The Global Language of Business

GSMP:
General Specifications Change Notification (GSCN)

WR #	GSCN Name	Date
23-103	Digital Product Passport	09-Apr-2025

1 Associated Work Request (WR) Number:

-

2 Background:

Under the framework of the EU Green Deal, the European Commission has adopted the Ecodesign for Sustainable Products Regulation (ESPR) in 2024. The overall aim of the regulation is to reduce the lifecycle environmental impacts of products through efficient digital solutions. It also aims to enable the objectives of EU industrial policy such as boosting the demand for sustainable goods and supporting sustainable production. As an important instrument to achieve these ambitions, the regulation includes the concept of EU Digital Product Passport (EU DPP). The DPP is a mandatory data structure that will simplify digital access to product-specific information related to sustainability and circularity, enabling B2B, B2C and B2G data exchange. The DPP will be accessible via electronic means through the scan of an internationally standardised data carrier, enabling direct data accessibility. The data requirements regarding the products that consumers will have in their hands will be decided in EU delegated acts and per sector. The first DPPs will be fully operational and accessible through the EU prioritised products by February 2027.

The following provisional GS1 AIDC Application Standard aims to help GS1 standards users to prepare fulfilment of regulatory requirements regarding identification and data carrier as a means to access DPP data. See Section 2.1.X for the Application description.

Notations in the GSCN:

- "**ACTION**" shows what other GenSpecs sections need to be changed via work requests in order to be consistent with this new DPP application standard.
- Text in black is new text.
- Text in grey is existing GenSpecs text.
- Text in red represent proposed changes/additions to existing GenSpecs text that will be requested via work requests.

3 Important: This is being published as a *provisional GS1 standard*. Any implementor should note:

- This is NOT a ratified GS1 standard.
- The outcome of the listed actions below is uncertain.
- All aspects of this provisional GS1 standards are subject to change prior to ratification.

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2.1.13 Trade item extended packaging applications

ACTION:
The Circularity/DPP MSWG will submit a Work Request to the ID/AIDC SMG to modify the trade item extended packaging applications standard to allow:

- Its use with product packaging, product documentation or direct marking on a product (this implies a change to the application standard name).
- Its use to reach web content with a smart device's native camera (with or without additional software)
- Its use with any trade item not simply those used by a consumer (e.g., repair person, customs official) or those sold at point-of-sale (e.g., rail car product, construction material).
- Its AIDC carrier use within all AIDC application standards, covered by Application Standard Profiles, as additional AIDC carriers until their use as alternative AIDC carriers is realised per Policy B11.

SUBSEQUENT PROVISIONAL RELEASE ACTION:
After the EPC RFID/NFC Sub-Team completes its work, the MSWG will modify the data carrier selection to allow:

- If EPC/RFID with smart devices, as alternative AIDC carrier until Policy B11 requirements are met.
- If NFC with smart devices, as additional AIDC carrier per Policy B11. NFC cannot be proposed as a potential replacement for 2D as it is inappropriate for use in the open supply chain.

2.1.X Ecodesign for Sustainable Products Regulation (ESPR), products requiring a Digital Product Passport (DPP)

Application description

This application standard provides a GS1 normative response to a specific regulatory requirement. It covers identification of various entities (products, economic operators and facilities) and data carrier choices for products for the purpose of accessing a Digital Product Passport (DPP) per the *REGULATION (EU) 2024/1781 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC* (ESPR). The ESPR is the regulatory framework that, among several ambitious goals and new requirements, introduces the concept of a Digital Product Passport for products, components and intermediate products being placed on the EU market or put into service. As a consequence, ESPR impacts global trade with the potential of enabling the international circulation of sustainable products. Its overall goal is creating incentives for more sustainable product designs, for enabling consumers to make more sustainable product choices and for enabling an extended life cycle of a product or its material by refurbishment, repair and/or recycling. In short: a circular supply chain. Detailed requirements will be specified in delegated acts or other EU legislation for product categories where the ESPR is referenced and a DPP is established. In scope are product categories such as e.g. apparel, textiles and footwear, furniture, tyres, bed mattresses, detergents, paints, lubricants, toys, energy related products, information and communication technology products and other electronics, batteries, construction products as well as intermediary products such as iron and steel, chemicals, aluminium, as listed in the ESPR. Explicitly excluded are e.g. food, feed,

medicinal products and motor vehicles. If other regulatory authorities outside the EU adopt the EU approach, this application standard is intended to support their efforts and enable global interoperability.

The DPP is a set of data specific to a physical product that includes the information specified in the applicable delegated act. Access to this data will take place through a persistent unique product identifier, embedded in a data carrier on the product in a syntax that can enable access to web-based content. For this reason, there is a strong dependency between this application standard and others that enable value chain systems (e.g., for point-of-sale, inventory control, warranty, general distribution) as well as use by smart devices to reach web-content. Besides the unique product identifier, a unique economic operator identifier and a unique facility identifier are mandatory to register a product in the EU DPP registry before placing it on the EU market. All unique identifiers SHALL be ISO/IEC 15459 compliant identification keys. For the scope of this standard, these are limited to identification keys that begin with one of the ISO/IEC 15459 Issuing Agency Codes allocated to GS1: 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9.

