

UK Data Model for RFID in Libraries

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Introduction: What is the UK Data Model for ISO 28560-2?

RFID tags are placed in library books to enable the automated identification of each stock item. When stock is tagged, RFID technology can be used for self issue and return and for stock management functions such as stocktaking or smart blade stock systems.

ISO 28560, published in 2011, is an international standard for writing data to RFID tags. The standard has been issued in three parts: part 1 defines all the data elements available; parts 2 and 3 define two different methodologies for encoding these elements. The BIC/CILIP RFID in Libraries Group has decided that part 2 of the standard offers the greatest flexibility and performance.

The standard defines data elements designed to manage physical items throughout the supply chain. Not all of these are applicable to present or anticipated use in libraries. The Data Model prescribes those fourteen elements likely to be relevant to the way in which items are managed within the library.

There are only three mandatory fields; one is conditional, and the rest are optional.

The majority of the RFID suppliers active in the UK marketplace have agreed to adopt the Data Model. Libraries planning to implement RFID technology are therefore strongly advised to insist on compliance with the Data Model in their implementations. This will ensure maximum levels of interoperability between different systems (and libraries) as well as giving buyers the freedom to choose products from a wider range of suppliers.

The Data Elements

Mandatory and conditional elements

1. Primary item identifier

Mandatory in library usage (optional if the profile is being implemented earlier in the supply chain). In the library context the primary item identifier will normally be an existing barcode number.

*This field contains a unique identifier used to identify the individual copy of the book on which the RFID tag is placed (item level identification). This will usually contain the barcode number of the library book. (Note that this is **not** the ISBN or EAN13 number beginning with 978.)*

2. Content parameter

Mandatory in 28560-2: the OID index, (OID is the abbreviation for Object Identifier) – in effect a list of data elements present on the tag.

This field is used to tell the system which of the available elements is actually present on the tag. An entry in this element indicates that data is present and where it is stored. Its primary function is to speed the data acquisition 'cycle' when reading tags. It is more efficient for an RFID system to read this OID field first rather than scanning the entire tag in the same way as looking at the table of contents of a book reveals summary information about its content.

3. Owner library (ISIL)
Mandatory as defined by ISO 15511

This field identifies the owning library. The group felt that the long term advantages of having tags that uniquely identify institutions would facilitate the future creation of consortia, national interlending or simply resource sharing between different institutions.

The ISIL is an international standard for uniquely identifying libraries. ISO standard (ISO 15511) specifies the rules for creating the ISIL code. The British Library holds the UK agency for ISIL and issues ISILs for UK libraries. As this is a mandatory field, libraries which implement ISO 28560/2 will need to obtain an ISIL.

Alternatively ISO 28560-2 allows all countries to use the OCLC designation as an alternative identifier to that issued by their national agency. This was permitted primarily to deal with countries that have no ISIL agency of their own. The UK recommendation is to use the BL ISIL agency.

4. Set information

Conditional. Where an item is comprised of multiple components the element will be mandatory. Absence of data will indicate a single item.

*This field identifies that the tagged item is part of a set. Data is only present if an item **is** part of a set – it is therefore “conditional”.*

Systems use this information to verify the number of parts that should be present in a “set” (e.g. a book and a CD). By referencing the values present suppliers can signal exceptions to library staff or users accordingly. It can be seen therefore that the data will be very useful at the point of issue and return as well as during stocktaking activities.

The remaining elements have been defined for use by either LMS or RFID suppliers to use to provide additional functionality. Many existing systems have been using these elements to provide additional functionality – but in an unstructured way. The standard provides a means of regulating the ways in which data should be stored as well as offering a foundation for new system designs in the future.

5. Type of usage

Optional. Where this field is used, values defined in a table contained in Annex C of the standard will be used to supply values (see below).

The ISO working group has accepted a proposal to enable this field to be used for an additional ‘Non Circulating’ flag, which will enable the identification of sensitive material that is subject to restrictions if communication with the LMS is lost. The addition of this element will permit RFID solutions to establish whether an item may be loaned even when there is no LMS connection present. These code values are included in the Annex; and will be part of the 28560 Standard when it is formally revised.

6. Shelf location
Optional.

Location data for use with smart shelf solutions (constant stock monitoring for location or inventory purposes).

