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Application integration at electric utilities – System interfaces for distribution management – Part 4: Interfaces for records and asset management

Intégration d'applications pour les services électriques – Système d'interfaces pour la gestion de la distribution – Partie 4: Interfaces pour la gestion des dossiers et des biens

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APPLICATION INTEGRATION AT ELECTRIC UTILITIES – SYSTEM INTERFACES FOR DISTRIBUTION MANAGEMENT –

Part 4: Interfaces for records and asset management

FOREWORD

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International Standard IEC 61968 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

This bilingual version (2018-07) corresponds to the English version, published in 2007-07.

The text of this standard is based on the following documents:

FDIS	Report on voting
57/880/FDIS	57/901/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The French version of this standard has not been voted upon.

A list of all parts of the IEC 61968 series, under the general title *Application integration at electric utilities – System interfaces for distribution management*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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INTRODUCTION

The IEC 61968 series of standards is intended to facilitate *inter-application integration* as opposed to *intra-application integration*. Intra-application integration is aimed at programs in the same application system, usually communicating with each other using middleware that is embedded in their underlying runtime environment, and tends to be optimized for close, real-time, synchronous connections and interactive request/reply or conversation communication models. IEC 61968, by contrast, is intended to support the inter-application integration of a utility enterprise that needs to connect disparate applications that are already built or new (legacy or purchased applications), each supported by dissimilar runtime environments. Therefore, these interface standards are relevant to loosely coupled applications with more heterogeneity in languages, operating systems, protocols and management tools. This series of standards is intended to support applications that need to exchange data every few seconds, minutes, or hours rather than waiting for a nightly batch run. This series of standards, which are intended to be implemented with middleware services that exchange messages among applications, will complement, not replace utility data warehouses, database gateways, and operational stores.

As used in the IEC 61968 series, a DMS consists of various distributed application components for the utility to manage electrical distribution networks. These capabilities include monitoring and control of equipment for power delivery, management processes to ensure system reliability, voltage management, demand-side management, outage management, work management, automated mapping and facilities management. Standards interfaces are defined for each class of applications identified in the Interface Reference Model (IRM), which is described in IEC 61968-1.

This part of IEC 61968 contains the Clauses shown in Table 1.

Table 1 – Document overview for IEC 61968-4

Clause	Title	Purpose
1	Scope	The scope and purpose of the document are described.
2	Normative references	Documents that contain provisions which, through reference in this text, constitute provisions of this International Standard.
3	Reference and information models	Description of the relevant parts of the interface reference model, static information model and message type naming convention.
4	Records and asset management message types	Message types related to the exchange of information for network data sets, assets, and asset catalogues.

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APPLICATION INTEGRATION AT ELECTRIC UTILITIES – SYSTEM INTERFACES FOR DISTRIBUTION MANAGEMENT –

Part 4: Interfaces for records and asset management

1 Scope

This Part of IEC 61968 specifies the information content of a set of message types that can be used to support many of the business functions related to records and asset management. Typical uses of the message types defined in this Part of IEC 61968 include network extension planning, copying feeder or other network data between systems, network or diagram edits and asset inspection. Message types defined in other Parts of IEC 61968 may also be relevant to these use cases.

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.

IEC 61968-1, *Application integration at electric utilities – System interfaces for distribution management – Part 1: Interface architecture and general requirements*

IEC 61968-3, *Application integration at electric utilities - System interfaces for distribution management - Part 3: Interface for network operations*

3 Reference and information models

3.1 General

The message types defined in IEC 61968-4 are based on a logical partitioning of the DMS business functions and components called the IEC 61968-1 Interface reference model.

As described, in IEC 61968-1, the contents of the message types are based on a static information model to ensure consistency of field names and data types. Each message type is defined as a set of fields copied from the information model classes. The message types defined in this standard are intended to satisfy a majority of typical applications. In some particular project implementations, it may be desirable to modify the set of fields using a methodology such as that described in IEC 61968-1.

3.2 Interface reference model

It is not the intention of the IEC 61968 series to define the applications and systems that vendors should produce. It is expected that a concrete (physical) application will provide the functionality of one or more abstract (logical) components as listed in this standard. These abstract components are grouped by the business functions of the IEC 61968-1 Interface reference model.