Products

In scope are products placed or put into service on the EU market from the date defined in the relevant delegated acts. They may or may not be packaged. They may be Made-to-Stock or Made-to-Order trade items, including trade items composed of parts, components, or subassemblies (including packaging components as well) that are themselves products, some containing substances of concern, some sold aftermarket, some replaceable, some repairable, some not.

According to the *ESPR FAQ 61* there shall be one globally unique identifier for a specific product being placed on the EU market leading to one DPP. The DPP of the product being placed on the EU market may link to DPPs of contained parts, components or subassemblies if they are products themselves falling under the ESPR. Furthermore, the unique product identifier in the AIDC carrier shall enable a web-link to the Digital Product Passport. The ISO/IEC 15459 compliant unique product identifier in the GS1 system SHALL be the GTIN, possibly in conjunction with a product version, batch/lot or serial number depending on the relevant regulation per product category. Two important functions are supported by using GS1's GTIN per ISO/IEC 15459, GS1 Application Identifiers per ISO/IEC 15418, an AIDC carrier supported by the native scanning/reading capability at the OS level in smart devices, and an ISO/IEC 18975 web-enabled, structured path identifier GS1 Digital Link URI syntax):

1. By using the full URI with brand owner domain preceding the GS1 identifier, a link to public DPP information is enabled without the need for consumers to add additional software to their smart device.
2. As the identifier portion of the URI is structured, the identifier can be parsed from the URI, providing a unique, persistent, granular identifier that can be used to reach private DPP data including back-up DPP data.

The unique product identifier shall be encoded in a data carrier which must be placed on the product itself or, if not possible or not practical (e.g., laundry detergent), on its packaging or documentation accompanying it for the lifespan of the product as specified by the delegated act. The data carrier options for a product category will be defined in the delegated acts. The data carriers defined below for this GS1 application standard are to be confirmed after delegated acts are known.

If an ESPR compliant data carrier is already an option defined in the relevant GS1 identification standard, best practice would be to use only one single data carrier for multiple applications (e.g. scanning at point-of-sale (POS) and/or in general distribution, access to DPP information, consumer engagement). For trade items scanned at point-of-sale and/or in general distribution, whether fixed or variable measure, this opportunity can be realised by 2D barcodes encoding GS1 identifiers in a GS1 Digital Link URI (see section 8.2 to 8.5 "Agreement on conformant data carriers in the future").

Economic operators

Economic operators are the manufacturer/brand owner, the authorised representative of the manufacturer/brand owner, the importer, the distributor, the dealer and the fulfilment service provider dealing with products that are subject to the ESPR. The economic operator responsible for assigning the GTIN is the GTIN allocator and for creating the DPP is the brand owner. The economic operator responsible for making the DPP data available is the one placing the product on the market, e.g. the brand owner/manufacturer or its authorised representative when located within the EU, or the importer. Dealers must ensure that customers have access to relevant information accompanying the product required by EU delegated Acts including in cases of distance selling. The ISO/IEC 15459 compliant unique operator identifier in the GS1 system SHALL be the GLN.

Facilities

Facilities are locations or buildings involved in the value chain of a product. For the DPP, the identifier is required for the facility where the product was produced. The ISO/IEC 15459 compliant unique facility identifier in the GS1 system SHALL be the GLN.

2.1.X.1 Unique product identification per ESPR (referred to as trade item identification by GS1)

This section is applicable for new finished products, components and intermediary products being placed on the EU market and covered by a delegated act or other EU legislation requiring a DPP under the ESPR legal framework. These products require a unique product identifier as per ESPR.

Note: Remanufactured products are considered new products and fall under this section.

GS1 key

Required

Global Trade item Number (GTIN) in one of the formats (see list below) as permitted by the application standards for the intended distribution of the product. For example, application standards for retail point-of-sale do not permit the GTIN-14 format.

- GTIN-8
- GTIN-12
- GTIN-13
- GTIN-14

For Made-to-Stock products, AI (01) is used to encode the GTIN in below specified data carriers.

For Made-to-Order products, AI (03) is used to encode the compound GTIN in below specified data carriers.

Note: AI (03) has not been approved on products sold in the retail channel including online marketplaces.

ACTION:
The Circularity/DPP MSWG will submit a Work Request to the ID/AIDC SMG to rename Made-to-Order GTIN to Compound GTIN with a note pointing to the previous term as it is used in the MUDI-DI Application Standard. This name avoids confusion for some who manufacture products identified with AI (01) allocated per GTIN Rules for a specific customer order quantity. The term Compound GTIN is descriptive of the requirement to use GTIN with a key qualifier.

Technical industries to define GTIN rules for compound GTIN within the custom trade item application standard.

Rules

- When an additional barcode is required to support another application, the GTIN in both data carriers SHALL be the same value per section 4.15.
- To ensure uniqueness, the (01) GTIN SHALL never be reused per section 4.2.5.
- To ensure uniqueness, the combination of (03) GTIN and the mandatory key qualifier SHALL never be reused.

All the GTIN rules described in section 4 apply to GTINs with AI (01).

