



General Specifications Change Notification (GSCN)

WR #	GSCN Name	Effective Date
WR 25-199	NHRN for Costa Rica Sanitary Registry Number	Oct 2025

Associated Work Request (WR) Number:

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Background:

A need for a harmonised approach for Costa Rica to be in line with other countries who are manufacturing pharmaceutical products using the five data elements:

- GTIN – (Global Trade Item Number)
- Serial Number
- Expiration Date
- Batch Number
- NHRN – (National Healthcare Reimbursement Number)

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Data carrier specification

Carrier choices

The data carriers for this element string are:

- UPC-A barcode (carrying a GTIN-12)
- EAN-8 barcode (carrying GTIN-8)
- EAN-13 barcode (carrying a GTIN-13)
- GS1 DataBar Retail POS family (carrying GTIN-12 or GTIN-13)

The GS1 DataBar symbols encode a 14-digit numeric string. When encoding GTIN-8, GTIN-12 or GTIN-13 in GS1 DataBar symbols zero-fill with six, two, or one zeroes to the left of the GTIN.

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

See section [5.12.3.1](#), *GS1 symbol specification table 1*.

Symbol placement

There are no specified rules for symbol placement on loose produce scanned at POS.

Unique application processing requirements

Not applicable

2.1.4 Fixed measure trade items scanned in general distribution and at retail POS

Trade items intended for general distribution and retail point-of-sale scanning SHALL carry a barcode from the EAN/UPC or GS1 DataBar retail POS family.

These trade items SHALL be identified with GTIN-8, GTIN-12 or GTIN-13 (see section [2.1.3](#)). For symbol X-dimensions, minimum symbol height and minimum symbol quality, see section [5.12.3.3](#), *GS1 symbol specification table 3*. During a transition period, 2D barcodes may be applied in addition to the linear barcode. For information on how to manage multiple barcodes see section [4.15](#). For a summary of all conformance requirements for this AIDC application standard, 2D barcodes, cross-application rules and related technical specifications, see section [8.3](#).



Note: Allocation of GTIN-8 to new trade items for this application SHALL conform to section [4.2.7](#)

2.1.5 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 [4.15.1](#) *Multiple barcode management practices for consumer trade items – all sectors* and section [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****Required**

The allowed key formats for this application are:

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

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 ([2.1.6](#)).

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 [4.2.7](#) for rules on deploying GTIN-8.

Attributes**Required**

Table 2-102 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	None
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



AIDC marking level for regulated healthcare trade items	Key	Batch/lot number - AI (10)	Expiration date - AI (17)	Serial number - AI (21)	Other
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 2.1.8)	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 and the most recent version of the [EPC Tag Data Standard](#).

Optional

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), AI (714), AI (715), ~~and~~ AI (716) ~~and AI (717)~~ National Healthcare Reimbursement Number, see section 3.8.20.

Rules

All the GTIN rules described in section 4.

National Healthcare Reimbursement Number AI (710), AI (711), AI (712), AI (713), AI (714) AI (715), ~~and~~ AI (716) ~~and AI (717)~~ must always be used with the GTIN.

Human readable interpretation

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

Data carrier specification

Carrier choices

Table 2-~~112-2-112-112-112-11~~ 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 2.1.3 apply, then the specification for 2.1.3 must be followed for encoding GTIN (at a minimum) and the rules for use of multiple symbols in section 4.15 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	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)



guiding principle and therefore supports all previous AIDC marking specifications)	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.
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Symbol X-dimensions, minimum symbol height and minimum symbol quality

See section [5.12.3.6](#), GS1 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](#).



2.1.6 Healthcare secondary packaging (regulated healthcare retail consumer trade items)

A regulated healthcare retail consumer 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 GS1 DataMatrix 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

Required

The allowed key formats for this application are:

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

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 life cycle 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

See the GTIN rules in section [4.2](#).

