Overview of ISO/IEC and AIM standards supporting EU 2018/574 required data capture specifications

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EU 2018/574 requires the use of barcodes which are produced at very high-speeds (1,000 packs per minute) and so the barcodes must encode the shortest code length possible to look-up the business message either online (via the Repository) or offline (via flat-files). This means ISO/IEC 15459 (Automatic Identification and Data Capture) applies rather than ISO/IEC 15434 (use of high-capacity data carriers). GS1 provides the table below to the European Commission and other stakeholders to assess data capture specifications.

Identifiers with UIC that begin with a GS1 Issuing Agency Code (IAC)				Non-GS1 Identifiers (subject to confirmation by EuroData or EDIFICE)			
GS1 DataMatrix	GS1 QR Code	GS1 DotCode	GS1-128	Data Matrix	QR Code	Dot Code	Code 128
Start Character per ISO/IEC 16022:2006 = **FNC1 in first position**	Start Character per ISO/IEC 18004:2015= **Mode Indicator 0101**	Start Character per AIM: ISS DotCode = **Digits in first two positions and no FNC1 in first three positions**	Start Character per ISO/IEC 15417:2007 = **FNC1 in first position**	Start Character per ISO ISO/IEC 16022:2006 = **FNC1 in second position**	Start Character per ISO ISO/IEC 18004:2015= **Mode Indicator 1001**	Start Character per AIM: ISS DotCode = **FNC1 after one alpha or FNC1 after two digits**	Start Character per ISO ISO/IEC 15417:2007 = **FNC1 in second position**
Symbology Identifier Transmitted per ISO/IEC 15424 = **]d2**	Symbology Identifier Transmitted per ISO/IEC 15424 = **]Q3**	Symbology Identifier Transmitted per ISO/IEC 15424 = **]J1**	Symbology Identifier Transmitted per ISO/IEC 15424 = **]C1**	Symbology Identifier Transmitted per ISO/IEC 15424 = **]d1 or]d3**	Symbology Identifier Transmitted per ISO/IEC 15424 = **]Q1 or]Q5**	Symbology Identifier Transmitted per ISO/IEC 15424 = **]J0 or]J2**	Symbology Identifier Transmitted per ISO/IEC 15424 = **]C0 or]C2**
Data Qualifier per ISO/IEC 15418 = **GS1 Application Identifier**				Data Qualifier per ISO/IEC 15418 = **ANS MH10.8.2 Data Identifier**			
Encoded Group Separator per ISO/IEC 16022:2006 and GS1 General Specifications = **FNC1 or <GS>**	Encoded Group Separator per ISO/IEC 18004:2015and GS1 General Specifications = **<GS> or %**	Encoded Group Separator per AIM: ISS DotCode and GS1 General Specifications = **FNC1 or <GS>**	Encoded Group Separator per ISO/IEC 15417:2007 and GS1 General Specifications = **FNC1 or <GS>**	Encoded Group Separator per ISO/IEC 16022:2006 = **FNC1 or <GS>**	Encoded Group Separator per ISO/IEC 18004:2015 = **% or <GS>**	Encoded Group Separator per AIM: ISS DotCode = **FNC1 or <GS>**	Encoded Group Separator per ISO/IEC 15417:2007 = **FNC1 or <GS>**
Transmitted Group Separator per all four barcode symbol specifications = **<GS>**							

Scanning systems must be programmed to interpret the presence or absence of the FNC1 character (or implied modes for QR Code) at the beginning of a barcode to transmit symbology identifiers. The symbology identifier function then determines which Issuing Agency/ID Issuer specifications/rules are used to process the barcode's message string.

- For all ID Issuers with a GS1 issued UIC, the scanner will use data qualifiers to process upUI(s) versus upUI(L), aUI for transport units versus aUIs for standard product groupings, and GTIN for the retail trade in accordance with ISO/IEC 15459 and ISO/IEC 15418 standards.
- For ID Issuers with a UIC issued by an Issuing Agency other than GS1, specifications may vary.
  - Some may provide a qualifier for Time Stamp allowing for upUI(s) versus upUI(L) differentiation, some not.
  - Some may differentiate between transport unit aUIs and standard product grouping aUIs.
  - Some may include qualifiers to differentiate transport unit aUIs and standard product grouping aUIs, some may use characters within their UIs.
  - Some may provide GTIN, some may not.
    - For those that include GTIN, some may use qualifiers, some may use characters within their UIs.
    - For those that include GTIN, some may designate that GTIN is found in fixed positions within the UI, some not.

To get more information from ID Issuers please contact them. The list is available at https://www.gs1.org/sites/default/files/id_issuers_official.pdf