GTIN allocation rules for Made-to-Order GTINs are established at the application standard or product type within an application standard level. AI (03) is required to signal this GTIN requires an additional key qualifier to provide the unique identification of the physical entity.

Attributes

Delegated acts will specify which minimum granularity level (GTIN, GTIN with version, GTIN with batch/lot or GTIN with serial number) will be mandatory. The minimum granularity level may differ by product type or by various lifecycle stages for a product. For example, a GTIN may be used for selling online where a GTIN plus serial number may be used to provide repair or refurbishment attestations.

Note: GTIN key qualifiers for finer granularity levels such as version number, batch/lot number or serial number, may be encoded in the AIDC carrier for other processes, even if not required by regulation.

ACTION:

The Circularity/DPP MSWG will submit a Work Request to the ID/AIDC SMG to:

- Allow the use of AI (22) to signal any party (e.g., consumer, regulator, customs official, trading partner) that a change affecting one or more external parties to the brand owner does not require a GTIN change but does require the ability to communicate minor changes at the GTIN version level.
- Allow the use of AI (242) Made-to-Order variation number with a Made-to-Order GTIN AI (03).
- Deprecate the use of Indicator digit 9 for Custom Trade Items and allow technical industries to utilise AI (03) as a forward-looking approach with GTIN rules and mandatory key qualifiers for specific product types and/or use cases (e.g., Made-to-Order variation number for configurable products, SGTIN for a specific instance of a window)
- Rename AI (22) GTIN Version Number to remove confusion with a configuration variant of a product identified using (03) (242).

Background:

- Where a GTIN change, made according to GTIN Management Standard rules, is sufficient to differentiate two products as trade items (priced, ordered invoiced), then (01) is used without the need for additional GTIN key qualifiers (while they may be used for differentiation for other processes such as traceability, warranty returns).
- GTIN using Application Identifier (03), today called Made-to-Order GTIN, was first proposed at a conceptional level by the GS1 Architecture Group Finding, Section 4.1.2.
- The use of GTIN with (03) requires a Made-to-Order variation number, batch/lot number, or serial number to identify a product for the purpose of trade. This allows the (03) GTIN to be the same value for products that share a certain number of characteristics but differ in others that have a bearing on order fulfilment as not all products with the same (03) GTIN value can be substituted for each other as is the case with (01) GTIN. This means the (03) GTIN must be used with one of the GTIN key qualifiers mentioned above if there is a trade or regulatory requirement to distinguish the product from another product with the same (03) GTIN value.
- The rules for when the (03) GTIN must change and which GTIN key qualifiers are used for trade or other business processes will be defined in sector-specific application standards.
- The use of (03) GTIN supporting other business processes such as regulatory reporting at an aggregate level above the product level may require only (03) GTIN.
- The use of (03) GTIN supporting other business processes such as maintenance, repair, and operations may require the use of different GTIN key qualifiers. For example, repair of a specific instance of a product may require a (03) GTIN plus a serial number.

Required

For AI (01) GTIN, it will be determined based upon the level of identification granularity required per each delegated act. This could be at the GTIN level or one of the following key qualifiers could also be mandatory:

- For production batches, batch/lot number, AI (10)
- For production instances, serial number, AI (21)
- For product changes not requiring a GTIN change per GTIN Management Standard, GTIN version number, AI (22)

For AI (03) which of the following AIs is mandatory for the DPP will be determined based upon the level of identification granularity required per each delegated act:

- For production batches, batch/lot number, AI (10)
- For production instances, serial number, AI (21)
- For fixed product configurations, Made-to-Order variation number, AI (242)

Optional

For all the GS1 Application Identifiers (AI) that can be used with AI (01), see section 3.

Rules

- When an additional barcode is required to support another application, any data elements, including GTIN, that are encoded in two or more data carriers SHALL have the same value per section 4.15.
- The same product versions, batch/lot, serial number values may be used with different GTINs, as it is the combination of the GTIN and product versions, batch/lot, serial numbers that provides unique identification of the trade item. This permits decentralised allocation and shorter identifiers.
- Where GTIN change is not required by GTIN Management Standard rules, communications regarding product or packaging changes that impact DPP data sharing, could be identified with a version number All rules for trade item variants are described in section 4.2.2.3.
- Independent of the ESPR, once a GTIN is assigned to a product it SHALL not be reused per GS1 standards.

- Per delegated act requirements for identification granularity the entire identifier, inclusive of GTIN and its' key qualifier, SHALL not be reused for the life-cycle of the product as it pertains to the ESPR.

Human readable interpretation

For human readable interpretation rules see section 4.14.

Data carrier specification

Carrier choices

- QR Code with GS1 Digital Link URI syntax
- Data Matrix with GS1 Digital Link URI syntax
- EPC/RFID

Note: When EPC/RFID is used, it SHALL be in addition to QR Code or Data Matrix. The SGTIN EPC, corresponding to a compound key of AI (01) and AI (21), must be used. When the associated barcode carries AI (21), this SHALL encode the same, brand owner assigned Serial Number used to encode the Serial Number component of the SGTIN EPC on the EPC/RFID tag, taking care not to change any characters and neither add nor remove any leading zeros (see Section 4.15.1)

Note: This standard does not supersede the AIDC carrier choices within existing trade item application standards (see section 2.1). If one of the 2D barcodes above are not included in an existing trade item application standard, it SHALL be used in addition to the existing AIDC carrier until one of the 2D barcodes above is added as an alternative choice per Policy B11. If one of the barcodes above is already an option permitted as a choice in an existing trade item application standard, then best practice would be to use one of the choices above. Doing so will allow one 2D barcode to support multiple applications (e.g. scanning at POS and/or in general distribution, access to DPP information, and consumer engagement). For trade items scanned at Point-of-Sale see "agreement on conformant data carriers in the future" in sections 8.2, 8.3, 8.4, and 8.5.

