WR #	GSCN Name	Ratification Date
22-169	Removing GTIN-8 for trade item groupings	Sep 2022

Associated Work Request (WR) Number:

Background:

This Work request originated from the Application Standard Profile (ASP) sub team working as part of Global Migration to 2D programme to develop 'Current State ASPs'. When developing the current state ASP for **Fixed Measure trade items scanned in General Distribution** (Section 2.1.7) we found an inconsistency under **Trade item groupings of identical trade items** (Section 2.1.7.2) : • Only GTIN-13 and GTIN-12 listed as the Identification keys for this application in the application description • But GS1 Key required section allows for GTIN-8

Disclaimer:

For healthcare, the following carrier selections take precedence over the carrier choices above and apply to all regulated healthcare retail consumer trade items.

Figure 2.1.7.1-2. Healthcare carrier choices

Preferred option(s) (this is the long-term direction for AIDC marking)	First preference: GS1-128 symbology. After Jan 2010, GS1 DataBar is permitted for use on all trade items and therefore may be encountered in general distribution however use of GS1-128 is preferred as the scanners in the field today pervasively support it.
	Second preference: When one linear symbol cannot accommodate the field length of the data (exceeds 48 characters), two symbols should be used.
	Third option: Where the package or label size does not permit the use of the first two options, GS1 DataMatrix symbology are permitted but should be avoided wherever possible if the package could be scanned by a mounted conveyorised scanner.
Option in addition to the barcode	See the "data carrier specification carrier choices" recommendations on options in addition to the barcode at the end of section 2.1.5.
Other acceptable options (GS1 strongly supports existing options for symbol marking as a guiding principle and therefore supports all previous AIDC marking specifications)	See the "data carrier specification carrier choices" recommendations on other acceptable options found at the end of section 2.1.5.

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

For multi-sector use except for retail or regulated healthcare trade items see section 5.12.3.2, *GS1 symbol specification table 2*.

For regulated healthcare non-retail consumer trade items see section 5.12.3.8, *GS1 symbol specification table 8*.

For manufacturing and MRO processes see 5.12.3.4, *GS1 symbol specification table 4*.

Symbol placement

All the symbol placement guidelines defined in section 6.

Unique application processing requirements

For a description of processing requirements, see section 7.

2.1.7.2 Trade item groupings of identical trade items

Application description

A trade item grouping that is a predefined grouping of identical trade items. The manufacturer or supplier has the option of either assigning a unique GTIN-13 or GTIN-12 to each trade item grouping or assigning a unique GTIN-14. These 14-digit GTINs incorporate the GTIN (less its check digit) of the trade item contained in each grouping. The check digit for each GTIN-14 is then recalculated.

The indicators have no meaning. The digits do not have to be used in sequential order, and some may not be used at all. The GTIN-14 structure for trade item groupings creates extra numbering capacity.

Figure 2.1.7.2-1. GTIN-14 data structures

	Global Trade Item Number (GTIN)													
	Indicator	GTIN of contained trade items (without check digit)												Check digit
GTIN-8 based	N_1	0	0	0	0	0	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}	N_{14}
GTIN-12 based	N_1	0	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}	N_{14}
GTIN-13 based	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}	N_{14}

The indicator is a digit with a value of 1 to 8. It is assigned as required by the company that constructs the identification number. It can provide up to eight separate GTIN-14s to identify trade item groupings.

The check digit is explained in section 7.9. Its verification, usually carried out automatically by the barcode reader, ensures that the number is correctly composed.

Figure 2.1.7.2-2. Different groupings of the same trade item

Indicator	GTIN of trade item contained in the grouping, less its check digit	New check digit	Description	Quantity
	061414112345	2	Trade item	Single
1	061414112345	9	Trade item grouping	A grouping
…	…	…	…	…
8	061414112345	8	Trade item grouping	Another grouping
Indicators 1 to 8 may be used to create new GTIN-14s. When these eight indicators have been used, further groupings must be identified with either a GTIN-13 or GTIN-12. Indicator digit 9 is reserved for variable measure trade items, see section 2.1.10.				

For packaging configuration hierarchies that include a retail consumer trade item identified with a GTIN-13, GTIN-12, or GTIN-8, this GTIN must always be one of the relevant levels of packaging contained, usually the lowest level (see note below related to GTIN-14 assignment on the primary packaging). Restricted Circulation Numbers must not be used in this element string.

✅ **Note**: For regulated healthcare trade items on the primary packaging, the phrase "usually the lowest level" SHALL be interpreted as allowing for the use of GTIN-14 on packaging configurations below the retail consumer trade item level, if one exists. This interpretation may not be applied to other trade item categories such as Do It Yourself (DIY) or Foodservice.

Any product package which will encounter scanning or product listing for sale at point-of-sale SHALL be identified according to retail point-of-sale specifications.

When a GTIN change at the retail consumer trade item level is required, the GTIN change must be made at all configuration levels above the retail consumer trade item level. Where there is an association between primary packaging and retail consumer trade item levels and GTIN-14 assignment is used on the primary packaging, the GTIN-14 assigned to the primary packaging is based on the retail level GTIN. There are three scenarios to consider for the relationship of these GTIN assignments:

- If changes to the primary packaging drive the change of the GTIN assigned to the retail consumer trade item level, the GTIN of the primary packaging will change.

- If changes to retail consumer trade item level GTIN are not caused by a change in primary packaging, the GTIN at the primary package level may or may not change per the discretion of the brand owner.

- If additional retail level package(s) are introduced beyond the original retail package or replace the original retail package, the GTIN-14 on the primary packaging may remain tied to the original retail level GTIN.

