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Incorporating corrigendum November 2015

BSI Standards Publication

Winter and road service area maintenance equipment — Data acquisition and transmission

Part 1: In-vehicle data acquisition

National foreword

This British Standard is the UK implementation of EN 15430-1:2015. It supersedes BS EN 15430-1:2007+A1:2011 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/513, Construction equipment and plant and site safety.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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English Version

Winter and road service area maintenance equipment - Data acquisition and transmission - Part 1: In-vehicle data acquisition

Matériels de viabilité hivernale et d'entretien des dépendances routières - Acquisition et transmission des données - Partie 1 : Acquisition des données véhiculaires

Winterdienst- und Straßenbetriebsdienstausstattung - Datenerfassung und -übertragung - Teil 1: Datenerfassung im Fahrzeug

This European Standard was approved by CEN on 28 May 2015.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 15430-1:2015) has been prepared by Technical Committee CEN/TC 337 "*Road operation equipment and products*", the secretariat of which is held by AFNOR.

This document supersedes EN 15430-1:2007+A1:2011.

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of an identical text or by endorsement, at the latest by February 2016, and conflicting national standards shall be withdrawn at the latest by February 2016.

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

The following changes haves been implemented in this new edition:

— Modify variable no.127 in Table 12 by adding the sentence in bold:

  Spreader mode (0=Idle or Transport, 1=Spreading or Spraying, 2=Unload Hopper, 3=Spreading and Spraying, 4 = Spreading, 5 = Spraying)

— Modify variable no.137 in Table 12 by adding the following remark:

  NOTE For spraying and spreading (SprMode=3), the value applies to the brine percentage of the spreading dosage only.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This protocol is meant to be used for data acquisition in fleet management applications in the field of municipal vehicles. The purpose of the protocol is to define how data of a vehicle or equipment is generated, stored and transferred to a board-computer system in the vehicle and from the board-computer to the software application in the office (refer to Figure 1). On the equipment or vehicle the data is generated by a “Data generator”. This data is stored, if present, into a buffer-memory. The “Data transmission handler” will send the data present in the buffer-memory to the “Board-computer” or “Data Acquisition System”. The buffer-memory is there to ensure that data does not get lost in case there is no transmission possible. The size or type of the buffer is not defined in this proposal. If there is no buffer or the buffer is too small to store new data, data will get lost.

To synchronise time-stamps of the vehicle/equipment with the Board-computer, a special record for time synchronisation is defined.

In this part the data acquisition and communication from vehicle/equipment to the Board-computer is defined.

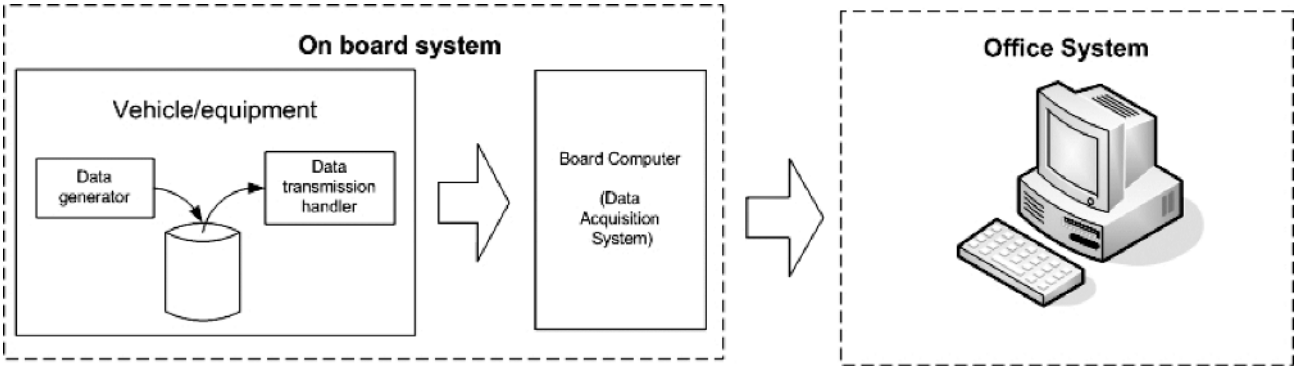

Figure 1 — Architecture

In general, the data is a semi-colon (“;”) separated ASCII text for separation of record codes and values of variables. CR+LF is used for separation of records (one record is one line of text).

Examples of an on-board system configuration.