ACTION:
The ID/AIDC SMG is already considering two additional ASPs, one for Fixed Measure Trade Items Scanned in General Distribution and one for Variable Measure Trade Items Scanned in General Distribution. Technical industry MSWG participants (construction and rail) require these to allow for the possibility that one AIDC carrier encoding GS1 Digital Link URI syntax can work with existing value chain applications as well as smart devices, therefore DPP. Once these ASPs are approved per Policy B11, the following words will be added to the Note above: *For trade items scanned in general distribution see "agreement on conformant data carriers in the future".*

The Circularity/DPP MSWG, on behalf of its Technical industry participants, will submit a Work Request to the ID/AIDC SMG to add QR Code and Data Matrix with GS1 Digital Link URI syntax and EPC/RFID as AIDC carriers permitted in addition to the existing (mandatory) choices for the following application standards:

- Section 2.1.7.1 Identification of a trade item that is a single product
- Section 2.1.10 Variable measure trade items scanned in general distribution
- Section 2.6.8 Custom Trade Items
- Identification of Components and Parts in the Rail Industry - Application Standard

Note: Data Matrix encoding GS1 Digital Link URI, based upon its aspect ratio (can be a rectangle) and size, may be required for small cylindrical products.

Note: Data carrier choices allowed per product category will be defined in delegated acts. See section 2.1.X.6 for already known requirements.

Symbol X-dimensions, minimum symbol height and minimum symbol quality

- For fixed measure trade items scanned at POS, see 5.12.3.1, GS1 symbol specification table 1, addendum 2.
- For fixed measure trade items scanned in general distribution and at retail POS, see 5.12.3.3, GS1 symbol specification table 3.
- For fixed measure trade items scanned in general distribution only, see 5.12.3.2, GS1 symbol specification table 2.
- For variable measure trade items scanned in general distribution only, see 5.12.3.2, GS1 symbol specification table 2.

- For variable measure trade items scanned at retail POS, see 5.12.3.1, GS1 symbol specification table 1, addendum 2.
- For Direct part marking (all industries) see 5.12.3.7, GS1 symbol specification table 7.
- For packaged components and parts in the rail industry see 5.12.3.4, GS1 symbol specification table 4

ACTION:
The Circularity/DPP MSWG will submit a Work Request to the ID/AIDC SMG to add a note in GenSpecs Section 2.1.13.1 GS1 Digital Link URI syntax for extended packaging applications for trade items similar to the one in the DPP application standard which states, "This standard does not supersede the AIDC carrier choices or Symbol Specification Table selections within existing trade item application standards (see section 2.1). If one of the 2D barcodes above are not included in an existing trade item application standard, it SHALL be used in addition to the existing AIDC carrier until one of the 2D barcodes above is permitted as an alternative choice per Policy B11. If one of the barcodes above is already an option permitted as a choice in an existing trade item application standard, then best practice would be to use one of the choices above. Doing so will allow one 2D barcode to support multiple applications (e.g. scanning at POS and/or in general distribution, access to DPP information, and consumer engagement)."

Symbol placement

The data carrier shall be placed on the product itself or, if not possible, on its packaging or documentation accompanying it.

If multiple barcodes are needed on one product for different applications, see section 4.15.1 non-adjacent placement rule.

If the data carriers defined in this application standard can be used simultaneously to cover another existing application standards (e.g. fixed measure trade items scanned at retail POS), then symbol placement rules of the existing application standards take precedence, see section 6.

Unique application processing requirements

For a description of processing requirements, see section 7.

2.1.X.2 Trade item components, parts or subassemblies, not covered by ESPR, that support gathering of ESPR relevant information

This section is applicable for trade item components (including packaging components), parts or subassemblies that are not subject to ESPR themselves, that are traded between business partners, but may not have had a need for globally unique identification in the open value chain before ESPR. This need arises as they are used to produce a product, subject to the ESPR, where data about them contributes to required DPP data required for their parent product.

Note: For a part, component, or subassembly that is not traded between business partners (internally produced and not sold in the aftermarket), this section may be considered but internal numbering may be sufficient.
Note: For packaging components used in the production of a product that are not themselves traded products (produced internally), see section 2.6.11.

GS1 key

Required

The key formats allowed for this application are:
- GTIN-8
- GTIN-12
- GTIN-13
- GTIN-14

For Made-to-Stock products, AI (01) is used to encode the GTIN in a data carrier.

For Made-to-Order products, AI (03) is used to encode the compound GTIN in a data carrier.

Note: AI (03) has not been approved on products sold in the retail channel including online marketplaces.