Attributes

Required

Table 2-122-2-122-122-122-122 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	No	No	No	None
Enhanced – Pharmaceutical & medical device	GTIN-8, GTIN-12, or GTIN-13	Yes	Yes	No	None



AIDC marking level for regulated healthcare trade items	Key	Batch/lot number - AI (10)	Expiration date - AI (17)	Serial number - AI (21)	Other
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 2.1.8)	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 3.11 and the most recent version of the [EPC Tag Data Standard](#).

Optional

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), AI (714), AI (715), [AI \(716\)](#) and AI (7176) National Healthcare Reimbursement Number. See section 3.8.20 for details on the use of AI (710), AI (711), AI (712), AI (713), AI (714), AI (715), [AI \(716\)](#) and AI (7176).

Rules

National Healthcare Reimbursement Number AI (710), AI (711), AI (712), AI (713), AI (714), AI (715), [AI \(716\)](#) and AI (7176) 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 2.1.5.

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 5.12.3.8, *GS1 symbol specification table 8*.

For regulated healthcare retail consumer trade items not scanned in general distribution see section 5.12.3.10, *GS1 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.



AI	Data Content	Format ⁽¹⁾	FNC1 required ⁽⁴⁾	Data title
7006	First freeze date: AI (7006) First freeze date: AI (7006)	N4+N6	(FNC1)	FIRST FREEZE DATE
7007	Harvest date: AI (7007) Harvest date: AI (7007)	N4+N6[+N6]	(FNC1)	HARVEST DATE
7008	Species for fishery purposes: AI (7008) Species for fishery purposes: AI (7008)	N4+X..3	(FNC1)	AQUATIC SPECIES
7009	Fishing gear type: AI (7009) Fishing gear type: AI (7009)	N4+X..10	(FNC1)	FISHING GEAR TYPE
7010	Production method: AI (7010) Production method: AI (7010)	N4+X..2	(FNC1)	PROD METHOD
7011	Test by date: AI (7011) Test by date: AI (7011)	N4+N6[+N4]	(FNC1)	TEST BY DATE
7020	Refurbishment lot ID: AI (7020) Refurbishment lot ID: AI (7020)	N4+X..20	(FNC1)	REFURB LOT
7021	Functional status: AI (7021) Functional status: AI (7021)	N4+X..20	(FNC1)	FUNC STAT
7022	Revision status: AI (7022) Revision status: AI (7022)	N4+X..20	(FNC1)	REV STAT
7023	Global Individual Asset Identifier of an assembly: AI (7023) Global Individual Asset Identifier of an assembly: AI (7023)	N4+X..30	(FNC1)	GIAI – ASSEMBLY
703s ⁽⁶⁾	Number of processor with three-digit ISO country code: AI (703s) Number of processor with three-digit ISO country code: AI (703s)	N4+N3+X..27	(FNC1)	PROCESSOR # s
7040	GS1 UIC with Extension 1 and Importer index: AI (7040) GS1 UIC with Extension 1 and Importer index: AI (7040)	N4+N1+X3	(FNC1)	UIC+EXT
7041	UN/CEFACT freight unit type: AI (7041) UN/CEFACT freight unit type: AI (7041)	N4+X..4	(FNC1)	UFRGT UNIT TYPE
710	National Healthcare Reimbursement Number (NHRN) – Germany PZN: AI (710)	N3+X..20	(FNC1)	NHRN PZN
711	National Healthcare Reimbursement Number (NHRN) – France CIP: AI (711)	N3+X..20	(FNC1)	NHRN CIP
712	National Healthcare Reimbursement Number (NHRN) – Spain CN: AI (712)	N3+X..20	(FNC1)	NHRN CN
713	National Healthcare Reimbursement Number (NHRN) – Brasil DRN: AI (713)	N3+X..20	(FNC1)	NHRN DRN
714	National Healthcare Reimbursement Number (NHRN) – Portugal AIM: AI (714)	N3+X..20	(FNC1)	NHRN AIM
715	National Healthcare Reimbursement Number (NHRN) – United States of America NDC: AI (715)	N3+X..20	(FNC1)	NHRN NDC
716	National Healthcare Reimbursement Number (NHRN) – Italy AIC: AI (716)	N3+X..20	(FNC1)	NHRN AIC
717	National Healthcare Reimbursement Number (NHRN) – Costa Rica Sanitary Register Number: AI (717)	N3+X..20	(FNC1)	NHRN SRN
... ⁽⁵⁾	National Healthcare Reimbursement Number (NHRN) – Country "A" NHRN	N3+X..20	(FNC1)	NHRN xxx
723s ⁽⁶⁾	Certification reference: AI (723s) Certification reference: AI (723s)	N4+X2+X..28	(FNC1)	CERT # s
7240	Protocol ID: AI (7240) Protocol ID: AI (7240)	N4+X..20	(FNC1)	PROTOCOL
7241	AIDC media type: AI (7241) AIDC media type: AI (7241)	N4+N2	(FNC1)	AIDC MEDIA TYPE
7242	Version Control Number (VCN): AI (7242) Version Control Number (VCN): AI (7242)	N4+X..25	(FNC1)	VCN



