The Global Language of Business

GSMP:

General Specifications Change Notification (GSCN)

WR #	GSCN Name	Effective Date
17-248	NHRN Gs1 Portugal	**Nov-2017**

Associated Work Request (WR) Number:

17-000248

Background:

Commission Delegated Regulation (EU) 2016/161 - supplements Directive 2001/83/EC of the European Parliament and of the Council by laying down detailed rules for the safety features appearing on the packaging of medicinal products for human use.

This regulation states that all medicinal products within its scope must have a unique identifier on its packaging which consists of: product code, serial number, batch number, expiry date and a national reimbursement number, if required. This information must be encoded in a two-dimensional barcode (Data Matrix) and uploaded onto the national repository system by February 2019.
In order to comply with the national directive, medicinal products in Portugal must include:
1. Product Code (GTIN)
2. Serial Number
3. Batch Number
4. Expiry Date
5. National Healthcare Reimbursement Number (NHRN)

To encode this information in Data Matrix, Portugal needs to have a NHRN AI assigned.
If the medicinal products included do not comply with this regulation, they cannot be sold.

GS1 General Specification Change:

The recommended changes are highlighted below, relative to GS1 General Specifications version 17.1.

Disclaimer

2.1.2.3 Trade items intended for general distribution and POS

Trade items intended for general distribution and point-of-sale scanning must carry a barcode of the EAN/UPC or GS1 DataBar symbology. Therefore, these trade items support GTIN-12s or GTIN-13s (see section 2.1.2.1.2~~2.1.2.1.2~~). To support new applications additional GS1 approved data carriers (encoding additional data with the GTIN) may be applied with mutual agreement between trading partners. For information on how to manage multiple barcodes see section 4.16~~4.15~~.

2.1.2.4 Healthcare primary packaging (non-retail trade items)

Application description

Healthcare primary packaging trade items are pharmaceutical and medical products or their packages presented to support the point-of-care (direct consumption based on right product, dose, and route of administration). Because the product is never scanned at retail POS the use of symbologies beyond EAN/UPC and the use of GTIN-14 data structure is permitted. These products, which may be packaged in a sterile packaging system or in a non-sterile packaging system, are only marked when the package is intended for dispensing to the consumer in a hospital or equivalent facility (e.g. field hospital, nursing home, home healthcare). See section 4.16.1~~4.15.1~~ (Multiple barcode management practices for consumer trade items – all sectors), then 4.16.3~~4.15.3~~ (Multiple barcode management practices for healthcare) if the product is intended for scanning at general retail and also must meet regulatory requirements for this application section based on multiple market use.

If an item is a Regulated healthcare retail consumer trade item and also a non-retail trade item then the barcode marking for Regulated healthcare retail consumer trade items is required at a minimum.

GS1 key

Definition

- The GTIN-8 is the 8-digit GS1 identification key composed of a GS1-8 Prefix, item reference, and check digit used to identify trade items.
- The GTIN-12 is the 12-digit GS1 identification key composed of a U.P.C. Company Prefix, item reference, and check digit used to identify trade items.
- The GTIN-13 is the 13-digit GS1 identification key composed of a GS1 Company Prefix, item reference, and check digit used to identify trade items.
- The GTIN-14 is the 14-digit GS1 identification key composed of an indicator digit (1-9), GS1 Company Prefix, item reference, and check digit used to identify trade items.

Rules

All the GTIN rules described in section 4.

If the regulated healthcare retail consumer trade item to be marked on the primary packaging does not also have secondary packaging, then the primary packaging markings in this section do not apply and are replaced by the required markings in the secondary packaging section (2.1.2.5~~2.1.2.5~~).

> **Example:** a bottle of 50 pharmaceutical tablets (the primary package) is not enclosed into a carton (which would represent the secondary packaging). In this instance, the secondary packaging markings are required on the primary packaging level.

If the required AIDC marks are placed directly on the part, then those AIDC marks (e.g., barcode, human readable interpretation) satisfy the requirements for primary package marking. If those marks are functional (scannable) through the primary packaging, then no additional AIDC marks are required on the primary package.

If the product to be marked has primary packaging that is a blister pack containing several individual pharmaceutical items, for instance a blister pack of 12 pills or tablets, the following rules apply:

- GTIN is the only required mark.

- In addition to the GTIN rules described in section 4, see section 2.1.2.1.4~~2.1.2.1.4~~ for rules on deploying GTIN-8.

Attributes

Required

Figure 2.1.2.4-1. Overview of 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 (pharmaceutical only)	GTIN-8, GTIN-12, GTIN-13, or GTIN-14	No	No	No	None
Enhanced (med device only)	GTIN-8, GTIN-12, GTIN-13, or GTIN-14	Yes	Yes	No	None
Highest – pharmaceutical brand owner AIDC marking	GTIN-8, GTIN-12, GTIN-13, or GTIN-14	No	No	No	No
Highest – medical device - brand owner AIDC marking	GTIN-8, GTIN-12, GTIN-13, or GTIN-14	Yes	Yes	Yes	Active potency, AI (7004), for kits with pharmaceuticals
Highest – hospital AIDC marking of pharmaceutical	GTIN-8, GTIN -12, GTIN -13, or GTIN -14	No	Yes, Expiration date and time, AI (7003), if needed for short life items	Yes	None
Highest – hospital AIDC marking of certain medical devices (see section 2.1.2.7~~2.1.2.7~~)	GRAI, AI (8003), or GIAI, AI (8004), is optional if GTIN, AI (01), + serial number, AI (21), is not marked on the product.	No	No	GRAI, AI (8003), or GIAI, AI (8004), is optional if GTIN, AI (01), + serial number, AI (21), is not marked on the product.	

To manage healthcare data requirements within GS1 EPC/RFID tags, see section 3.11~~3.11~~ and the most recent version of the *EPC Tag Data Standard*.

Optional

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For compliance with a national/regional regulatory or industry requirement where the GTIN will not meet the need, a regulated healthcare trade item may be identified with GTIN and AI (710), AI (711), AI (712), AI (713), and AI (714~~3~~) National Healthcare Reimbursement Number. See section 3.8.17~~3.8.17~~ for details on the use of AI (710), AI (711), AI (712), AI (713), and AI (714~~3~~).

Rules

All the GTIN rules described in section 4.

National Healthcare Reimbursement Number AI (710), AI (711), AI (712), AI (713), and AI (714~~3~~) must always be used with the GTIN.

Human readable interpretation

For human readable interpretation rules see section 4.15~~4.14~~. For HRI rules specific to regulated healthcare retail consumer trade items, see section 4.15.1~~4.14.1~~.