Rules

All the GTIN rules described in section 4 apply to GTINs with AI (01).

GTIN allocation rules for Made-to-Order GTINs are established at the application standard or product type within an application standard level.

Attributes

Required

For AI (03) one of the following AIs is mandatory independent of the ESPR requirements:

- For production batches, batch/lot number, AI (10)
- For production instances within a batch/lot, serial number, AI (21)
- For fixed product configurations, Made-to-Order variation number, AI (242)

Optional

For all the GS1 Application Identifiers (AI) that can be used with AI (01), see section 3.

Rules

- The same product versions, batch/lot, serial numbers can be used repeatedly with different GTINs, as it is the combination of the GTIN and product versions, batch/lot, serial numbers that provides unique identification of the trade item. This permits decentralised allocation and shorter identifiers.

Data carrier specification

Carrier choices

Refer to Section 2.1.7.1 and 2.1.10

Symbol X-dimensions, minimum symbol height and minimum symbol quality

Refer to Section 2.1.7.1 and 2.1.10

Symbol placement

All the symbol placement guidelines defined in section 6.

Unique application processing requirements

For a description of processing requirements, see section 7.

2.1.1X.3 Second-hand product identification per ESPR (referred to as non-new trade item identification by GS1)

Second-hand products (e.g., used, repurposed, refurbished, second life) are explicitly out of scope. The requirement for a DPP per ESPR only applies to new products. Nevertheless, a new product carrying an ESPR compliant identification and data carrier according to section 2.1.X.1, Product identification per ESPR, becomes a non-new trade item after its first use or customer purchase.

See section 2.1.15 for allocation rules when a non-new trade item will use the pre-existing GTIN (used when first placed on the market) or where a new GTIN is required and see section 6.9 for barcode placement.

2.1.X.4 Unique operator identification per ESPR (referred to as party identification by GS1)

This section is applicable for manufacturers/brand owners, authorised representatives, importers, distributors, dealers and fulfilment service providers (also referred to as economic operators) dealing with products that are

subject to the ESPR. A unique operator identifier as per ESPR is required for the registration process of the product in the EU registry before placing it on the EU market and it is part of the data of the DPP.

GS1 key

Required

- Party GLN

Note: If Party GLN were required by a delegated act within the AIDC carrier, but only for the party that is responsible for the DPP, then the Party GLN AI (417) would be used.

Rules

All the GLN rules described in section 4.5.

Attributes

Required

Not applicable

Optional

Not applicable

2.1.X.5 Unique facility identification per ESPR (referred to as physical location identification by GS1)

This section is applicable for locations or buildings involved in the value chain of a product that is subject to ESPR. These locations or buildings require a unique facility identifier as per ESPR as part of the DPP data.

GS1 key

Required

- GLN of a physical location

Rules

All the GLN rules described in section 4.5.

Attributes

Required

Not applicable

Optional

Not applicable

2.1.X.6 Overview of identification and data carrier specifications per product category

For following product categories there exist already regulations specifying the required granularity level and data carrier in order to access relevant digital product information. With more regulations and EU delegated acts coming up in future this section will be continuously updated.

Product category	Required granularity level	Required data carrier options	Regulation

LMT batteries, industrial batteries with a capacity greater than 2 kWh and electric vehicle batteries	GTIN + serial number	QR Code	*EU 2023/1542*
Construction products	TBD	TBD	*EU 2024/3110*

ACTION:
Public Policy experts to complete the Product Category column then review and check available requirements as well.

5.12.3.1 Symbol specification Table 1 - Trade items scanned in general retail POS and not general distribution

Existing section, no change

Figure 5.12.3.1-3. Symbol specification table 1 addendum 2 for 2D barcodes

Symbol(s) specified	X-dimension mm (inches)			Minimum symbol height for given X mm (inches)			Quiet Zone	Minimum quality specification
	Minimum	Target	Maximum	For minimum X-dimension	For target X-dimension	For maximum X-dimension	Surrounding Symbol	
GS1 DataMatrix (ECC 200) (*)	0.396 (0.0150")	0.495 (0.0195")	0.990 (0.0390")	Height is determined by X-dimension and data that is encoded			1X on all four sides	1.5/12/660
Data Matrix (GS1 Digital Link URI) (ECC 200) (*) (**)	0.396 (0.0150")	0.495 (0.0195")	0.990 (0.0390")	Height is determined by X-dimension and data that is encoded			1X on all four sides	1.5/12/660
QR Code (GS1 Digital Link URI) (*) (**)	0.396 (0.0150")	0.495 (0.0195")	0.990 (0.0390")	Height is determined by X-dimension and data that is encoded			4X on all four sides	1.5/12/660

5.12.3.2 Symbol specification table 2 - Trade items scanned in general distribution only

ACTION:
Application Standard Profiles (ASPs) for use of QR Code and Data Matrix with GS1 Digital Link for trade items scanned in General Distribution only will be developed via WR 24-207.

Text in grey is existing text, text in black is new.