3.3 Records and asset management functions and components

The Records and Asset Management part of the IEC 61968-1 Interface reference model shows those functions and typical components that are applicable to the message types defined in IEC 61968-4.

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For the message types defined in IEC 61968-4, it is expected that the typical abstract components listed below will be producers of information. Typical consumers of the information are the other components as listed in IEC 61968-1.

3.4 Static information model

The information model relevant to records and asset management consists of classes that provide a template for the attributes for each message. The classes are defined in detail in IEC 61970-301 or in future document IEC 61968-11.

4 Records and Asset message types

4.1 Summary

The records and asset message types describe information for the following types of document:

- network data set,
- change set,
- presentation,
- asset list,
- asset catalogue,
- type asset catalogue.

For all message types shown in IEC 61968-4, elements that correspond with CIM classes contain all native and inherited attributes of that class. Unless explicitly shown otherwise, all message type associations are simple associations.

4.2 Network Data Set message type

4.2.1 Message content

A NetworkDataSet message can contain data for any part of a distribution network typically selected for operational or extension planning studies. The message contents could be part of a feeder, a single feeder or more than one feeder. The data could be either the 'As built' network or a proposed network selected for analysis.

A NetworkDataSet message may contain references to other Documents containing static reference data such as TypeAssetCatalogue or AssetCatalogue. It may also contain references to Assets performing the roles of the associated types of PowerSystemResources. The same is true for other "leaf node" elements such as Organisations, Locations, and Measurements. In these cases, only the identifier for the referenced data is to be included in this message type. The actual data for referenced elements are provided through other types of messages (e.g.,TypeAssetCatalogue, AssetCatalogue, AssetList, Measurements).

The basic structure is a hierarchy as shown in Figure 1. The initial dynamic state of the network including switch positions is defined as a set of MeasurementValues. These values can be updated using the ShowMeasurementList message defined in IEC 61968-3.

4.2.2 Message format

Created NetworkDataSet, changed NetworkDataSet, show NetworkDataSet and deleted NetworkDataSet have the same message formats as shown in Figure 1.

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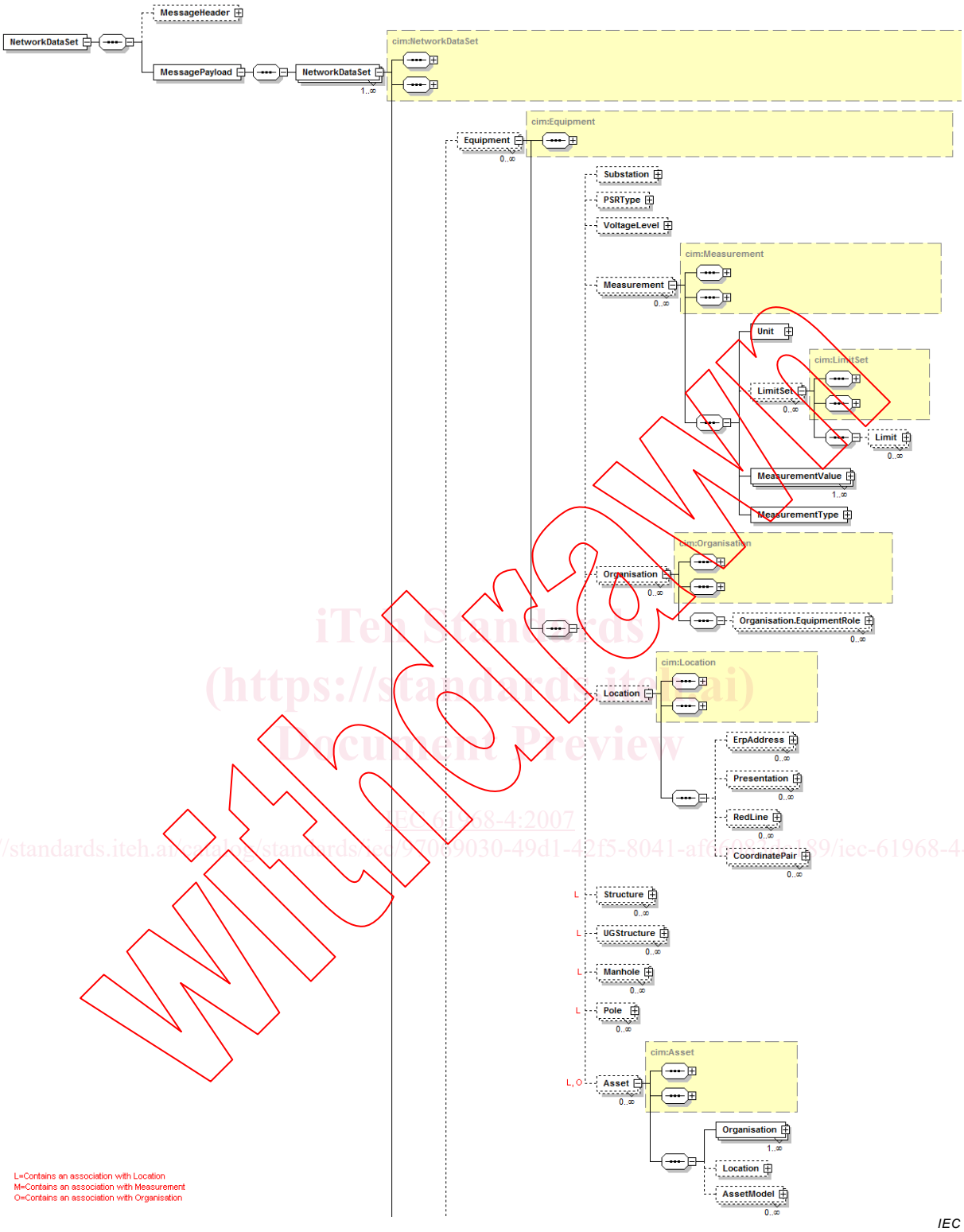