Data carrier specification

Carrier choices

Figure 2.1.2.4-2. Carrier choices

Preferred option(s) (this is the long-term direction for AIDC marking)	GS1 DataMatrix symbology GS1-128 symbology GS1 DataBar symbology **NOTE:** If a product package serves multiple markets and in one market the specifications in section 2.1.2.1~~2.1.2.1~~ apply, then the specification for 2.1.2.1~~2.1.2.1~~ must be followed for encoding GTIN (at a minimum) and the rules for use of multiple symbols in section 5.5~~5.5~~ apply.
Option in addition to the barcode	EPC/RFID tag. GS1 expects the barcode as the minimum requirement for packaging however EPC RFID is an approved AIDC carrier which can be deployed in addition to the barcode.
Other acceptable options (GS1 strongly supports existing options for symbol marking as a guiding principle and therefore supports all previous AIDC marking specifications)	The following symbols have been permitted by GS1 and therefore could appear on some existing packages. For that reason, GS1 does not want to preclude them as an option, particularly where GTIN without additional data (Minimum ID) is required. With that said, symbols that allow all the data to be concatenated into one symbol are the preferred option. EAN/UPC symbology family (UPC-A, UPC-E, EAN-8 and EAN-13) may be used to encode the GTIN-8, GTIN-12 or GTIN-13 Identification. ITF-14 symbols may be used where printing conditions require the application of a less demanding symbology. It may not be used when attribute information is required. ITF-14 symbols can encode the GTIN-8, GTIN-12, GTIN-13, or GTIN-14 of the item. It is not used to encode attribute information. GS1 Composite Component is also used in combination with linear symbols by GS1 and therefore remains a legitimate option however, GS1 DataMatrix is preferred based on its ability to encode all information in one symbol and do so efficiently in terms of print speed and panel size.

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

See section 5.5.2.7.6~~5.5.2.7.6~~ symbol specification table 6

Symbol placement

All the symbol placement guidelines defined in section 6.

Unique application processing requirements

For a description of processing requirements, see section 7.

2.1.2.5 Healthcare secondary packaging (Regulated healthcare retail consumer trade items)

A regulated healthcare retail consumer trade item (RHRCTI) trade item not intended to be scanned in high volumes per consumer transaction at retail, but does require additional data beyond GTIN to support regulatory requirements. This means, these trade items support:

- GTIN-8, GTIN-12, or GTIN-13 data structures.
- GTIN attributes such as batch/lot number, expiration dates, or serial numbers.

They may be marked with 2D matrix barcodes that require imaging-based scanners or linear symbologies such as GS1 DataBar or GS1-128. If an item is a general retail consumer trade item and regulated healthcare retail consumer trade item, then the barcode marking for general retail is required at a minimum.

GS1 key

Definition

- The GTIN-8 is the 8-digit GS1 identification key composed of a GS1-8 Prefix, item reference, and check digit used to identify trade items.

- The GTIN-12 is the 12-digit GS1 identification key composed of a U.P.C. Company Prefix, item reference, and check digit used to identify trade items.
- The GTIN-13 is the 13-digit GS1 identification key composed of a GS1 Company Prefix, item reference, and check digit used to identify trade items.

GS1 firmly endorses the use of GTIN in all markets, however there are instances where GS1 Member Organisations have allocated a portion of their numbering capacity to identification schemes administered nationally by external agencies.

These coding schemes while recognised within the GS1 system framework by the assignment of a GS1 Prefix are defined, in Healthcare, as National Trade Items Numbers (NTINs) rather than Global Trade item Numbers (GTINs). NTINs are unique with respect to GTINs as their values are a subset of all possible values of GTIN. However, their definition, allocation and lifecycle rules are defined by an organisation external to GS1.

The degree to which NTIN definitions and rules are compatible with those of GTIN is specific to each National definition. Whilst NTIN will always provide globally unique identification within the GTIN pool of numbers, this does not mean NTIN provides the same level of interoperability as GTIN with other GS1 standards, such as GDSN and ONS. In markets where NTIN is adopted exclusively of GTIN the reciprocal nature of GTIN identification and marking across markets is lost and becomes problematic where one package which should serve multiple markets (e.g. common language) requires multiple NTINs rather than one GTIN.

Rules

In addition to the GTIN rules described in section 4, see section 2.1.2.1.4~~2.1.2.1.4~~ for rules on deploying GTIN-8.

Attributes

Required

Figure 2.1.2.5-1. Overview of 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 – Pharmaceutical & medical device	GTIN-8, GTIN-12, or GTIN-13	Yes	Yes	No	None
Enhanced – Pharmaceutical & medical device	GTIN-8, GTIN-12, or GTIN-13	Yes	Yes	No	None
Highest – Brand owner AIDC marking	GTIN-8, GTIN-12, or GTIN-13	Yes	Yes	Yes	Potency AI (7004) (for pharmaceutical, and for medical device kits with pharmaceuticals)
Highest – Hospital AIDC marking of pharmaceuticals	GTIN-8, GTIN-12, or GTIN-13	No	Yes, AI (7003) if needed for short life items	Yes	None
Highest - Hospital AIDC marking of certain medical devices (see section 2.1.2.7~~2.1.2.7~~)	GRAI, AI (8003), or GIAI, AI (8004), is optional if GTIN, AI (01), + serial number, AI (21), is not marked on the product.	No	No	GRAI, AI (8003), or GIAI, AI (8004), is optional if GTIN, AI (01), + serial number, AI (21), is not marked on the product.	

To manage healthcare data requirements within EPC/RFID tags, see section 3.113.11 and the most recent version of the *EPC Tag Data Standard*.

Optional

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For compliance with a national/regional regulatory or industry requirement where the GTIN will not meet the need, a Regulated Healthcare Trade Item may be identified with GTIN and AI (710), AI (711), AI (712), AI (713), and AI (7143) National Healthcare Reimbursement Number. See section 3.8.173.8.17 for details on the use of AI (710), AI (711), AI (712), AI (713), and AI (7143).

Rules

National Healthcare Reimbursement Number AI (710), AI (711), AI (712), AI (713), and AI (7143) must always be used with the GTIN.

Data carrier specification

Carrier choices

See the "data carrier specification carrier choices" recommendations on preferred options, options in addition to the barcode and other acceptable options found at the end of section 2.1.2.42.1.2.4.

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

For regulated healthcare consumer trade items scanned in retail pharmacy and general distribution or non-retail pharmacy and general distribution see section 5.5.2.7.85.5.2.7.8, GS1 system symbol specification table 8.

For regulated healthcare retail consumer trade items not scanned in general distribution see section 5.5.2.7.105.5.2.7.10, GS1 system symbol specification table 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.

2.1.2.6 Trade items intended for general distribution scanning only

Every trade item that is different from another in any respect is assigned a unique Global Trade Item Number (GTIN). This includes trade item groupings of retail and non-retail trade items that are also trade items, and non-retail single units. For example, each of the packaging types in the figure below, if traded, is assigned a separate GTIN.

