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SIS-CEN/TS 15430-2:2012

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Utrustning för underhåll av intervägar och trafikområden – Insamling och överföring av data – Del 2: Protokoll för överföring av data mellan informationsleverantörens server och användarens server

Winter and road service area maintenance equipment – Data acquisition and transmission – Part 2: Protocol for data transfer between information supplier server and client application server

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Dokumentet är framtaget av kommittén för Utrustning för vägunderhåll, SIS/TK 455.

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TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 15430-2

March 2012

ICS 35.240.60; 43.160

English Version

Winter and road service area maintenance equipment - Data acquisition and transmission - Part 2: Protocol for data transfer between information supplier and client application server

Matériels de viabilité hivernale et d'entretien des dépendances routières - Acquisition et transmission des données - Partie 2: Protocole de transfert de données entre le serveur fournisseur d'information et le serveur d'applications clientes

Winterdienst- und Straßenbetriebsdienstausstattung - Datenerfassung und -übertragung - Teil 2: Protokoll für den Datentransfer zwischen dem Informationsanbieter-Server und dem Client Anwenderserver

This Technical Specification (CEN/TS) was approved by CEN on 14 February 2012 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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Foreword

This document (CEN/TS 15430-2:2012) has been prepared by Technical Committee CEN/TC 337 “Winter maintenance and road service area maintenance equipment”, the secretariat of which is held by AFNOR.

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 European Standard is one of the series CEN/TS 15430 "*Winter and road service area maintenance equipment - Data acquisition and transmission*" which consists of the following parts:

— *Part 1: In vehicle data acquisition*

— *Part 2: Protocol for data transfer between information supplier and client application server*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: 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, Turkey and the United Kingdom.

Introduction

This Technical Specification is the second part of EN 15430, the standard for data acquisition and transmission in the field of municipal vehicles. The goal of EN 15430 is to allow interoperability between systems (hardware and software) of different vendors. A customer should be able to combine

— any on-vehicle equipment (e.g. spreaders and ploughs),

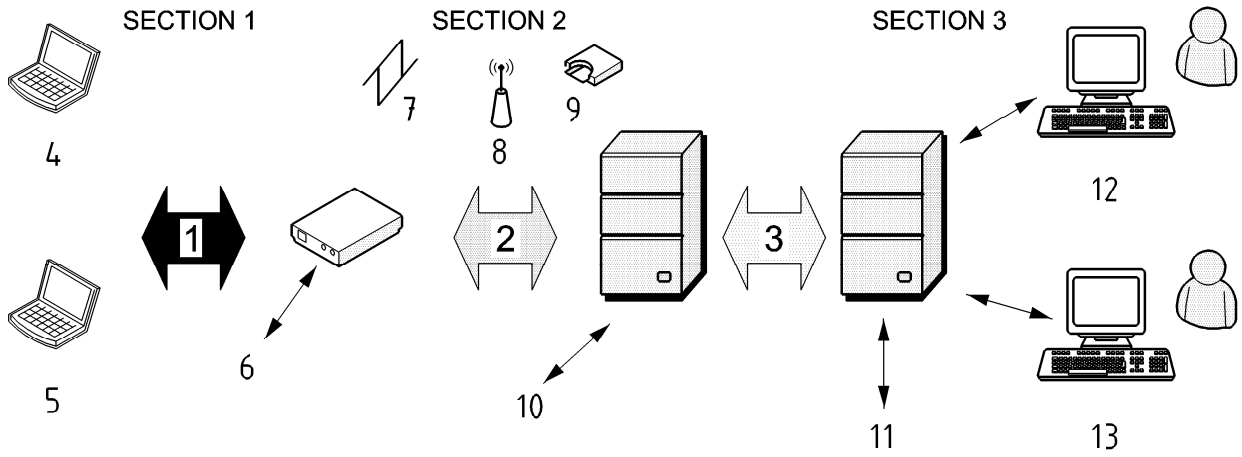
— any on-vehicle data acquisition systems (e.g. board computers or enhanced control boxes),

— any client application software (e.g. data bases, analysing or accounting software),

as long as they follow EN 15430.