7. ONIX media format
Optional.

Media format code as defined by the ONIX standard.

8. MARC media format
Excluded.

9. Supplier identifier

Optional. Annex C of the draft standard suggests that this should be a national list regulated and defined by a national authority (see below).

The Annex allows for the creation of a national registry of library suppliers. Each supplier would be assigned a code (rather like the ISIL code for libraries). Some existing systems use this data to identify supplier when no LMS Acquisitions record is maintained – or to supplement the NAG label standard.

10. Order number
Excluded.

11. ILL borrowing institution (ISIL)
Optional as defined by ISO 15511.

Data in this field should comply with the same ISIL rules as element 3 if used.

12. ILL borrowing transaction number
Excluded.

13. GS1 Product identifier
Excluded.

14. Reserved for alternative unique item identifier
Excluded.

15. Local data A
Optional.

16. Local data B
Optional.

17. Title
Optional.

18. Product identifier (local)
Excluded.

19. Media format (other)
Excluded.

20. Supply chain stage
Optional.

Valid codes:

16 Manufacturer
24 Publisher
32 Distributor
48 Jobber
64 Library

- 21. Supplier invoice number**
Excluded.
- 22. Alternative item identifier**
Optional.
- 23. Alternative owner library identifier**
Excluded.
- 24. Subsidiary of an owner library**
Optional.
- 25. Alternative ILL borrowing institution**
Excluded.
- 26. Local data C**
Optional.

Relative-OID values 27 to 31 are currently reserved and provided in ISO 28560-1 for future internationally agreed extensions.

ISO 28560-1 Annex C (normative)

Type of usage code values

| Main qualifier | Class | Subqualifier | Usage |
|----------------|---------------------------------------|--------------|---|
| 0 | Acquisition item | 0 or absent | Acquisition item, unspecified |
| | | 1 | Acquisition item, for automated process |
| | | 2 | Acquisition item, for manual process |
| | | 3 - F | For future use within the class |
| 1 | Item for circulation | 0 or absent | Circulating item, unspecified |
| | | 1 | Circulating item, for automatic sorting |
| | | 2 | Circulating item, not for automatic sorting |
| | | 3 | Circulating item, not for issue while offline |
| | | 4 | Circulating item, not for return while offline |
| | | 5 | Circulating item, not for issue or return while offline |
| | | 6-F | For future use within the class |
| 2 | Item not for circulation | 0 or absent | Non circulating item, unspecified |
| | | 1 - F | For future use within the class |
| 3 - 4 | For local use | 0 or absent | For local use, unspecified sub-class |
| | | 1 - F | For local use within the class |
| 5 | For future use | 0 or absent | For future use, unspecified sub-class |
| | | 1 - F | For future use within the class |
| 6 | No information about usage on the tag | 0 or absent | If the type of usage data element is locked, with a type of usage which may change over time, it should be encoded as a 6 |
| | | 1 - F | Not to be used |
| 7 | Discarded Item | 0 or absent | Discarded item, unspecified |
| | | 1 | Discarded item, for sale |
| | | 2 | Discarded item, sold |
| | | 3 | Discarded item, for disposal |
| | | 4 - F | For future use within the class |
| 8 | Patron card | 0 or absent | Patron card, unspecified |
| | | 1 | Patron card, adult borrower |
| | | 2 | Patron card, young Adult borrower |
| | | 3 | Patron card, standard Child borrower |
| | | 4 - F | For future use within the class |
| 9 | Library Equipment | 0 or absent | Library equipment, unspecified |
| | | 1 | Personal Computer |
| | | 2 | Video Projector |
| | | 3 | Overhead projector |
| | | 4 | Whiteboard |
| | | 5 - F | For future use within the class |
| A - F | For future use | 0 or absent | For future use, unspecified sub-class |
| | | 1 - F | For future use within the class |

ISO 28560-1 Annex C (informative)

Country prefixes for supplier identifier

When tagging occurs by the supplier and not by the library automatic handling of new acquisitions becomes possible. The software to handle this will profit from a unique, standardised identification of the supplier. It is recommended to give this the following form:

- The country code with two Latin characters as defined in ISO 3166-1 for the supplier's country of origin.
- One or more characters to order the suppliers.

In each country an organisation can be made responsible for the administration of this ordering. This could be the same organisation as in the national structure to administer the national ISIL codes.