Figure 5.12.3.2-1. GS1 symbol specification table 2

Symbol(s) specified	(*) X-dimension mm (inches)			(**) Minimum symbol height for given X mm (inches)			Quiet Zone		(***) Minimum quality specification
	Minimum	Target	Maximum	For minimum X-dimension	For target X-dimension	For maximum X-dimension	Left	Right	
EAN-13	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	34.28 (1.350")	45.70 (1.800")	45.70 (1.800")	11*X*	7*X*	1.5/10/660
UPC-A	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	34.28 (1.350")	45.70 (1.800")	45.70 (1.800")	9*X*	9*X*	1.5/10/660
UPC-E	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	34.28 (1.350")	45.70 (1.800")	45.70 (1.800")	9*X*	7*X*	1.5/10/660
ITF-14	0.495 (0.0195")	0.495 (0.0195")	1.016 (0.0400")	31.75 (1.250")	31.75 (1.250")	31.75 (1.250")	10*X*	10*X*	1.5/10/660

GS1-128	0.495 (0.0195")	0.495 (0.0195")	1.016 (0.0400")	31.75 (1.250")	31.75 (1.250")	31.75 (1.250")	10*X*	10*X*	1.5/10/660
GS1 DataBar Omni-directional	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	16.34 (0.644″)	21.78 (0.858″)	21.78 (0.858″)	None	None	1.5/10/660
GS1 DataBar Stacked Omni-directional	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	34.16 (1.346″)	45.54 (1.794″)	45.54 (1.794″)	None	None	1.5/10/660
GS1 DataBar Expanded	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	16.83 (0.663″)	22.44 (0.884″)	22.44 (0.884″)	None	None	1.5/10/660
GS1 DataBar Expanded Stacked	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	35.15 (1.385″)	46.86 (1.846″)	46.86 (1.846″)	None	None	1.5/10/660
GS1 DataBar Stacked	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	6.44 (0.254″)	8.58 (0.338″)	8.58 (0.338″)	None	None	1.5/10/660
GS1 DataBar Limited	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	4.95 (0.195″)	6.60 (0.260″)	6.60 (0.260″)	None	None	1.5/10/660
GS1 DataBar Truncated	0.495 (0.0195")	0.660 (0.0260")	0.660 (0.0260")	6.44 (0.254″)	8.58 (0.338″)	8.58 (0.338″)	None	None	1.5/10/660
GS1 DataMatrix (ECC 200) (****)	0.743 (0.0292)	0.743 (0.0292″)	1.50 (0.0591)	Height is determined by X-dimension and data that is encoded			1X on all four sides		1.5/20/660
GS1 QR Code (****)	0.743 (0.0292)	0.743 (0.0292)	1.50 (0.0591)	Height is determined by X-dimension and data that is encoded			4X on all four sides		1.5/20/660
QR Code (GS1 Digital Link URI) (*)	0.743 (0.0292)	0.743 (0.0292)	1.50 (0.0591)	Height is determined by X-dimension and data that is encoded			4X on all four sides		1.5/20/660
Data Matrix (GS1 Digital Link URI) (ECC 200) (*)	0.743 (0.0292)	0.743 (0.0292)	1.50 (0.0591)	Height is determined by X-dimension and data that is encoded			1X on all four sides		1.5/20/660

(*) GS1 Digital Link URI syntax SHALL use the uncompressed form.

5.12.3.3 Symbol specification table 3 - Trade items scanned at general retail POS and general distribution

Existing section, no change

Figure 5.12.3.3-2. Symbol specification table 3 addendum 1 for 2D barcodes

Symbol(s) specified	X-dimension mm (inches)			Minimum symbol height for given X mm (inches)			Quiet Zone	Minimum quality specification
	Minimum	Target	Maximum	For minimum X-dimension	For target X-dimension	For maximum X-dimension	Surrounding Symbol	
GS1 DataMatrix (ECC 200) (*)	0.743 (0.0292)	0.990 (0.0390″)	0.990 (0.0390″)	Height is determined by X-dimension and data that is encoded			1X on all four sides	1.5/20/660
Data Matrix (GS1 Digital Link URI) (ECC 200) (*) (**)	0.743 (0.0292)	0.990 (0.0390″)	0.990 (0.0390″)	Height is determined by X-dimension and data that is encoded			1X on all four sides	1.5/20/660
QR Code (GS1 Digital Link URI) (*) (**)	0.743 (0.0292)	0.990 (0.0390″)	0.990 (0.0390″)	Height is determined by X-dimension and data that is encoded			4X on all four sides	1.5/20/660

(*) 2D X-dimension - Optical effects in the image capture process require that the Data Matrix and QR Code symbols be printed at 1.5 times the equivalent X-dimension allowed for linear symbols.

(**)	GS1 Digital Link URI syntax SHALL use the uncompressed form.

5.12.3.4 Symbol specification table 4 - Trade items not scanned at POS or general retail - also not scanned in general distribution or regulated healthcare (retail or non-retail)

ACTION:
Work request is needed to update section 5.12.3.4 (including apertures for existing 2D symbols specified):

- Allow Data Matrix and QR Code with GS1 Digital Link URI Syntax
- Align aperture values to be 80% of the smallest X-dimension

Text in grey is existing text, text in black is new.

