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Earth-moving machinery and mobile road construction machinery — Worksite data exchange —

Part 2:
Data dictionary

Engins de terrassement et machines mobiles de construction de routes — Échange de données sur le chantier —

Partie 2: Dictionnaire de données

Reference number
ISO 15143-2:2010(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 15143-2 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 3, *Machine characteristics, electrical and electronic systems, operation and maintenance*.

ISO 15143 consists of the following parts, under the general title *Earth-moving machinery and mobile road construction machinery — Worksite data exchange*:

- *Part 1: System architecture*
- *Part 2: Data dictionary*

Introduction

Electronic data exchange on the construction worksite is rapidly becoming a key technology enabling a number of advances in the construction industry. Moving from predominantly manual data collection methods to more automated data collection and communication will improve worksite quality control. Electronic data exchange will further aid in the scheduling of maintenance, the provision of supervisory functions to be conducted remotely from the worksite and the enhancement of the coordination between engineering tasks, construction management and day-to-day operations on the worksite.

The implementation of an electronic data communication system requires an *a-priori* definition and specification of the elements of data to be communicated. Specification of unique data elements for worksite communication involves the use of an application schema to diagrammatically identify the scenario in which each item of data is to be used. After the scenario has been described, data elements are assigned metadata attributes to fully define and describe the individual data element. The list of data elements with attributes are compiled in tabular form in a data dictionary, which forms the subject of this part of ISO 15143.

Generally, the purpose of data dictionaries is recognized to be the following:

a) to improve the ability to share data elements in a particular domain or among different domains;

b) to provide a base for better understanding of the semantic meaning and syntax of data elements;

c) to manage a data resource so as to maintain the correctness and consistency of the resource;

d) to provide a basis for the development of consistent databases and software that use databases.

Earth-moving machinery and mobile road construction machinery — Worksite data exchange —

Part 2: Data dictionary

1 Scope

This part of ISO 15143 specifies a data dictionary for the exchange of data in worksite data-controlled construction operations as specified in ISO 15143-1. It also applies to worksite data exchange for the purpose of services related to machine use (see ISO 15143-1:2010, Clause 4), and gives definitions of terms used in relation to the data dictionary.

For the purposes of data exchange between different systems, it includes

- identification, definition and specification of common items of data to be exchanged on typical earth-moving construction worksites,
- definition of application schema,
- metadata describing the attributes of each data element, and
- basic normative data elements with their attributes (in tabular format).

NOTE ISO 15143-1:2010, Annex A, describes the means to extend the data element table presented in Annex A of this part of ISO 15143.

2 Normative references

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.

ISO 5353:1995, *Earth-moving machinery, and tractors and machinery for agriculture and forestry — Seat index point*

ISO 15143-1:2010, *Earth-moving machinery and mobile road construction machinery — Worksite data exchange — Part 1: System architecture*

ISO 19107:2003, *Geographic information — Spatial schema*

ISO/IEC 10646, *Information technology — Universal Multiple-Octet Coded Character Set (UCS)*

ISO 16754, *Earth-moving machinery — Determination of average ground contact pressure for crawler machines*

ISO/IEC 11179-1:2004, *Information technology — Metadata registries (MDR) — Part 1: Framework*

ISO/IEC 11179-3:2003, *Information technology — Metadata registries (MDR) — Part 3: Registry metamodel and basic attributes*