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

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 15430-1:2008+A1:2011 sisaldab Euroopa standardi EN 15430-1:2007+A1:2011 ingliskeelset teksti.	This Estonian standard EVS-EN 15430-1:2008+A1:2011 consists of the English text of the European standard EN 15430-1:2007+A1:2011.
Standard on kinnitatud Eesti Standardikeskuse 28.02.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 02.02.2011.	Date of Availability of the European standard text 02.02.2011.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 35.240.60, 43.160

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15430-1:2007+A1

February 2011

English Version

Winter and road service area maintenance equipments - 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 21 October 2007 and includes Amendment 1 approved by CEN on 27 December 2010.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Contents

Foreword

This document (EN 15430-1:2007+A1:2011) has been prepared by CEN/TC 337/WG 3 "Interface between tools and vehicle", the secretariat of which is held by UNI-CUNA, under the direction of Technical Committee CEN/TC 337 "Winter maintenance and road service area maintenance equipment", the secretariat of which is held by AFNOR.

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 August 2011, and conflicting national standards shall be withdrawn at the latest by August 2011.

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.

This document includes Amendment 1, approved by CEN on 2010-12-27.

This document supersedes EN 15430-1:2007.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\boxed{A_1}$.

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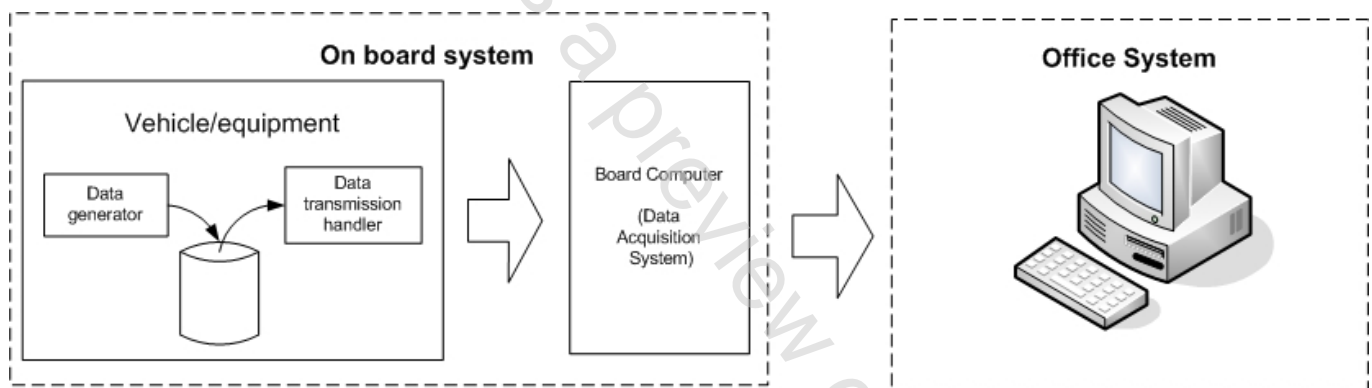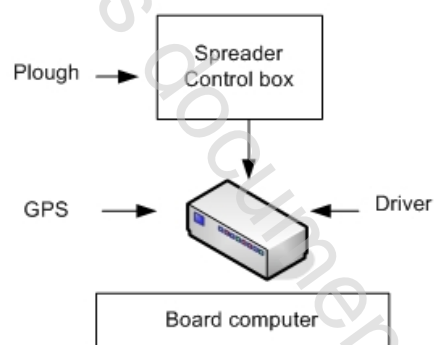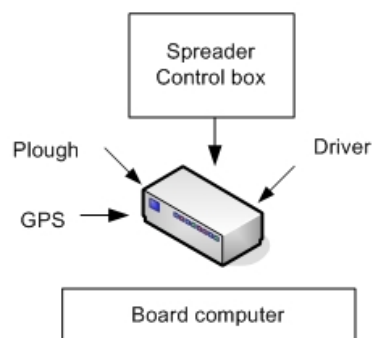

Figure 1 – Architecture

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).
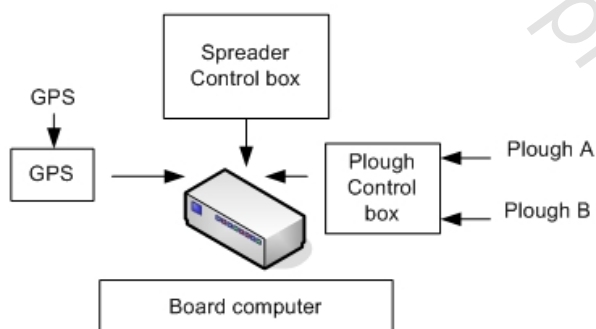
Examples of an on-board system configuration

(a) Spreader control box generates spreader and plough data, acquired by board computer;

(b) Spreader control box generates spreader data, acquired by board computer; Board computer adds plough, GPS and driver data

(c) Spreader control box generates spreader data, plough control box generates plough data, GPS box generates GPS data, acquired by board computer
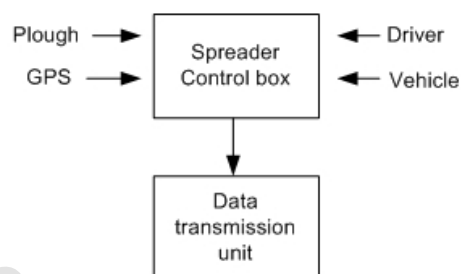
(d) Spreader control box generates spreader, plough, GPS, driver and vehicle data and sends this to the office through the data transmission unit (spreader control box is board computer)

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 equipments 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 equipments for performing winter maintenance and road service area maintenance.

2 Normative references

Ⓐ₁⟩ The following referenced documents are indispensable for the application 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. ⟨Ⓐ₁

Ⓐ₁⟩ ISO/IEC 8859-1 ⟨Ⓐ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 Terms and 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
Ⓐ₁⟩ CRC-32	Cyclic Redundancy Code with 32 bits ⟨Ⓐ₁
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)