Figure 5.12.3.4-1. GS1 symbol specification table 4

Symbol(s) specified	(*) X-dimension mm (inches)			(**) Minimum symbol height for given X mm (inches)			Quiet Zone		Minimum quality specification
	Minimum	Target	Maximum	For minimum X-dimension	For target X-dimension	For maximum X-dimension	Left	Right	
GS1 DataMatrix (ECC 200)	0.380 (0.0150")	0.380 (0.0150")	0.495 (0.0195")	Height is determined by X-dimension and data that is encoded			1X on all four sides		1.5/08/660
GS1 QR Code	0.380 (0.0150")	0.380 (0.0150")	0.495 (0.0195")	Height is determined by X-dimension and data that is encoded			4X on all four sides		1.5/08/660
Data Matrix (GS1 Digital Link URI) (ECC 200) (****)	0.380 (0.0150")	0.380 (0.0150")	0.495 (0.0195")	Height is determined by X-dimension and data that is encoded			1X on all four sides		1.5/12/660
QR Code (GS1 Digital Link URI) (****)	0.380 (0.0150")	0.380 (0.0150")	0.495 (0.0195")	Height is determined by X-dimension and data that is encoded			4X on all four sides		1.5/12/660

(****)	GS1 Digital Link URI syntax SHALL use the uncompressed form.

5.12.3.7 Symbol Specification Table 7 - Direct part marking

ACTION:
Work request is needed to update section 5.12.3.7:

- Allow Data Matrix and QR Code with GS1 Digital Link URI Syntax
- Align aperture values to be 80% of the smallest X-dimension
- Align Minimum quality specifications as shown in line 6 and 7 of the table: DPM1.5/08-20/650/(45Q |30Q|30T|30 S|90)
- Replace "ISO/IEC TR 29158" with "ISO/IEC 29158" in all relevant GenSpecs sections

Text in grey is existing text, text in black is new.

Figure 5.12.3.7-1. GS1 symbol specification table 7

Symbol(s) specified	X-dimension mm (inches) Note 1 Note 4			Minimum symbol height for given X mm (inches)	Quiet Zone	Minimum quality specification	
	Minimum	Target	Maximum	For minimum, Target and Maximum X-dimension			
GS1 DataMatrix	0.254 (0.0100")	0.300 (0.0118")	0.615 (0.0242")	Height is determined by X-dimension and data that is encoded	1X on all four sides	1.5/06/660 **Note 3**	For direct marking of items other

							than medical devices
GS1 QR Code	0.254 (0.0100″)	0.300 (0.0118″)	0.615 (0.0242″)	Height is determined by X-dimension and data that is encoded	4X on all four sides	1.5/06/660 **Note 3**	For direct marking of items other than medical devices
GS1 DataMatrix Ink Based direct part marking	0.254 (0.0100″)	0.300 (0.0118″)	0.615 (0.0242″)	Height is determined by X-dimension and data that is encoded	1X on all four sides	1.5/08/660 **Note 3**	For direct marking of medical devices such as small medical/surgical instruments
GS1 DataMatrix direct part marking - A **Note 2**	0.100 (0.0039″)	0.200 (0.0079″)	0.300 (0.0118″)	Height is determined by X-dimension and data that is encoded	1X on all four sides	DPM1.5/04-12/650/(45Q|30Q|30T|30S|90) **Note 5**	For direct marking of medical devices such as small medical/surgical instruments
GS1 DataMatrix direct part marking - B **Note 2**	0.200 (0.0079")	0.300 (0.0118″)	0.495 (0.0195")	Height is determined by X-dimension and data that is encoded	1X on all four sides	DPM1.5/08-20/650/(45Q|30Q|30T|30S|90) **Note 5**	For direct marking of small medical/surgical instruments
QR Code (GS1 Digital Link URI) (*)	0.254 (0.0100″)	0.300 (0.0118″)	0.615 (0.0242″)	Height is determined by X-dimension and data that is encoded	4X on all four sides	1.5/08/660 **Note 3**	For direct marking of items other than medical devices
Data Matrix (GS1 Digital Link URI) (ECC 200) (*)	0.254 (0.0100″)	0.300 (0.0118″)	0.615 (0.0242″)	Height is determined by X-dimension and data that is encoded	1X on all four sides	1.5/08/660 **Note 3**	For direct marking of items other than medical devices

(*) GS1 Digital Link URI syntax SHALL use the uncompressed form.

Note 3: The effective aperture for GS1 DataMatrix and GS1 QR Code quality measurements SHOULD be taken at 80 percent of the minimum X-dimension allowed for the application. For direct part marking - A this would equate to an aperture of 3; for direct part marking – B this would equate to an aperture of 6 and for general healthcare label printing, an aperture of 8. See *ISO/IEC 15415* and *ISO/IEC 29158*.

9.1 GS1 glossary of terms and definitions

ACTION:
Work request needed to change existing definitions in section 9.1 as proposed below in red.

Text in black is new; text in red represents changes in existing definitions (shown in grey).