GS1 key

Required

The allowed key formats for this application are:

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

  - **Note:** Product groupings created prior to 2023 may be identified with a GTIN-8. Starting on 1 January 2023, GTIN-8 SHALL NOT be used for application.

Rules

All the GTIN rules described in section 4.

Attributes

Required

For regulated healthcare non-retail consumer trade items the following levels of AIDC marking are specified:

Figure 2.1.7.2-3. Required attributes

AIDC marking level for regulated healthcare trade items	Key	Batch/lot number - AI (10)	Expiration date – AI (17)	Serial number – AI (21)	Other
Minimum	~~GTIN-8,~~ GTIN-12, GTIN-13, or GTIN-14	No	No	No	None
Enhanced	~~GTIN-8,~~ GTIN-12, GTIN-13, or GTIN-14	Yes	Yes	No	None
Highest – Brand owner AIDC marking	~~GTIN-8,~~ GTIN-12, GTIN-13, or GTIN-14	Yes	Yes	Yes	Potency AI (7004) for pharmaceutical, and for medical device kits with pharmaceutical (cases only for both situations)
Highest – Hospital AIDC marking of pharmaceutical	~~GTIN-8,~~ GTIN-12, GTIN-13, or GTIN-14	No	AI (7003) for short-life products	Yes	None
Hospital AIDC marking of medical devices	No	No	No	No	None

To manage healthcare data requirements within EPC/RFID tags, see section 3.11 and the most recent version of the *EPC Tag Data Standard*.

Optional

Not applicable

Rules

Not applicable

Data carrier specification

Carrier choices

- For multi-sector use symbols from the EAN/UPC symbology family (UPC-A, UPC-E and EAN-13) may be used to encode the GTIN-12 or GTIN-13 of the trade item grouping. ~~If used, the GTIN-8 is encoded in an EAN-8 barcode. GTIN-8 can only be used when all other packaging size constraints are met, see section 4.3.7.~~

- ITF-14 symbols may be used on trade item groupings where printing conditions require the application of a less demanding symbology. ITF-14 symbols can encode the GTIN-12, GTIN-13, or GTIN-14 of the item.

- A GS1-128 barcode or GS1 DataBar barcode with GS1 Application Identifier (01) may be used to encode a GTIN-12, GTIN-13, or GTIN-14 that identifies the trade item if the printing conditions allow. The choice of one of these symbologies is particularly relevant if there is a need to encode attribute information in addition to the identification number.

Some scanning systems may be able to handle 2D barcodes as well as linear barcodes. In these environments, GS1 2D symbols may be used in addition to linear symbols. For information on how to manage multiple barcodes see section 4.16.

For trade items used in manufacturing and maintenance, repair & overhaul (MRO) processes the following data carrier choices take precedence over the carrier choices above: GS1-128, GS1 DataMatrix, GS1 QR Code and EPC/RFID.

For healthcare the carrier selections noted at the end of section 2.1.7.1 take precedence over the carrier choices above and apply to all regulated healthcare retail consumer trade items.

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

For multi-sector use other than regulated healthcare trade items see section 5.12.3.2, *GS1 symbol specification table 2*.

For regulated healthcare non-retail consumer trade items see section 5.12.3.8, *GS1 symbol specification table 8*.

For manufacturing and MRO processes see 5.12.3.4, *GS1 symbol specification table 4*.

Symbol placement

All the symbol placement guidelines defined in section 6.

Unique application processing requirements

For a description of processing requirements, see section 7.

2.1.7.3 Trade item groupings of mixed trade items

Application description

A trade item grouping that is a predefined grouping of two or more different trade items.

For example:

- Product C is a grouping of Product A (GTIN 'A') and Product B (GTIN 'B'), and is identified with either a GTIN-12 or GTIN-13, GTIN 'C.'

- GTIN 'C' could then be used to construct a GTIN-14 for a trade item grouping comprised of Product C.

As shown in figure 2.1.7.3-1, the GTIN-12s 614141234561 and 614141345670 identify the two trade items in the assortment identified by the GTIN 614141456789.

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

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")	11X	7X	1.5/10/660
~~EAN-8~~	~~0.495 (0.0195")~~	~~0.660 (0.0260")~~	~~0.660 (0.0260")~~	~~27.35 (1.077")~~	~~36.46 (1.435")~~	~~36.46 (1.435")~~	~~7X~~	~~7X~~	~~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")	9X	9X	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")	9X	7X	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")	10X	10X	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")	10X	10X	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

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(*)	UPC-E ~~and EAN-8~~ symbols are designed for use on small packages. Whenever space permits, UPC-A, EAN-13, ITF-14, or GS1-128 symbols SHOULD be used in the general distribution scanning environment.
	The minimum symbol height dimensions listed for all symbologies including EAN/UPC symbols do not include the human readable interpretation (or bearer bars for ITF-14 symbols). The minimum heights of EAN/UPC symbols do not include the extended bars: see section 5.2.3.2 for dimensions of the extended bars. Because of the operative scanning environment for EAN/UPC symbols, there is a direct relationship between the symbol's height and width. This means the minimum symbol height is tied to the minimum, target and maximum X-dimension listed.
	ITF-14 symbols with X-dimensions below 0.635 millimetre (0.0250 inch) SHOULD NOT be printed directly on corrugate with conventional (plate-based) processes. The ITF-14 symbol's bar width ratio target is 2.5:1 and the acceptable range is 2.25:1 to 3:1.
	GS1-128 symbols have a maximum symbol length of 165.10 millimetres (6.500 inch), which may impact the maximum achievable X-dimension. For example, a GS1-128 symbol containing an SSCC has a maximum achievable X-dimension for 0.940 millimetre (0.0370 inch).