Figure 1 – Network Data Set message format *(continued on next page)*

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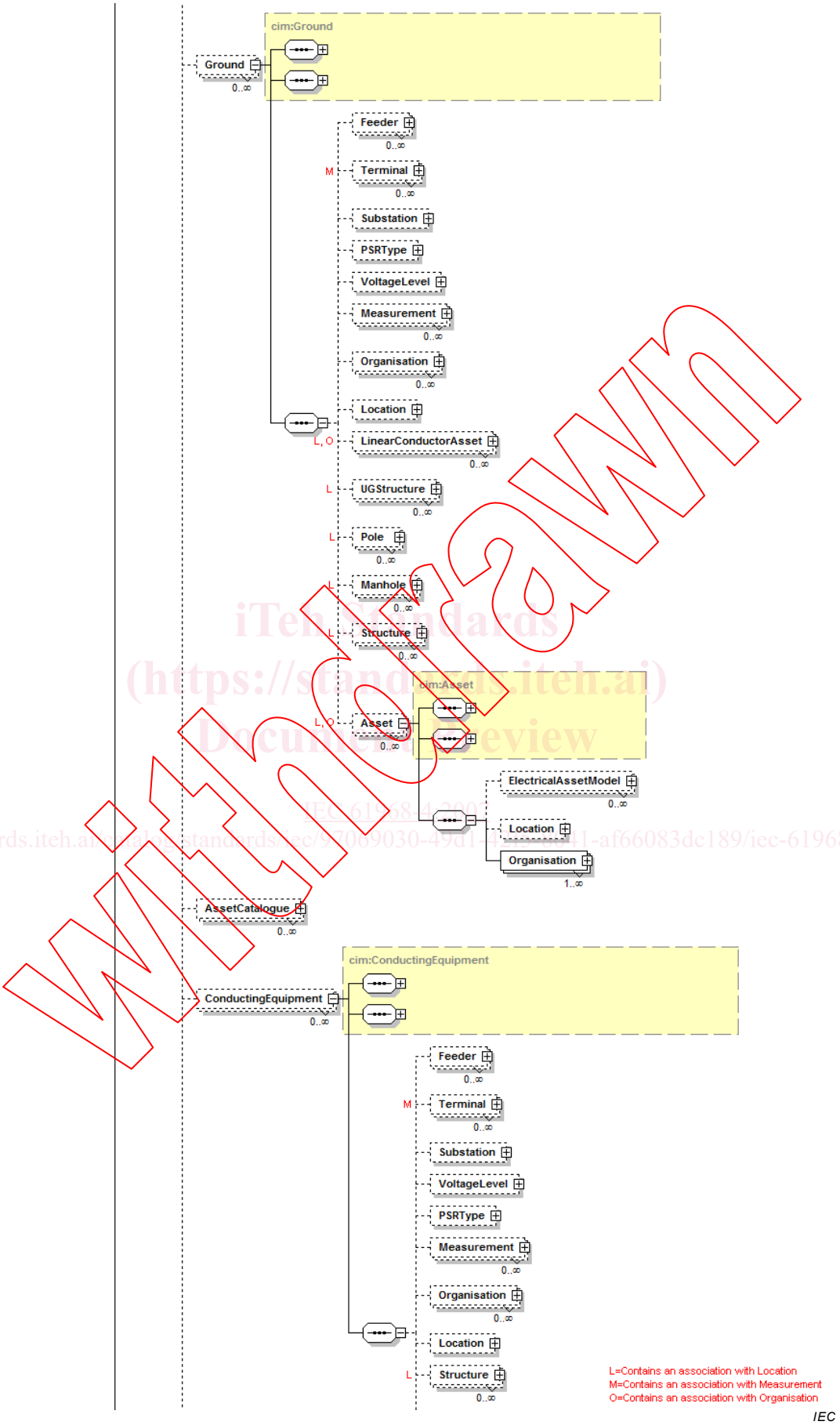