Figure 2.1.2.6-1. Example of GTIN numbering options

Trade item	GTIN numbering options			
	GTIN-8	GTIN-12	GTIN-13	GTIN-14
Single product A	X	X	X	
50 x product A (Trade item grouping)		X	X	X
50 x product A (Trade item grouping, e.g., display case)		X	X	X
100 x product A (Trade item grouping)		X	X	X
Single product B	X	X	X	
50 x product A 50 x product B		X	X	

3.2 GS1 Application Identifiers in numerical order

Figure 3.2-1. GS1 Application Identifiers

AI	Data Content	Format (*)	FNC1 required (****)	Data title
00	*Serial Shipping Container Code (SSCC)*	N2+N18		SSCC
01	*Global Trade Item Number (GTIN)*	N2+N14		GTIN
02	*GTIN of contained trade items*	N2+N14		CONTENT
10	*Batch or lot number*	N2+X..20	(FNC1)	BATCH/LOT
11 (**)	*Production date (YYMMDD)*	N2+N6		PROD DATE
12 (**)	*Due date (YYMMDD)*	N2+N6		DUE DATE
13 (**)	*Packaging date (YYMMDD)*	N2+N6		PACK DATE
15 (**)	*Best before date (YYMMDD)*	N2+N6		BEST BEFORE or BEST BY
16 (**)	*Sell by date (YYMMDD)*	N2+N6		SELL BY
17 (**)	*Expiration date (YYMMDD)*	N2+N6		USE BY OR EXPIRY
20	*Internal product variant*	N2+N2		VARIANT
21	*Serial number*	N2+X..20	(FNC1)	SERIAL
22	*Consumer product variant*	N2+X..20	(FNC1)	CPV
240	*Additional item identification*	N3+X..30	(FNC1)	ADDITIONAL ID
241	*Customer part number*	N3+X..30	(FNC1)	CUST. PART NO.
242	*Made-to-Order variation number*	N3+N..6	(FNC1)	MTO VARIANT
243	*Packaging component number*	N3+X..20	(FNC1)	PCN
250	*Secondary serial number*	N3+X..30	(FNC1)	SECONDARY SERIAL
251	*Reference to source entity*	N3+X..30	(FNC1)	REF. TO SOURCE
253	*Global Document Type Identifier (GDTI)*	N3+N13+X..17	(FNC1)	GDTI
254	*GLN extension component*	N3+X..20	(FNC1)	GLN EXTENSION COMPONENT
255	*Global Coupon Number (GCN)*	N3+N13+N..12	(FNC1)	GCN
30	*Variable count of items (variable measure trade item)*	N2+N..8	(FNC1)	VAR. COUNT
310n (***)	*Net weight, kilograms (variable measure trade item)*	N4+N6		NET WEIGHT (kg)
311n (***)	*Length or first dimension, metres (variable measure trade item)*	N4+N6		LENGTH (m)
312n (***)	*Width, diameter, or second dimension, metres (variable measure trade item)*	N4+N6		WIDTH (m)
313n (***)	*Depth, thickness, height, or third dimension, metres (variable measure trade item)*	N4+N6		HEIGHT (m)
314n (***)	*Area, square metres (variable measure trade item)*	N4+N6		AREA (m^2)
315n (***)	*Net volume, litres (variable measure trade item)*	N4+N6		NET VOLUME (l)
316n (***)	*Net volume, cubic metres (variable measure trade item)*	N4+N6		NET VOLUME (m^3)
320n (***)	*Net weight, pounds (variable measure trade item)*	N4+N6		NET WEIGHT (lb)
321n (***)	*Length or first dimension, inches (variable measure trade item)*	N4+N6		LENGTH (i)
322n (***)	*Length or first dimension, feet (variable measure trade item)*	N4+N6		LENGTH (f)

Field Code Changed

AI	Data Content	Format (*)	FNC1 required (****)	Data title
323n (***)	*Length or first dimension, yards (variable measure trade item)*	N4+N6		LENGTH (y)
324n (***)	*Width, diameter, or second dimension, inches (variable measure trade item)*	N4+N6		WIDTH (i)
325n (***)	*Width, diameter, or second dimension, feet (variable measure trade item)*	N4+N6		WIDTH (f)
326n (***)	*Width, diameter, or second dimension, yards (variable measure trade item)*	N4+N6		WIDTH (y)
327n (***)	*Depth, thickness, height, or third dimension, inches (variable measure trade item)*	N4+N6		HEIGHT (i)
328n (***)	*Depth, thickness, height, or third dimension, feet (variable measure trade item)*	N4+N6		HEIGHT (f)
329n (***)	*Depth, thickness, height, or third dimension, yards (variable measure trade item)*	N4+N6		HEIGHT (y)
330n (***)	*Logistic weight, kilograms*	N4+N6		GROSS WEIGHT (kg)
331n (***)	*Length or first dimension, metres*	N4+N6		LENGTH (m), log
332n (***)	*Width, diameter, or second dimension, metres*	N4+N6		WIDTH (m), log
333n (***)	*Depth, thickness, height, or third dimension, metres*	N4+N6		HEIGHT (m), log
334n (***)	*Area, square metres*	N4+N6		AREA (m^2), log
335n (***)	*Logistic volume, litres*	N4+N6		VOLUME (l), log
336n (***)	*Logistic volume, cubic metres*	N4+N6		VOLUME (m^3), log
337n (***)	*Kilograms per square metre*	N4+N6		KG PER m^2
340n (***)	*Logistic weight, pounds*	N4+N6		GROSS WEIGHT (lb)
341n (***)	*Length or first dimension, inches*	N4+N6		LENGTH (i), log
342n (***)	*Length or first dimension, feet*	N4+N6		LENGTH (f), log
343n (***)	*Length or first dimension, yards*	N4+N6		LENGTH (y), log
344n (***)	*Width, diameter, or second dimension, inches*	N4+N6		WIDTH (i), log
345n (***)	*Width, diameter, or second dimension, feet*	N4+N6		WIDTH (f), log
346n (***)	*Width, diameter, or second dimension, yard*	N4+N6		WIDTH (y), log
347n (***)	*Depth, thickness, height, or third dimension, inches*	N4+N6		HEIGHT (i), log
348n (***)	*Depth, thickness, height, or third dimension, feet*	N4+N6		HEIGHT (f), log
349n (***)	*Depth, thickness, height, or third dimension, yards*	N4+N6		HEIGHT (y), log
350n (***)	*Area, square inches (variable measure trade item)*	N4+N6		AREA (i^2)
351n (***)	*Area, square feet (variable measure trade item)*	N4+N6		AREA (f^2)

AI	Data Content	Format (*)	FNC1 required (****)	Data title
352n (***)	*Area, square yards (variable measure trade item)*	N4+N6		AREA (y^2)
353n (***)	*Area, square inches*	N4+N6		AREA (i^2), log
354n (***)	*Area, square feet*	N4+N6		AREA (f^2), log
355n (***)	*Area, square yards*	N4+N6		AREA (y^2), log
356n (***)	*Net weight, troy ounces (variable measure trade item)*	N4+N6		NET WEIGHT (t)
357n (***)	*Net weight (or volume), ounces (variable measure trade item)*	N4+N6		NET VOLUME (oz)
360n (***)	*Net volume, quarts (variable measure trade item)*	N4+N6		NET VOLUME (q)
361n (***)	*Net volume, gallons U.S. (variable measure trade item)*	N4+N6		NET VOLUME (g)
362n (***)	*Logistic volume, quarts*	N4+N6		VOLUME (q), log
363n (***)	*Logistic volume, gallons U.S.*	N4+N6		VOLUME (g), log
364n (***)	*Net volume, cubic inches (variable measure trade item)*	N4+N6		VOLUME (i^3)
365n (***)	*Net volume, cubic feet (variable measure trade item)*	N4+N6		VOLUME (f^3)
366n (***)	*Net volume, cubic yards (variable measure trade item)*	N4+N6		VOLUME (y^3)
367n (***)	*Logistic volume, cubic inches*	N4+N6		VOLUME (i^3), log
368n (***)	*Logistic volume, cubic feet*	N4+N6		VOLUME (f^3), log
369n (***)	*Logistic volume, cubic yards*	N4+N6		VOLUME (y^3), log
37	*Count of trade items*	N2+N..8	(FNC1)	COUNT
390n (***)	*Applicable amount payable or Coupon value, local currency*	N4+N..15	(FNC1)	AMOUNT
391n (***)	*Applicable amount payable with ISO currency code*	N4+N3+N..15	(FNC1)	AMOUNT
392n (***)	*Applicable amount payable, single monetary area (variable measure trade item)*	N4+N..15	(FNC1)	PRICE
393n (***)	*Applicable amount payable with ISO currency code (variable measure trade item)*	N4+N3+N..15	(FNC1)	PRICE
394n (***)	*Percentage discount of a coupon*	N4+N4	(FNC1)	PRCNT OFF
400	*Customer's purchase order number*	N3+X..30	(FNC1)	ORDER NUMBER
401	*Global Identification Number for Consignment (GINC)*	N3+X..30	(FNC1)	GINC
402	*Global Shipment Identification Number (GSIN)*	N3+N17	(FNC1)	GSIN
403	*Routing code*	N3+X..30	(FNC1)	ROUTE
410	*Ship to - Deliver to Global Location Number*	N3+N13		SHIP TO LOC
411	*Bill to - Invoice to Global Location Number*	N3+N13		BILL TO
412	*Purchased from Global Location Number*	N3+N13		PURCHASE FROM
413	*Ship for - Deliver for - Forward to Global Location Number*	N3+N13		SHIP FOR LOC