GS1 Application Identifier	UN/CEFACT freight unit type code
7 0 4 1	X ₁ —— variable length ——>X ₄

The data transmitted from the barcode reader means that the element string denoting the freight unit type has been captured. As this element string is an attribute to a logistic unit it must be processed together with the SSCC of the unit to which it relates (see section [4.13 Data relationships](#)). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **UFRGT UNIT TYPE**

3.8.20 National Healthcare Reimbursement Number (NHRN): AIs (710), (711), (712), (713), (714), (715), ~~(716)~~ and ~~(7176)~~

The GS1 Application Identifiers (710), (711), (712), (713), (714), (715), ~~(716)~~ and ~~(7176)~~ 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), (714), (715), ~~(716)~~ and ~~(7176)~~ 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:

- 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.
- 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).
- 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".



Important:

- There is a mandatory association of the National Healthcare Reimbursement Number Application Identifier with the GTIN.
- 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.
- Additional individual NHRN AIs can only be assigned by GS1 and only in response to a work request being submitted through GSMP.
- The GTIN and all associated NHRNs SHOULD be concatenated into a single data carrier (i.e. single GS1-128, GS1 DataMatrix).



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

The general format of an NHRN GS1 Application Identifier is:

GS1 Application Identifier	National Healthcare Reimbursement Number
n n n	X ₁ —— variable length ——>X ₂₀

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 [Table 3-9](#)[Table 3-9](#)[Table 3-9](#):

Table 3-9 ~~3-93-93-93-93-9~~ 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
715	X ₁	variable length	X ₂₀	United States of America FDA
716	X ₁	variable length	X ₂₀	Italy AIFA
717	X₁	variable length	X₂₀	Costa Rica Ministry of Health
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 GSMP.

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 (see section [4.13 Data relationships](#)).

When indicating this element string in the non-HRI text section of a barcode label, the data title listed in [Table 3-1](#)[Table 3-1](#)[Table 3-1](#) SHOULD be used.

3.8.21 Certification reference: AI (723s)

The GS1 Application Identifier (723s) indicates that the GS1 Application Identifier data field contains a reference to a product certification. The certification reference is an attribute of a trade item or an individual asset.

As multiple certificates may be present, each with an individual certification reference, the fourth digit of the AI (s in the figure below) indicates the sequence of the certification references.