Term	Definition
batch/lot	~~Associates an item with information the manufacturer considers relevant for traceability of the trade item~~. a subset of a specific trade item associated with a production run, e.g. a specific manufacturing plant, specific date(s) and time(s).
brand owner authorised representative	any natural or legal person established in a geopolitical area who has received a written mandate from the brand owner to act on its behalf in relation to specified tasks with regard to the manufacturer's obligations (i.e., under a regulation)
circular supply chain	Encompasses the supply chain and post-customer lifecycle stages, e.g. repair, recycling. (See also "supply chain")
~~component/part~~ trade item component/part	~~an item that is intended to undergo at least one further transformation process to create finished goods for the purpose of downstream consumption.~~ A trade item intended to be incorporated into another trade item without any transformation to the trade item that is incorporated (see intermediary product)

Term	Definition
consumer	A person who buys, hires or receives a product for own use (e.g., retail shopper, online shopper).
~~consumer product variant~~ product version	An alphanumeric attribute of a GTIN assigned to a ~~retail consumer~~ trade item ~~variant~~ version for its lifetime.
customer	The party that receives, buys, or consumes an item or service (e.g., trading partner, consumer).
delegated act	adopted by the European Commission to supplement or amend certain elements of a legislative act. For example, a delegated act related to the ESPR (EU) 2024/1781 will specify the granularity level of the unique product identification and data requirements for the DPP for a specific product category.
digital product passport	a set of data specific to a product that includes the information specified by regulation or industry and that is accessible via electronic means through an AIDC data carrier that links to the information about a product through it's lifecycle.
distance selling	offer for sale of trade items, online or through other means of distance sales, whereby the potential customer cannot physically access the product
distributor	any natural or legal person in the supply chain, other than the manufacturer or the importer, who makes a product available on the market
economic operator	A business or other organisation which supplies goods, data, or services within the context of market operations. ~~Per EU 2018/574, related to requirement for EOID for each country in which a party operates a facility.~~
economic operator identifier (EOID)	used as per regulation (EU) 2018/574
facility	Locations (e.g., building, kiosk) involved in the value chain or used by actors involved in the value chain. ~~Per EU 2018/574, any location, building or vending machine where tobacco products are manufactured, stored or placed on the market.~~
facility identifier (FID)	used as per regulation (EU) 2018/574
granularity level of identification	Category, version, batch/lot or serial level of an identification key, where serial level is the most granular level.
GS1 key qualifier	A key qualifier is an additional attribute that is designated for use as part of a compound key (e.g., GTIN + serial number is a compound key, with the serial number being a key qualifier for the GTIN)
importer	any natural or legal person established in a geopolitical area who places a product from outside the geopolitical area on the market
intermediary product [BRAD: intermediary trade item]	A trade item that requires further manufacturing or transformation such as mixing, coating or assembling to make it suitable for customers.
life cycle	the consecutive and interlinked stages of a product's life, which includes for example raw material acquisition or generation from natural resources, pre-processing, manufacturing, storage, distribution, installation, use, maintenance, repair, upgrading, refurbishment and re-use
Made-to-Order (MtO) trade item	A bespoke (e.g., customised, personalised, configurable) product or service where the GTIN, allocated per application specific rules rather than the GTIN Management Standard, plus a compound key data element (Made-to-Order variant, lot number, serial number) is required to distinguish whenever any of the trade item declarations are different in any way that is relevant to the trading process.
Made-to-Stock (MtS) trade item	A product or service where a separate, unique GTIN, allocated per the GTIN Management Standard, is required to distinguish whenever any of the trade item declarations are different in any way that is relevant to the trading process.
non-new trade item	a trade item that is being made available for sale or use after its first use or ~~cosumer~~ customer purchase (e.g., used, repurposed, refurbished, second life). [GenSpecs section 2.1.1.4]
product category [BRAD: trade item category]	trade items that serve similar purposes and are similar in terms of use, or have similar functional properties, and are similar in terms of consumer/customer perception (e.g., apparel, consumer electronics, food and beverage, technical industries, construction)
recycling	any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes

Term	Definition
refurbishment	actions carried out to prepare, clean, test, service and, where necessary repair a non-new trade item in order to restore its performance or functionality within the intended use
remanufacturing	a process in which a new trade item is produced from existing trade items and in which at least one change is made that substantially affects the performance, purpose or type of the trade item
repair	actions carried out to return a defective or waste trade item to a condition where it fulfils its intended use
responsible economic operator	A party who has the responsibility for provision of DPP information.
second-hand product	tangible movable product that is suitable for further use as it is or after repair or refurbishment.
Subassembly trade item	a trade item, comprised of multiple trade items and/or parts, incorporated with other trade item(s) and/or part(s) to produce another trade item.
supply chain	the full lifecycle of a product from raw materials to delivery to the customer (see also "circular supply chain")
trade item instance	An individual trade item, e.g. a specific can of soup.
trading partner	The party (e.g., manufacturer, retailer, distributor, merchant, importer) within a value chain relationship (e.g., sell/buy, produce/consume, ship/receive).
unique facility identifier	used as per regulation (EU) 2024/1781
unique operator identifier	used as per regulation (EU) 2024/1781
unique product identifier	used as per regulation (EU) 2024/1781
value chain	all activities and processes that are part of the life cycle of a product, as well as its possible remanufacturing

9.3 GS1 abbreviations

Abbreviation	Term
DPP	Digital Product Passport
ESPR	Ecodesign for Sustainable Product Regulation