AI	Data Content	Format (*)	FNC1 required (****)	Data title
414	*Identification of a physical location - Global Location Number*	N3+N13		LOC No
415	*Global Location Number of the invoicing party*	N3+N13		PAY TO
416	*GLN of the production or service location*	N3+N13		PROD/SERV LOC
420	*Ship to - Deliver to postal code within a single postal authority*	N3+X..20	(FNC1)	SHIP TO POST
421	*Ship to - Deliver to postal code with ISO country code*	N3+N3+X..9	(FNC1)	SHIP TO POST
422	*Country of origin of a trade item*	N3+N3	(FNC1)	ORIGIN
423	*Country of initial processing*	N3+N3+N..12	(FNC1)	COUNTRY - INITIAL PROCESS.
424	*Country of processing*	N3+N3	(FNC1)	COUNTRY - PROCESS.
425	*Country of disassembly*	N3+N3+N..12	(FNC1)	COUNTRY - DISASSEMBLY
426	*Country covering full process chain*	N3+N3	(FNC1)	COUNTRY – FULL PROCESS
427	*Country subdivision Of origin*	N3+X..3	(FNC1)	ORIGIN SUBDIVISION
7001	*NATO Stock Number (NSN)*	N4+N13	(FNC1)	NSN
7002	*UN/ECE meat carcasses and cuts classification*	N4+X..30	(FNC1)	MEAT CUT
7003	*Expiration date and time*	N4+N10	(FNC1)	EXPIRY TIME
7004	*Active potency*	N4+N..4	(FNC1)	ACTIVE POTENCY
7005	*Catch area*	N4+X..12	(FNC1)	CATCH AREA
7006	*First freeze date*	N4+N6	(FNC1)	FIRST FREEZE DATE
7007	*Harvest date*	N4+N6..12	(FNC1)	HARVEST DATE
7008	*Species for fishery purposes*	N4+X..3	(FNC1)	AQUATIC SPECIES
7009	*Fishing gear type*	N4+X..10	(FNC1)	FISHING GEAR TYPE
7010	*Production method*	N4+X..2	(FNC1)	PROD METHOD
7020	*Refurbishment lot ID*	N4+X..20	(FNC1)	REFURB LOT
7021	*Functional status*	N4+X..20	(FNC1)	FUNC STAT
7022	*Revision status*	N4+X..20	(FNC1)	REV STAT
7023	*Global Individual Asset Identifier (GIAI) of an assembly*	N4+X..30	(FNC1)	GIAI – ASSEMBLY
703s	*Number of processor with ISO Country Code*	N4+N3+X..27	(FNC1)	PROCESSOR # s
710	*National Healthcare Reimbursement Number (NHRN) – Germany PZN*	N3+X..20	(FNC1)	NHRN PZN
711	*National Healthcare Reimbursement Number (NHRN) – France CIP*	N3+X..20	(FNC1)	NHRN CIP
712	*National Healthcare Reimbursement Number (NHRN) – Spain CN*	N3+X..20	(FNC1)	NHRN CN
713	*National Healthcare Reimbursement Number (NHRN) – Brasil DRN*	N3+X..20	(FNC1)	NHRN DRN
714	*National Healthcare Reimbursement Number (NHRN) – Portugal AIM*	N3+X..20	(FNC1)	NHRN AIM
... (*****)	*National Healthcare Reimbursement Number (NHRN) – Country "A" NHRN*	N3+X..20	(FNC1)	NHRN xxx
8001	*Roll products (width, length, core diameter, direction, splices)*	N4+N14	(FNC1)	DIMENSIONS
8002	*Cellular mobile telephone identifier*	N4+X..20	(FNC1)	CMT No

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AI	Data Content	Format (*)	FNC1 required (****)	Data title
8003	*Global Returnable Asset Identifier (GRAI)*	N4+N14+X..16	(FNC1)	GRAI
8004	*Global Individual Asset Identifier (GIAI)*	N4+X..30	(FNC1)	GIAI
8005	*Price per unit of measure*	N4+N6	(FNC1)	PRICE PER UNIT
8006	*Identification of an individual trade item piece*	N4+N14+N2+N2	(FNC1)	ITIP or GCTIN (******)
8007	*International Bank Account Number (IBAN)*	N4+X..34	(FNC1)	IBAN
8008	*Date and time of production*	N4+N8+N..4	(FNC1)	PROD TIME
8010	*Component/Part Identifier (CPID)*	N4 + X..30	(FNC1)	CPID
8011	*Component/Part Identifier serial number (CPID SERIAL)*	N4 + N..12	(FNC1)	CPID SERIAL
8012	*Software version*	N4 + X..20	(FNC1)	VERSION
8013	Global Model Number (GMN)	N4 +X..30	(FNC1)	GMN (for medical devices, the default, global data title is BUDI-DI)
8017	*Global Service Relation Number to identify the relationship between an organisation offering services and the provider of services*	N4+N18	(FNC1)	GSRN - PROVIDER
8018	*Global Service Relation Number to identify the relationship between an organisation offering services and the recipient of services*	N4+N18	(FNC1)	GSRN - RECIPIENT
8019	*Service Relation Instance Number (SRIN)*	N4+N..10	(FNC1)	SRIN
8020	*Payment slip reference number*	N4+X..25	(FNC1)	REF No
8110	*Coupon code identification for use in North America*	N4+X..70	(FNC1)	-
8111	*Loyalty points of a coupon*	N4+N4	(FNC1)	POINTS
8112	*Paperless coupon code identification for use in North America (AI 8112)*~~*Paperless coupon code identification for use in North America (AI 8112)*~~	N4+X..70	(FNC1)	-
8200	*Extended Packaging URL*	N4+X..70	(FNC1)	PRODUCT URL
90	*Information mutually agreed between trading partners*	N2+X..30	(FNC1)	INTERNAL
91 to 99	*Company internal information*	N2+X..90	(FNC1)	INTERNAL

NOTES:

(*): The first position indicates the length (number of digits) of the GS1 Application Identifier. The following value refers to the format of the data content. The following convention is applied:

- n implied decimal point position
- N numeric digit
- X any character in *Figure 7.11-1*~~*Figure 7.11-1*~~
- N3 3 numeric digits, predefined length
- N..3 up to 3 numeric digits
- X..3 up to 3 characters in *Figure 7.11-1*~~*Figure 7.11-1*~~

(**): If only year and month are available, DD must be filled with two zeroes.

