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This document was prepared by GS1 (as EPCIS Standard, Release 2.0) and drafted in accordance with its editorial rules. It was adopted, under the JTC 1 PAS procedure, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

This third edition cancels and replaces the second edition (ISO/IEC 19987:2017), which has been technically revised.

The main changes are as follows:

— addition of JSON/SON-LD syntax (alongside XML);

— addition of REST bindings (alongside SOAP/WSDL);

— complete overhaul of UML diagrams;

— clarification on distinction between standard vocabulary and user vocabulary;

— new AssociationEvent;

— new “How” event dimension;

— overview of EPCIS even “dimensions” with cross-references to relevant sections in EPCIS (this document) and CBV (ISO/IEC 19988);

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— new Persistent Disposition indicating non-transient business state of an object;

— new SensorElement to accommodate sensor data;

— addition of certificationInfo to core EPCISEvent;

— update of SimpleEventQuery parameters;

— removal of support for Simple Master Data Query and EPCIS Master Data Document.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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1 Introduction

This document is a GS1 standard that defines Version 2.0 of EPC Information Services (EPCIS). The goal of EPCIS is to enable disparate applications to create and share visibility event data, both within and across enterprises. Ultimately, this sharing is aimed at enabling users to gain a shared view of physical or digital objects within a relevant business context.

"Objects" in the context of EPCIS typically refers to physical objects that are identified either at a class or instance level and which are handled in physical handling steps of an overall business process involving one or more organisations. Examples of such physical objects include trade items (products), logistic units, returnable assets, fixed assets, physical documents, etc. "Objects" may also refer to digital objects, also identified at either a class or instance level, which participate in comparable business process steps. Examples of such digital objects include digital trade items (music downloads, electronic books, etc.), digital documents (electronic coupons, etc.), and so forth. Throughout this document the word "object" is used to denote a physical or digital object, identified at a class or instance level, that is the subject of a business process step. EPCIS data consist of "visibility events," each of which is the record of the completion of a specific business process step acting upon one or more objects.

The EPCIS standard was originally conceived as part of a broader effort to enhance collaboration between trading partners by sharing of detailed information about physical or digital objects. The name EPCIS reflects the origins of this effort in the development of the Electronic Product Code (EPC). It should be noted, however, that EPCIS does not require the use of Electronic Product Codes, nor of Radio-Frequency Identification (RFID) data carriers, and does not even require instance-level identification (for which the Electronic Product Code was originally designed). The EPCIS standard applies to all situations in which visibility event data is to be captured and shared, and the presence of "EPC" within the name is of historical significance only.

EPCIS provides open, standardised interfaces that allow for seamless integration of well-defined services in inter-company environments as well as within companies. Standard interfaces are defined in the EPCIS standard to enable visibility event data to be captured and queried using a defined set of service operations and associated data standards, all combined with appropriate security mechanisms that satisfy the needs of user companies. In many or most cases, this will involve the use of one or more persistent databases of visibility event data, though elements of the Services approach could be used for direct application-to-application sharing without persistent databases.

With or without persistent databases, the EPCIS specification specifies only standard data sharing interfaces between applications that capture visibility event data and those that need access to it. *It does not specify how the service operations or databases themselves should be implemented.* This includes not defining how the EPCIS services should acquire and/or compute the data they need, except to the extent the data is captured using the standard EPCIS capture operations. The interfaces are needed for interoperability, while the implementations allow for competition among those providing the technology and implementing the standard.

EPCIS is intended to be used in conjunction with the GS1 Core Business Vocabulary (CBV) standard [CBV2.0]. EPCIS and the CBV are developed, maintained and published by GS1; EPCIS and the CBV are also published within ISO's PAS process as ISO/IEC 19987 and ISO/IEC 19988, respectively. The CBV standard provides definitions of data values that may be used to populate the data structures defined in the EPCIS standard. The use of the standardised vocabulary provided by the CBV standard is critical to interoperability and critical to provide for querying of data by reducing the variation in how different businesses express common intent. Therefore, applications should use the CBV standard to the greatest extent possible in constructing EPCIS data.

The companion EPCIS and CBV Implementation Guideline [EPCISGuideline] provides additional guidance for building visibility systems using EPCIS and CBV, including detailed discussion of how to model specific business situations using EPCIS/CBV data and methods for sharing such data between trading partners.

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