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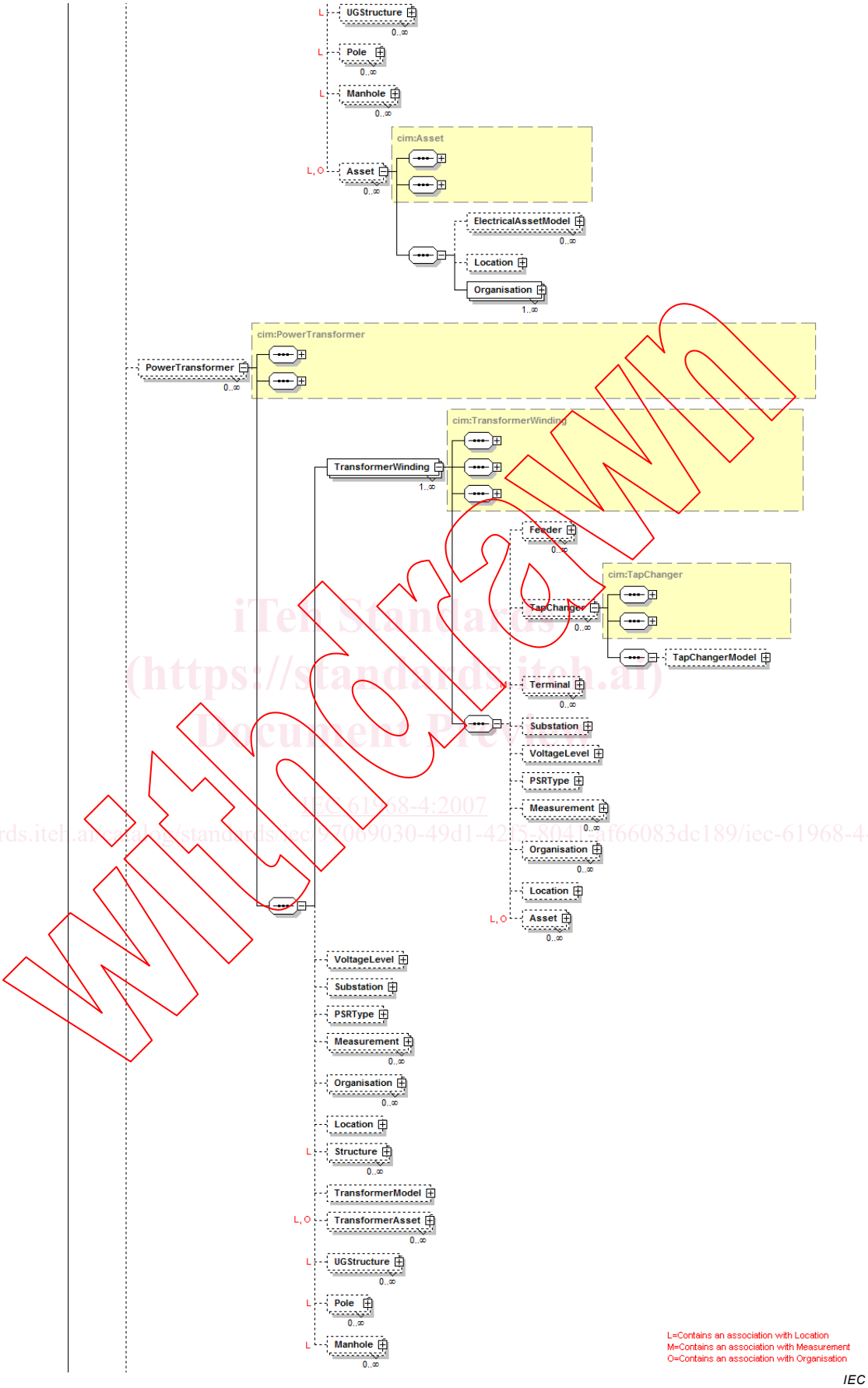