(***): The fourth digit of this GS1 Application Identifier indicates the number of decimal places (and in that way the implied decimal point position).

Example:

- 3100 Net weight in kg without a decimal point
- 3102 Net weight in kg with two decimal places

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3.8.16 Number of processor with three-digit ISO country code: AI (703s)

The GS1 Application Identifier (703s) indicates that the GS1 Application Identifier data fields contain the ISO country code and approval number or GLN of the processor of a trade item. The number of processor is an attribute to a Global Trade Item Number (GTIN). It designates the number of the company who did the processing.

As many processors may be involved, each with an individual approval number, the fourth digit of the AI (s in the figure below) indicates the sequence of the processors.

For a typical meat supply chain, the following sequence would be used:

- 7030: slaughterhouse.
- 7031: first deboning/cutting hall.
- 7032 to 7037: second through seventh processing location (cutting hall).
- 7038: slaughterhouse.
- 7039: slaughterhouse.

For a typical seafood supply chain, the following sequence would be used:

- 7030 vessel/aquaculture site.
- 7031 primary processor.
- 7032 secondary processor.

The ISO country code contains the three-digit country number of the numerical international standard *ISO 3166* that relates to the following approval number of processor.

If '999' is entered as the ISO country code it signifies that the subsequent data is a Global Location Number (GLN), and not an 'approval number'.

Note: The approval number is usually assigned by a national or pluri-national authority to processors in the food supply chain. These authorities may choose to use the Global Location Number (GLN) (see section 2.4~~2.4~~) for this purpose. The approval number (or GLN) remains with the item regardless of whether or not it changes ownership or function.

Figure 3.8.16-1. Format of the element string

GS1 Application Identifier	ISO country code	Number of processor
7 0 3 s	N_1 N_2 N_3	X_4 ——variable length——› X_{30}

The data transmitted from the barcode reader means that the element string denoting the ISO country code and number of processor has been captured. As this element string is an attribute of a trade item, it must be processed together with the GTIN of the trade item to which it relates.

When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used (see also section 3.2~~3.2~~): **PROCESSOR # s**

3.8.17 National Healthcare Reimbursement Number (NHRN): AIs (710), (711), (712), (713), and (7143)

The GS1 Application Identifiers (710), (711), (712), (713), and (7143) indicate that the GS1 Application Identifier data field contains a National Healthcare Reimbursement Number, from the NHRN GS1 Application Identifier series, associated to the Global Trade Item Number (GTIN) of the trade item. The GS1 Application Identifiers (710), (711), (712), (713), and (7143) indicate a specific NHRN from within the assigned series.

Use of the NHRN GS1 Application Identifier, associated to the GTIN of the trade item, is needed for compliance with a national/regional regulatory or industry requirement where the GTIN will not meet the need.

GTIN is the GS1 identifier for pharmaceutical and medical device trade items. The GS1 Application Identifier for National Healthcare Reimbursement Number is provided to meet regulatory or industry requirements until they are amended to accept the GTIN as a compliant identifier.

Within this application are the rules and recommendations for the association of NHRNs to the Global Trade Item Number (GTIN) where regulatory requirements require an NHRN for product identification, registration or reimbursement purposes.

There are a number of known NHRNs but at this time not all are required to be encoded within the data carrier found on the trade item. Flexibility for additional assigned NHRN AIs has been provided if required.

The National Healthcare Reimbursement Number GS1 Application Identifier is an initial step in a migration path to the most efficient method to identify trade items. GS1 recommends that Healthcare stakeholders faced with national numbers:

a) Use GTIN for all supply chain and reimbursement purposes (GTIN used in the data carrier and as the NHRN) as this is the most efficient and effective way for all stakeholders to identify trade items.

b) Use GTIN, cross-referenced to an NHRN in an existing database, in the case of an existing system of NHRNs (i.e. GTIN used in the data carrier with the NHRN found via cross-reference).

c) Use GTIN with an associated NHRN (GTIN and NHRN both used in the data carrier via the NHRN AI) as an intermediate solution for those who cannot use "a" or "b". GS1 only recommends this as a migration path to noted options "a" or "b".

Note: There is a mandatory association of the National Healthcare Reimbursement Number Application Identifier with the GTIN.

Note: The NHRN is usually assigned by a national authority to healthcare brand owners for specific trade items and SHALL only be used for compliance to regulatory requirements where the GTIN alone will not meet the requirements.

Note: Additional individual NHRN AIs can only be assigned by GS1 and only in response to a work request being submitted into the GSMP system.

Note: The GTIN and all associated NHRNs SHOULD be concatenated into a single data carrier (i.e. single GS1-128, GS1 DataMatrix).

Note: Use of NHRN on the item is controlled by and subject to the rules and regulations of national/regional agencies. Those rules and/or regulations may supersede these recommendations.

Note: More than one NHRN may need to be associated with a given GTIN.

The general format of an NHRN GS1 Application Identifier is:

Figure 3.8.17-1. Format of the element string

GS1 Application Identifier	National Healthcare Reimbursement Number
n n n	X_1———variable length———›X_{20}

Note: When an NHRN AI is approved, the overall variable length (i.e. allowable number of characters) is specified by the national authority, with a twenty (20) character maximum as noted in the general format above if applicable.

The GS1 Application Identifiers used with this element string, their specific format and associated regulatory body or assigning organisation, are shown in the figure below:

Figure 3.8.17-2. Overview of NHRN Application Identifiers

GS1 Application Identifier	National Healthcare Reimbursement Number			Organisation
710	X_1	variable length	X_{20}	Germany IFA
711	X_1	variable length	X_{20}	France CIP
712	X_1	variable length	X_{20}	Spain National Code
713	X_1	variable length	X_{20}	Brazil ANVISA
714	X_1	variable length	X_{20}	Portugal INFARMED
nnn (*)	X_1	variable length	X_{20}	Country "A" NHRN Authority
(*) An example to illustrate future additional NHRNs. If additional NHRN AIs are required, a request for a new NHRN AI SHALL be made through the GS1 GSMP.				

Note: Companies wishing to apply one of the listed NHRN AIs will need to associate that NHRN AI to the trade item's GTIN according to the NHRN AI rules and should contact their GS1 Member Organisation for further considerations of use.

The data transmitted from the barcode reader means that the element string denoting a National Healthcare Reimbursement Number has been captured. This element string is an attribute of a trade item and must be processed together with the GTIN of the trade item to which it relates. When indicating this element string in the non-HRI text section of a barcode label, the data title in figure 3.2-1 SHOULD be used.

3.9 GS1 Application Identifiers starting with digit 8

3.9.1 Roll products - width, length, core diameter, direction, splices: AI (8001)

The GS1 Application Identifier (8001) indicates that the GS1 Application Identifier data fields contain the variable attributes of a roll product. Depending on the method of production, some roll products cannot be numbered according to standard criteria that have been determined in advance. They are, therefore, classified as variable items. For those products where the standard trade measures are not sufficient, the following guidelines should be used.