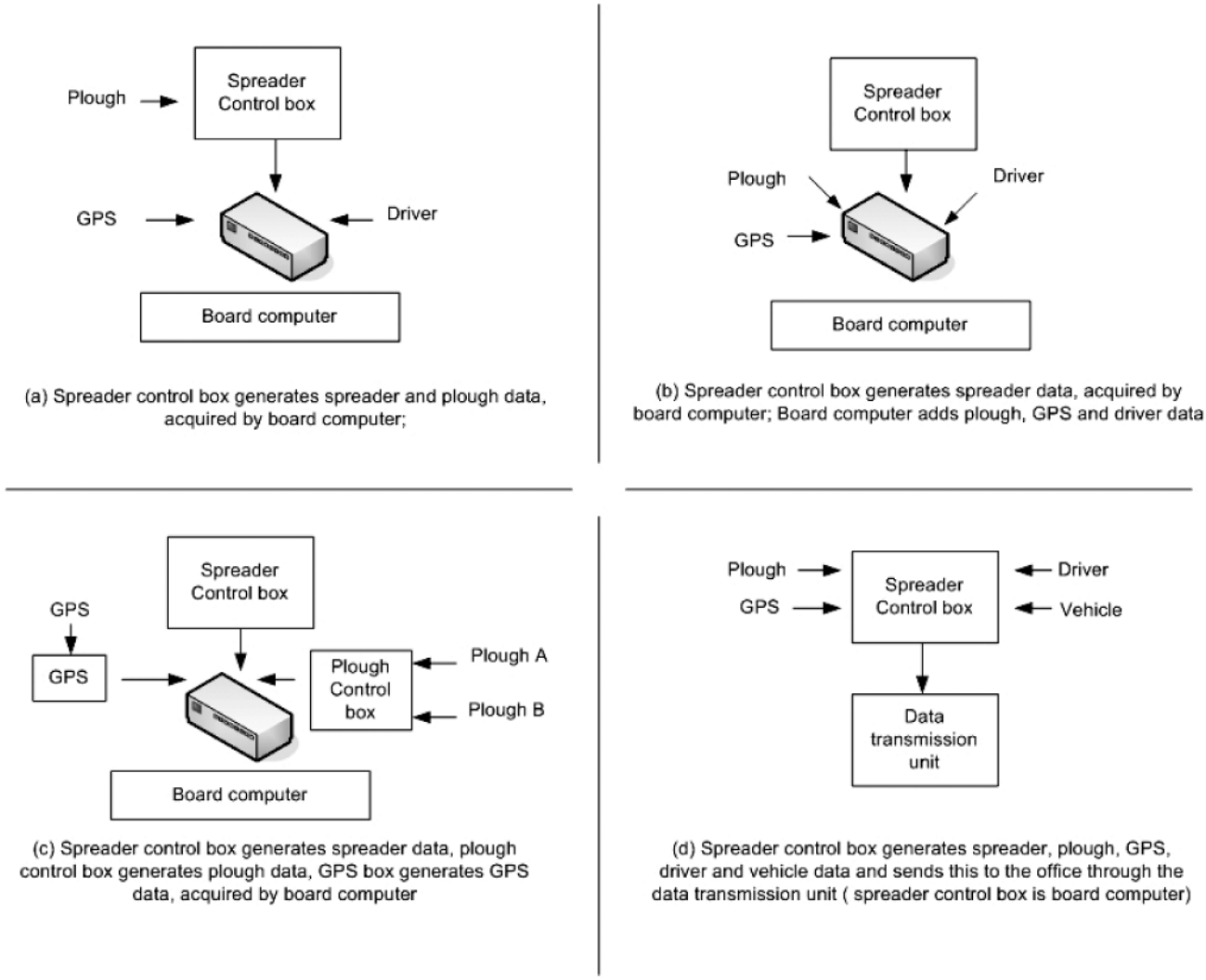

Figure 2 — Diagram of possible connections

1 Scope

This European Standard specifies a standardized protocol for downloading data from the equipment control box to an in-vehicle board computer to ensure interchangeability between a vehicle and different equipment that the same vehicle can carry.

It specifies the interface connection as well as variables, records and reports which permit standardized protocol to cover applications with the greatest possible variety of equipment for performing winter maintenance and road service area maintenance.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

NMEA 0183, *Interface Standard*

TIA-232-F, *Interface between data terminal equipment and data circuit-terminating equipment employing serial binary data interchange (RS232)*

SAE J1939/71, *Recommended practice for serial control and communications vehicle network — Vehicle application layer*

3 Abbreviations

ACK	Acknowledge (ASCII control code 06_h)
ASCII	American national Standard Code for Information Interchange
Bps	Bits per second
CRC-16	Cyclic Redundancy Code with 16 bits
CRC-32	Cyclic Redundancy Code with 32 bits
CR	Carriage Return (ASCII control code $0D_h$)
EOT	End Of Transmission (ASCII control code 04_h)
$_h$	Number before h is in hexadecimal notation
IEEE	Institute of Electrical and Electronics Engineers
LF	Line Feed (ASCII control code $0A_h$)
NAK	Negative acknowledge (ASCII control code 15_h)
SOH	Start Of Header (ASCII control code 01_h)
TBD	To Be Defined
↲	CR + LF (carriage return + line feed)