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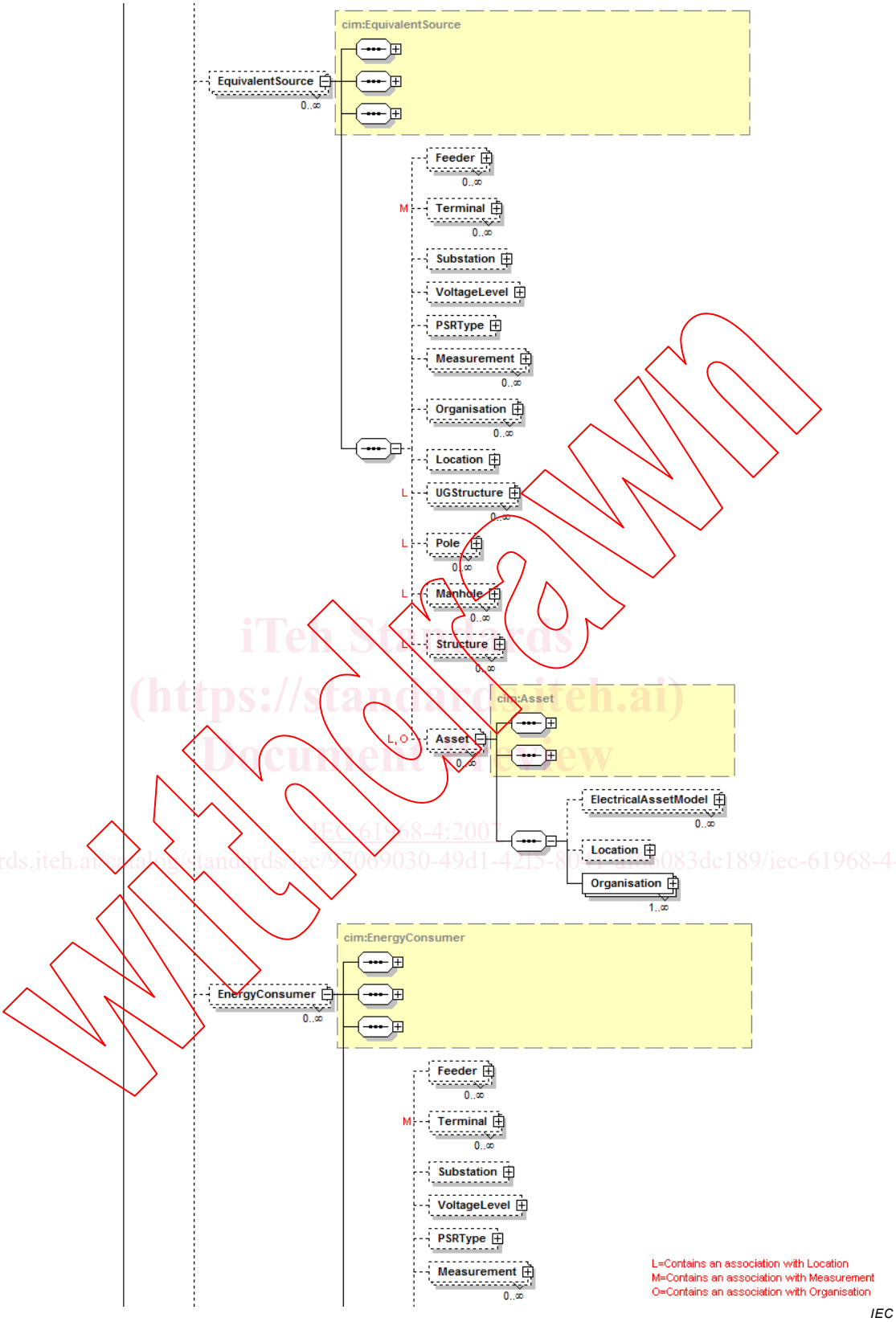