The identification of a roll product consists of the Global Trade Item Number (GTIN) and the variable attributes. The basic product (e.g., a certain type of paper) is included as data in the GTIN-14 ID number (see section 2.1.6~~2.1.6~~), and the variables contain information about the special features of the particular item that has been produced. The variable values of a roll product, N1 to N14, consist of the following data:

- N1 to N4: slit width in millimetres (width of the roll).
- N5 to N9: actual length in metres.
- N10 to N12: internal core diameter in millimetres.
- N13: winding direction (face out 0, face in 1, undefined 9).
- N14: number of splices (0 to 8 = actual number, 9 = number unknown).

Figure 3.9.1-1. Format of the element string

GS1 Application Identifier	Variable values of a roll product													
8 0 0 1	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 data transmitted from the barcode reader means that the element string denoting the variable attributes of the identification of a roll product trade item have been captured. This element string must be processed together with the GTIN of the trade item to which it relates (see section 3.3.2~~3.3.2~~). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used (see also section 3.2~~3.2~~): **DIMENSIONS**

~~4.13~~4.14 Data relationships

The element strings that require specialised software and/or scanner set up are not covered by these rules. These are the element strings with GS1 Prefixes 0001 to 0007, 02, 04, 05, 20 to 29, 98, and 99; GTIN-8 Prefixes 0 and 2; two-digit and five-digit add-on symbols.

In figures 4.13.1-1 and 4.13.2-1, the GS1 Application Identifiers (AIs) are used to indicate the element string. The AI (01) is used to indicate a Global Trade Item Number (GTIN); however, the element strings that encode GTINs are defined in section 3. GTINs may be encoded in barcodes from the EAN/UPC symbology family, ITF-14 barcodes, GS1 DataBar symbology family, GS1 DataMatrix and GS1-128 barcodes using AI (01) or AI (8006) and GS1 QR barcodes using AI (01).

Note: If duplicate element strings (e.g., two serial numbers, two batch/lot numbers, two Extended Packaging URLs) must appear on the same physical entity they must always have the same value in each occurrence on that entity.

Note: It is possible to have multiple different National Healthcare Reimbursement Numbers (NHRNs), from different country or regional NHRN authorities, associated with the same GTIN on a given item. It is possible and permissible to change one of these NHRNs without a change to the other NHRNs or to the GTIN.

Note: It is not allowed to have multiple of the same NHRN AI with different data associated with the same GTIN on a given item.

~~4.13.1~~4.14.1 Invalid pairs of element strings

This section defines the pairs of element strings that cannot appear on the same physical entity.

Figure 4.14.1-1. Invalid pairs of element strings

Pair of element strings				Comment
AI	Designation	AI	Designation	
01	Identification of a trade item	01	Identification of a trade item	Duplicate Global Trade Item Numbers (GTINs) with different values
01	Identification of a trade item	02	Identification of logistic unit contents	AI (02) must not be used for the identification of trade items contained in a trade item.
01	Identification of a trade item	37	Count of units contained	The count of units contained would duplicate the master data of the GTIN. AI (37) may only be used with AI (02).
242	Made-to-Order variation number	01 or 02 with N_1 not equal to 9	Identification of a variable measure trade item	Made-to-Order variation number can only be used with a GTIN-14, indicator digit 9. This represents a Custom Industrial Supply Item
420	Ship to postal code, single postal authority	421	Ship to postal code with ISO country code	Only one ship to postal code may be applied on an item
422	Country of origin of a trade item	426	Country of full processing	Duplication of country of origin of a trade item (covered by country of full processing)
423	Country of initial processing	426	Country of full processing	Duplication of country of initial processing (covered by country of full processing)
424	Country of processing	426	Country of full processing	Duplication of country of processing (covered by country of full processing)
425	Country of disassembly	426	Country of full processing	Duplication of country of disassembly (covered by country of full processing)

Pair of element strings				Comment
AI	Designation	AI	Designation	
390n	Amount payable or Coupon value – single monetary area	391n or 394n or 8111	Amount payable – with ISO currency code or Percentage discount of a coupon or Loyalty Points of a coupon	Only one amount payable element string may be applied on a payment slip or coupon and only one discount condition element string may be applied on a coupon
392n	Amount payable for a variable measure trade item – Single monetary area	393n	Amount payable for a variable measure trade item and ISO currency code	Only one amount payable element string may be applied on a variable measure trade item.
394n	Percentage discount of a coupon	390n or 8111	Coupon value or Loyalty points of a coupon	Only one discount condition element string may be applied on a coupon
710, 711, 712, 713, 714, (…)	National Healthcare Reimbursement Number	Any AI (01) allowable attributes	Any GTIN allowable attributes	When NHRN(s) are applied to the physical trade item with the mandatory association to the GTIN, any attribute AIs must only be processed with the GTIN and must not be processed with the NHRNs (AIs 710, 711, 712, 713, 714……) alone.
8006	Identification of an individual trade item piece	01	Identification of a trade item	Other GTINs cannot be used with AI (8006). The trade item is identified by a GTIN contained in the AI (8006).
8111	Applicable loyalty points for coupon value	390n or 394n	Coupon value or Percentage discount of a coupon	Only one discount condition element string may be applied on a coupon
8018	Global Service Relation Number for the recipient	8017	Global Service Relation Number for the provider	Only one Global Service Relation Number (recipient or provider) can be applied at one time for identification of an individual in a given service relationship

~~4.13.2~~4.14.2 Mandatory association of element strings

This section defines the element strings that mandate the appearance of another element string on the same physical entity.

Figure 4.14.2-1. Mandatory association of element strings

If element string		Then mandatory associated element string	Comment
AI	Designation		
01 with $N_1 = 0$	Identification of a variable measure trade item scanned at POS	30 or 3nnn* or 3nnn**	Mandatory association with a variable count or a trade measure information scanned at POS identified with GTIN-12 or GTIN-13. Only GS1 DataBar Expanded barcodes can encode associated elements strings for use at POS. (See note at bottom)
01 or 02 with $N_1 = 9$	Identification of a variable measure trade item not scanned at POS	30 or 3nnn* or 3nnn** or 8001	Mandatory association with variable measure information not scanned at POS identified with a GTIN-14 starting with indicator digit 9 (See Note at bottom) Only GS1-128, ITF-14, and GS1 DataBar Expanded barcodes can encode a GTIN with N1 = 9.