EN 15430-1:2007+A1:2011 defines the on-board communication (flow 1) between on-vehicle equipment (data handler) and on-vehicle data acquisition systems (board computer). This document is meant to describe the data structure, types, ranges, protocol and initial settings required by the information supplier server (ISS) and client application server (CAS) including synchronized combining of the various data sources.

Figure 1 represents the whole data flow chain from vehicle to office system.



Key

1	flow 1	8	WLAN
2	flow 2	9	M-CARD
3	flow 3	10	information supplier server
4	data handler 1	11	application server
5	data handler n	12	client application 1
6	board computer	13	client application n
7	GSM/GPRS		

Figure 1 — Transmission flow

Data that are collected are operating data of the vehicles, which contain time information, geo reference data and machine status data. These data are stored in different memories: on the vehicle, in the facility where the vehicles are maintained and in office, where data are retrieved and analyzed. Due to the fact that the collected data can be used not only to supervise work contents and results, but also as proof in case of accidents, the integrity and the correctness of the data are important and indispensable. The present Technical Specification contains seamless integration of mechanisms into the data flow starting at the data sources and ending at data analysis on the client application server (CAS).

The present Technical Specification does not define any specific rules for items like

— optional compression, encryption and authentication of the data during data transfer (flow 2),

— data transmission between on-vehicle data acquisition system and information supplier server (flow 2).

Data transfer between on-vehicle data acquisition systems and the information supplier server has to be lossless, this means that reduction of data is not allowed. Lossy compression methods are not allowed.

In Figure 1, Section 1 defines the interface between devices and board computer, as described in EN 15430-1:2007+A1:2011. Section 2 addresses the combination of data from different streams and the transmission to a generic information supplier server. Section 3 addresses the data transfer (flow 3) between the information supplier server (ISS) and client application server (CAS) and it is the purpose of this document.

1 Scope

The function of this Technical Specification is to combine any vehicle equipment with different board computers to any client application server. The communication interface on vehicle is defined by EN 15430-1:2007+A1:2011. The interface between the information supplier server and the client application server is defined as a specific protocol (flow 3), object of the present Technical Specification. This makes interchangeability possible on both sides of the communication without any restriction in the range of communication technology including memory card, WLAN, GPRS or any other communication media.

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.

EN 15430-1:2007+A1:2011, *Winter and road service area maintenance equipments — Data acquisition and transmission — Part 1: In vehicle data acquisition*

ISO/IEC 9075 (all parts), *Information technology — Database languages — SQL*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
Information Supplier Server
ISS
entity able to store information coming from board computers and distribute these information to external applications (CAS) using server process

3.2
Client Application Server
CAS
entity able to retrieve information

3.3
h
number before h is in hexadecimal notation

4 Abbreviated terms

For the purposes of this document, the following abbreviations apply.

4.1
FTP
File Transfer Protocol

4.2
GPRS
General Packet Radio Service

4.3
GSM
Global System for Mobile communication

4.4
HTTP
Hyper Text Transfer Protocol

4.5
ASCII
American national Standard Code for Information Interchange

4.6
CRC-32
Cyclic Redundancy Code with 32 bits

4.7
XML
Extended Markup Language

4.8
SQL
Structured Query Language (ISO/IEC 9075)

4.9
M-Card
Memory Card

4.10
P2P
Point-2-Point

4.11
RFC
Request For Comments

4.12
UMTS
Universal Mobile Telephone System

4.13
WAN
Wide Area Network

3.13
WLAN
Wireless Local Area Network

5 Tasks of the board computer

5.1 Classification

In EN 15430-1:2007+A1:2011, a data acquisition system like a board computer has been presented as a black box with at least the following main features implemented:

— receive data from a generic vehicle/equipment data transmission handler (e.g. through RS232 serial interface);

— store any incoming information in reports;

— generate one time stamp for every data message.