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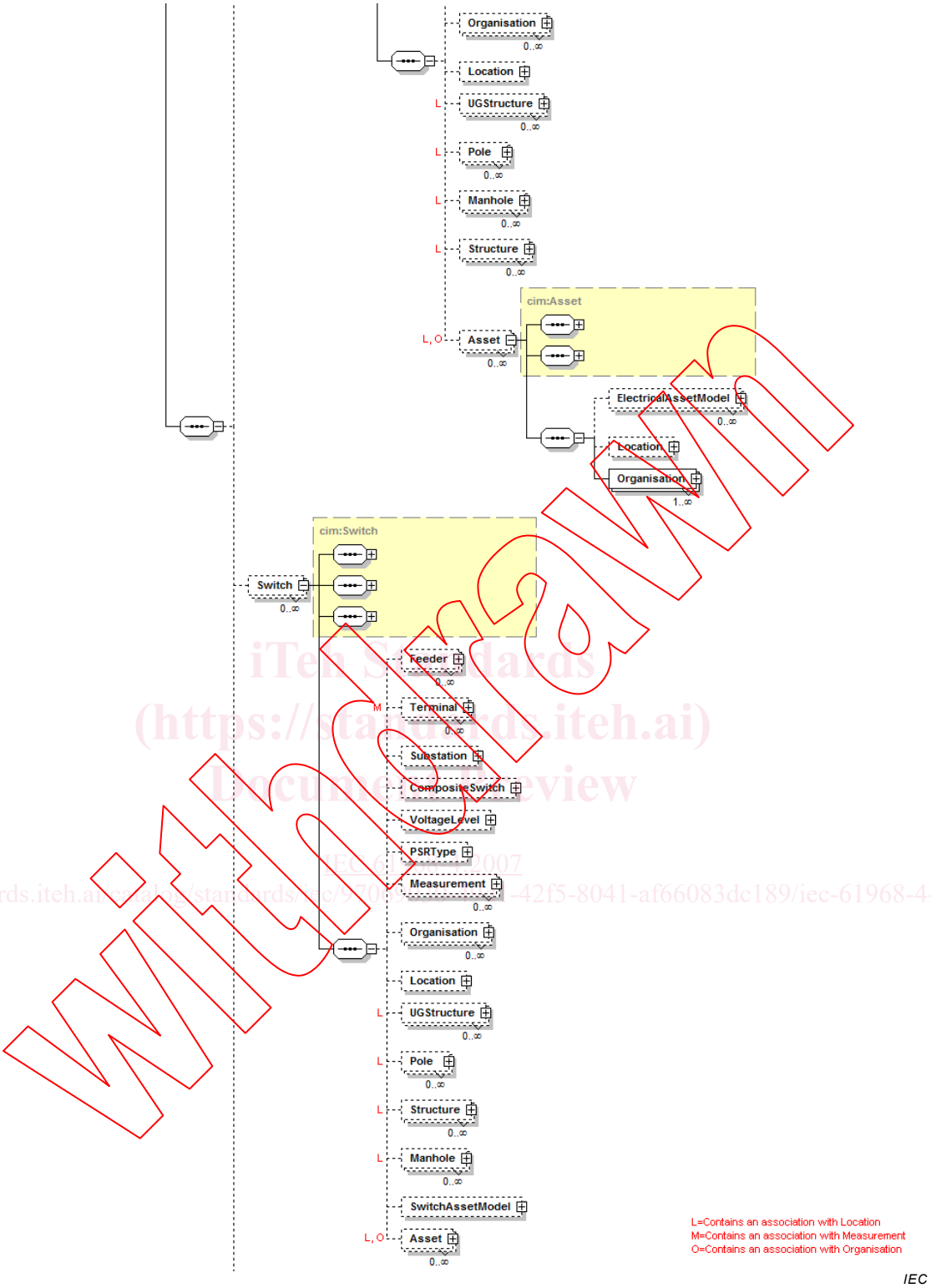

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