If element string		Then mandatory associated element string	Comment
AI	Designation		
02	Identification of logistic unit contents	00	Mandatory association with an SSCC (Serial Shipping Container Code)
02	Identification of logistic unit contents	37	Mandatory count of the contained trade items
10	Batch/lot number	01 or 02 or 8006****	Mandatory association with a Global Trade Item Number (GTIN) or with the identification of logistic unit contents or with the identification of an individual trade item piece (*).
11, 13, 15, 16	Dates	01 or 02 or 8006****	Mandatory association with a GTIN or with the identification of logistic unit contents or with the identification of an individual trade item piece.
12	Due date	8020 and 415	Mandatory association with the payment slip reference number and the Global Location Number (GLN) of the invoicing party
17	Expiration date	01 or 02 or 255 or 8006****	Mandatory association with a GTIN or with the identification of logistic unit contents or with the Global Coupon Number or with the identification of an individual trade item piece.
20	Internal product variant	01 or 02 or 8006	Mandatory association with a GTIN or with the identification of logistic unit contents or with the identification of an individual trade item piece.
21	Serial number	01 or 8006****	Mandatory association with a GTIN of a single trade item (a serial number cannot apply to a grouping of trade items) or with the identification of an individual trade item piece. SGTIN is a common term for the mandatory association of AI (21) with GTIN AI (01)
22	Consumer product variant	01	The consumer product variant must appear in conjunction with AI (01) GTIN on retail consumer trade items.
240	Additional product identification	01 or 02 or 8006****	Mandatory association with a GTIN or with the identification of logistic unit contents or with the identification of an individual trade item piece.
241	Customer part number	01 or 02 or 8006****	Mandatory association with a GTIN or with the identification of logistic unit contents or with the identification of an individual trade item piece.
242	Made-to-Order variation number	01 or 02 or 8006**** with $N_1 = 9$	Mandatory association with a GTIN-14 with indicator digit 9 represents a custom industrial supply item
243	Packaging Component Number	01	Mandatory association with GTIN
250	Secondary serial number	(01 or 8006****) and 21	Mandatory association with a GTIN (a secondary serial number cannot apply to a grouping of trade items) or identification of an individual trade item piece and the serial number of the trade item AI (21)
251	Reference to source entity	01 or 8006****	Mandatory association with GTIN of the trade item or with the identification of an individual trade item piece.
254	Extension component of a GLN	414	Mandatory association with AI (414). Only GS1-128, GS1 DataBar Expanded symbologies, and EPC RFID tags are valid. This is used with GLN and not GTIN.
30	Variable count of items	01 or 02	Mandatory association with a GTIN for a variable measure trade item (e.g., GTIN-12 or GTIN-13 for trade items scanned at POS, GTIN-14s starting with indicator digit 9 for trade items not scanned at POS) or the identification of variable measure content of a logistic unit

If element string		Then mandatory associated element string	Comment
AI	Designation		
3nnn*	Trade measures that cannot be summed	01	Mandatory association with a GTIN for a variable measure trade item (e.g., GTIN-12 or GTIN-13 for trade items scanned at POS, GTIN-14s starting with indicator digit 9 for trade items not scanned at POS)
3nnn**	Trade measures that can be summed	01 or 02	Mandatory association with a GTIN for a variable measure trade item (e.g., GTIN-12 or GTIN-13 for trade items scanned at POS, GTIN-14s starting with indicator digit 9 for trade items not scanned at POS) or the identification of variable measure content of a logistic unit
3nnn***	Logistic measures	00 or 01	Mandatory association with an SSCC or a variable measure GTIN for trade item not scanned at POS (e.g., a GTIN-14 starting with the digit 9)
337n	Kilograms per square metre	01	Mandatory association with a GTIN
37	Count of units contained	02	Mandatory association with the identification of logistic unit contents
390n	Amount payable or Coupon value – single monetary area	8020 and 415 or 255	Mandatory association with the payment slip reference number and the GLN of the invoicing party or with the Global Coupon Number
391n	Amount payable – with ISO currency code	8020 and 415	Mandatory association with the payment slip reference number and the GLN of the invoicing party
392n	Amount payable – when scanned at POS - single monetary unit	01	Mandatory association with a variable count or a trade measure scanned at POS when identified with a GTIN-12 or GTIN-13.
392n	Amount payable when not scanned at POS – single monetary unit	01	Mandatory association with a variable measure information when identified GTIN-14.
393n	Amount payable – when scanned at POS –with ISO currency code	01	Mandatory association with a variable count or a variable measure when scanned at POS and identified with GTIN-12 or GTIN-13.
393n	Amount payable when not scanned at POS – with ISO currency code	01	Mandatory association with a variable measure information when identified with a GTIN-14.
394n	Percentage of a coupon	255	Mandatory association with the Global Coupon Number
403	Routing code	00	Mandatory association with an SSCC
415	GLN of the invoicing party	8020	Mandatory association with payment slip reference number
422	Country of origin	01 or 02 or 8006****	Mandatory association with a GTIN or with the identification of an individual trade item piece.
423	Country of initial processing	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
424	Country of processing	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents

If element string		Then mandatory associated element string	Comment
AI	Designation		
425	Country of disassembly	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
426	Country of full processing	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
427	Country subdivision of origin code for a trade item	01 or 02 and 422	Mandatory association with a GTIN and the Country of Origin of the trade item
7001	NATO stock number	01 or 02 or 8006****	Mandatory association with a GTIN or with the identification of logistic unit contents or with the identification of an individual trade item piece.
7002	UN/ECE meat carcasses and cuts classification	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
7003	Expiration date and time	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
7004	Active potency	01 and 10	Mandatory association with the GTIN and Batch/lot number
7005	Catch Area	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
7006	First freeze date	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
7007	Harvest date	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
7008	Species for fishery purposes	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
7009	Fishing Gear type	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
7010	Production method	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
703(s)	Number of processor	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
710	National Healthcare Reimbursement Number	01	Mandatory association with the GTIN of the trade item
711	National Healthcare Reimbursement Number	01	Mandatory association with the GTIN of the trade item
712	National Healthcare Reimbursement Number	01	Mandatory association with the GTIN of the trade item
713	National Healthcare Reimbursement Number	01	Mandatory association with the GTIN of the trade item
7143	National Healthcare Reimbursement Number	01	Mandatory association with the GTIN of the trade item

If element string		Then mandatory associated element string	Comment
AI	Designation		
7020	Refurbishment lot ID	(01 or 8006****) and 416	Mandatory association with the GTIN or identification of an individual trade item piece and GLN of production/service location.
7021	Functional status	01 or 8006****	Mandatory association with the GTIN or identification of an individual trade item piece.
7022	Revision status	(01 or 8006****) and 7021	Mandatory association with the GTIN or identification of an individual trade item piece and functional status.
8001	Variables of roll products	01	Mandatory association with a variable measure GTIN (e.g., an GTIN-14 starting with the digit 9)
8005	Price per unit of measure	01 or 02	Mandatory association with a GTIN for a variable measure trade item (e.g., GTIN-12 or GTIN-13 for trade items scanned at POS, GTIN-14s starting with indicator digit 9 for trade items not scanned at POS) or the identification of variable measure content of a logistic unit.
8007	International Bank Account Number	8020 and 415	Mandatory association with the payment slip reference number and the GLN of the invoicing party
8008	Date and time of production	01 or 02	Mandatory association with a GTIN or with the identification of logistic unit contents
8011	Component/Part Identifier serial number	8010	Mandatory association with Component/Part Identifier
8012	Software Version	01 or 8006****	Mandatory association with a GTIN or with the identification of an individual trade item piece.
8019	Service Relation Instance Number	8017 or 8018	Mandatory association with a Global Service Relation Number (GSRN)
8020	Payment slip reference number	415	Mandatory association with the GLN of the invoicing party
8111	Loyalty points of a coupon	255	Mandatory association with the Global Coupon Number
8200	Extended packaging URL	01	Mandatory association with GTIN

*	Is (3nnn) where the first three digits are 312, 313, 324, 325, 326, 327, 328, and 329
**	Is (3nnn) where the first three digits are 310, 311, 314, 315, 316, 320, 321, 322, 323, 350, 351, 352, 356, 357, 360, 361, 364, 365, and 366
***	Is (3nnn) where the first three digits are 330, 331, 332, 333, 334, 335, 336, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 353, 354, 355, 362, 363, 367, 368, and 369
****	If used, optional AIs on all pieces of a trade item and on the trade item itself SHALL be identical.

