfer data either directly or as specified in other parts of the EN 13757 series of standards. The encryption ensures the confidentiality of any personal data.

The standard provides capabilities of interoperability of meters as requested in M/441 which can be used to improve the customer awareness of actual consumption.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

This European Standard belongs to the EN 13757 series, which covers communication systems for meters.

EN 13757-1 contains generic descriptions and a communication protocol.

EN 13757-2 contains a physical and a link layer for twisted pair based Meter-Bus (M-Bus).

EN 13757-3 describes the application layer protocols (often called M-Bus).

EN 13757-5 describes the wireless network used for repeating, relaying and routing for the different modes of EN 13757-4.

EN 13757-6 describes a twisted pair local bus for short distance (Lo-Bus).

EN 13757-7 describes transport and security services.

These upper M-Bus protocol layers can be used with various physical layers and with link layers and network layers, which support the transmission of variable length binary transparent messages. Frequently, the physical and link layers of EN 13757-2 (twisted pair) and EN 13757-4 (wireless) as well as EN 13757-5 (wireless with routing function) or the alternatives described in EN 13757-1 are used.

The different parts of this standard are complemented by CEN/TR 17167 that provides examples and supplementary information related to EN 13757-2, EN 13757-3 and EN 13757-7.

These upper M-Bus protocol layers have been optimized for minimum battery consumption of meters, especially for the case of wireless communication, to ensure long battery lifetimes of the meters. Secondly, it is optimized for minimum message length to minimize the wireless channel occupancy and hence the collision rate. Thirdly, it is optimized for minimum requirements towards the meter processor regarding requirements of RAM size, code length and computational power.

This standard concentrates on the meter communication. The meter communicates with one (or occasionally several) fixed or mobile communication partners which again might be part of a private or public network. These further communication systems might use the same or other application layer protocols, security, privacy, authentication, and management methods.

The European Committee for Standardization (CEN) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning Forward Error Correction given in 12.8.

CEN takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has ensured CEN that he/she is willing to negotiate licences either free of charge or under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with CEN. Information may be obtained from:

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1 Scope

This document specifies the requirements of parameters for the physical and the link layer for systems using radio to remotely read meters. The primary focus is to use the Short Range Device (SRD) unlicensed telemetry bands. The standard encompasses systems for walk-by, drive-by and fixed installations. As a broad definition, this European Standard can be applied to various application layers.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13757-1, *Communication systems for meters - Part 1: Data exchange*

EN 13757-2, *Communication systems for meters - Part 2: Wired M-Bus communication*

EN 13757-3:2018, *Communication systems for meters - Part 3: Application protocols*

EN 13757-5:2015, *Communication systems for meters - Part 5: Wireless M-Bus relaying*

EN 13757-7:2018, *Communication systems for meters - Part 7: Transport and security services*

EN 60870-5-1, *Telecontrol equipment and systems - Part 5: Transmission protocols - Section 1: Transmission frame formats (IEC 60870-5-1)*

EN 60870-5-2, *Telecontrol equipment and systems - Part 5: Transmission protocols - Section 2: Link transmission procedures (IEC 60870-5-2)*

ETSI EN 300-220-1, V3.1.1:2017-02, *Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz — Part 1: Technical characteristics and methods of measurement*

ETSI EN 300-220-2, V3.2.1:2018-04, *Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz — Part 2: Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU for non specific radio equipment*

ETSI EN 300-220−4, V1.1.1:2017, *Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz — Part 4: Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU; Metering devices operating in designated band 169,400 MHz to 169,475 MHz*

Draft ETSI EN 301 489−1, V2.2.0:2017, *ElectroMagnetic Compatibility (EMC) standard for radio equipment and services — Harmonised Standard covering the essential requirements of article 3.1(b) of the Directive 2014/53/EU and the essential requirements of article 6 of the Directive 2014/30/EU — Part 1: Common technical requirements*

ETSI EN 301-489−3, *Electromagnetic compatibility and Radio spectrum Matters (ERM) — ElectroMagnetic Compatibility (EMC) standard for radio equipment and services — Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz*

CCSDS 131.*0-B-2 (Consultative Committee for Space Data Systems (CCSDS)), August 2011,* Recommended standard for TM Synchronization and Channel Coding*, Issue 2*

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