Note: Exception for point-of-sale. See figure 2.7~~2.7~~–1. Areas of GS1 system application.

7.3 Validation of the electronic message regarding system consistency

The GS1 system enables system users to process scanned data without human intervention. This implies that the electronic message generated from data scanned and transmitted from data carriers needs to substitute for all human activities during a particular transaction. In other words, the transmitted data must provide all information required for its correct processing.

The GS1 system is designed to fulfil these requirements. Section 4 describes the association of element strings to form valid messages.

Validation of system consistency refers to the verification of the correct composition of the electronic message by a system processing the transaction messages. Whether the message is adequate in business application terms is dealt with by the application software.

Only messages containing a valid set of element strings defined in the GS1 system can be unambiguously processed. The processing of invalid messages may lead to data file errors because the meaning and relationship of the element strings are not defined. This is illustrated in figures 7.3-1 and 7.3-2.

Figure 7.3-1. Examples of valid messages

Element strings in message			Comment
AI 00	AI 33nn		Identification of a logistic unit + logistic weight
AI 00	AI 01		Identification of an entity as a logistic unit and as a fixed measure trade item
AI 00	AI 01 '9'	AI 31nn	Identification of an entity as a logistic unit and as a variable measure trade item
AI 00	AI 02	AI 37	Identification of a logistic unit and its contained fixed measure trade items
AI 01	AI 10	AI 15	Identification of a trade item + lot number + best before date
AI 00	AI 401		Identification of a logistic unit as part of a consignment
AI 01 '9'	AI 31nn	AI 33nn	Identification of a variable measure trade item + logistic weight
AI 00	AI 01	AI 33nn	Identification of an entity as a logistic unit and a fixed measure trade item; the logistic weight is associated with the identification number of the logistic unit
AI 01	AI 710		Identification of a trade item + National Healthcare Reimbursement Number
AI 01	AI 711		Identification of a trade item + National Healthcare Reimbursement Number
AI 01	AI 712		Identification of a trade item + National Healthcare Reimbursement Number
AI 01	AI 713		Identification of a trade item + National Healthcare Reimbursement Number
AI 01	AI 714		Identification of a trade item + National Healthcare Reimbursement Number

Figure 7.3-2. Examples of invalid messages

Element strings in message			Comment
AI 00	AI 01	AI 37	Invalid identification of an entity as a logistic unit and as a fixed measure trade item; AI 37 (quantity of items contained) must be used with AI 02 only
AI 01	AI 10	AI 33nn	Invalid identification of a fixed measure trade item + lot number; AI 33nn is incorrect because logistic measures of a fixed measure trade item are fixed attributes stored in the data file
AI 01'9'	AI 33nn		Invalid identification of a variable measure trade item + logistic weight; the mandatory Element String with a trade measure is missing
AI 00	AI 11		Invalid identification of a logistic unit; AI 11 is incorrect because a production date must be associated with the identification number of a trade item
AI 00	AI 01	AI 02/37	Invalid identification of an entity as a logistic unit and as a fixed measure trade item; AI 02/37 must not be associated with AI 01
AI 01	AI 30		Invalid identification of a fixed measure trade item; AI 30 must only be associated with the identification number of a variable measure trade item
AI 02	AI 37		Invalid identification of the fixed measure trade units contained in an unidentified logistic unit; AI 00 is missing
AI 00	AI 02		Invalid identification of a logistic unit and of the contained fixed measure trade items; AI 02 requires the mandatory presence of AI 37 to complete the identification of the content

7.8.1 General

Any GS1 symbology using GS1 Application Identifiers may represent several element strings in concatenated form (see section 5).

For processing as shown in figure 7.3-1, it is necessary to separate each element string, which is performed by the processing routine illustrated in figure 7.8-1.

7.8.2 Element strings with predefined lengths using GS1 Application Identifiers

Representation of more than one element string in a GS1 symbology using GS1 Application Identifiers may require the use of a separator character between the different element strings to mark their end.

However, in order to enable printing of smaller barcodes, some element strings have been predefined in length, so that their end is determined, and a separator character SHOULD not be used. These element strings are shown in the predefined table shown in section 5.105.10. All other element strings, even if defined as fixed length in section 3, are not of predefined length and are formally variable length fields which require a separator character if followed by another element string.

A separator character SHOULD not be used at the end of the last element string represented in a barcode or for certain AI combinations defined by the symbology specification (e.g., some types of GS1 DataBar).

7.8.3 The separator character and its value

In GS1-128 symbology: The Function 1 Symbol Character (FNC1) SHOULD be the separator character, and the control character <GS> (ASCII value 29 (decimal), 1D (hexadecimal)) may be an alternative.

In GS1 DataMatrix symbology: The Function 1 Symbol Character (FNC1) or the control character <GS> SHALL be the separator character.

In GS1 QR Code symbology: The control character <GS> or the character '%' (ASCII value 37 (decimal), 25 (hexadecimal)) SHALL be the separator character.

In GS1 DataBar and GS1 Composite symbology: The Function 1 Symbol Character (FNC1) SHALL be the separator character.

The value of the decoded separator character transmitted in the decoded data string is always control character <GS> (ASCII value 29 (decimal), 1D (hexadecimal)). It is important to note that some receiving systems may convert/interpret the control character <GS> as something other than ASCII value 29 (decimal), 1D (hexadecimal).

All element strings not included in the predefined table shown in section 5.10 MUST be separated by a separator character when followed by another element string in a single barcode.

7.8.4 National Healthcare Reimbursement Number (NHRN)

Some national or regional regulatory organisations may require pharmaceuticals and/or medical devices be identified with locally specific National Healthcare Reimbursement Numbers (NHRNs). For compliance with these national/regional regulatory or industry requirements where the GTIN does not meet current need, the trade item SHALL be identified with GTIN and AIs (710), (711), (712), (713), and (7143) National Healthcare Reimbursement Number.

One or more NHRNs may be associated with a single GTIN and encoded within the appropriate GS1 Data carrier in order to meet multiple market business needs. See figure 7.8.4-1 for examples of multiple NHRNs.

Additional individual NHRN AIs can only be assigned by GS1 and only in response to a work request being submitted into the GSMP system.

Figure 7.8.4-1. Examples of valid messages

Element strings in message						Comment
AI 01	AI 710					GTIN Identification of a trade item + Country "A" NHRN
AI 01	AI 710	AI 711				GTIN Identification of a trade item + Country "A" NHRN + Country "B" NHRN
AI 01	AI 710	AI 711	AI 712			GTIN Identification of a trade item + Country "A" NHRN + Country "B" NHRN + Country "C" NHRN
AI 01	AI 710	AI 711	AI 712	AI 713		GTIN Identification of a trade item + Country "A" NHRN + Country "B" NHRN + Country "C" NHRN + Country "D" NHRN
AI 01	AI 710	AI 711	AI 712	AI 713	AI 714	GTIN Identification of a trade item + Country "A" NHRN + Country "B" NHRN + Country "C" NHRN + Country "D" NHRN + Country "E" NHRN

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