The general structure of AI (723s) is:

- Certification scheme (2 characters) defined by GS1. The following code values are currently allowed:



Invalid pairs of element strings				Rule
AI	Designation	AI	Designation	
7256	Full name of person	7253, 7254, 7255, 7259	Family name of person, given name of person and name suffix of person, baby of family name	Either full name of person or a combination of family name of person, given name of person and name suffix of person SHALL be used.
7259	Baby of family name	7253, 7254, 7255, 7256	Family name of person, given name of person, name suffix of person, full name of person	Where the recipient of care identified by a GSRN is a baby, the name of the baby SHALL either be provided through AI (7259) (possibly in conjunction with AI (7258), to handle situations of multiple births) or through the combination of one or more of AIs (7253), (7254), (7255), (7256).
8006	ITIP	01	GTIN	The GTIN SHALL NOT be used in combination with the identification of an individual trade item piece. The GTIN of the trade item to which the individual trade item piece belongs is contained in the element string.
8006	ITIP	37	Count of units contained	The count of units contained SHALL only be used with GTIN of contained trade items or trade item pieces.
8018	GSRN for the recipient	8017	GSRN for the provider	Only one Global Service Relation Number (recipient or provider) SHALL be applied at one time for identification of an individual in a given service relationship
8026	Identification of a trade item piece contained in a logistic unit	02, 8006	GTIN of contained trade items, Identification of an individual trade item piece	Identification of the trade item piece contained in a logistic unit SHALL NOT be used in combination with GTIN of contained trade items or identification of an individual trade item piece.

4.13.2 Mandatory association of element strings

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



Note: This does not necessarily mean that the element strings need to appear in the same data carrier. For example, multiple GS1-128 barcode symbols may be used in combination on a GS1 Logistic Label.

[Table 4-5](#) reflects the use case requirements to date. Should future applications arise that require associations they will be added at that time.

Some explanation on [Table 4-5](#):

- The table is sorted by AI value, with the AI that is the trigger for the rule displayed in the first column. This means that this table cannot be read in both directions. For example, a rule that states AI (17) must be used together with AI (01), does not imply that AI (01) can only be used together with AI (17), since it can also be used with other AIs.
- Multiple AIs may be listed in the first column, separated by commas. This means that the rule applies to all of the listed AIs (element strings).
- The same AI can occur in the first column multiple times, in different rows. This means that depending on the value of the element string different rules need to be applied.
- When multiple AIs are included in the third column, this is always done with an AND, OR or XOR logical operator between them:
 - AND means that all element strings SHALL appear on the physical entity
 - OR means that one or a combination of the element strings SHALL appear on the physical entity.



If element string		Then mandatory associated element string	Rule
AI	Designation	AI	
7005	Catch area	01 XOR 02	The catch area SHALL occur in combination with: - a GTIN; or - a GTIN of contained trade items.
7006	First freeze date	01 XOR 02	The first freeze date SHALL occur in combination with: - a GTIN; or - a GTIN of contained trade items.
7007	Harvest date	01 XOR 02	The harvest date SHALL occur in combination with: - a GTIN; or - a GTIN of contained trade items.
7008	Species for fishery purposes	01 XOR 02	The species for fishery purposes SHALL occur in combination with: - a GTIN; or - a GTIN of contained trade items.
7009	Fishing gear type	01 XOR 02	The fishing gear type SHALL occur in combination with: - a GTIN; or - a GTIN of contained trade items.
7010	Production method	01 XOR 02	The production method SHALL occur in combination with: - a GTIN; or - a GTIN of contained trade items.
7011	Test by date	01 XOR 02	The test by date and optional time SHALL occur in combination with: - a GTIN; or - a GTIN of contained trade items.
703(s)	Number of processor	01 XOR 02	The number of processor SHALL occur in combination with: - a GTIN; or - a GTIN of contained trade items.
710, 711, 712, 713, 714, 715, 716, 717	National Healthcare Reimbursement Number	01	National Healthcare Reimbursement Number(s) SHALL occur in combination with the GTIN.
7020	Refurbishment lot ID	(01 XOR 8006***) AND 416	The refurbishment lot ID SHALL occur in combination with the GLN of production/service location <u>and</u> : - a GTIN; or - an ITIP
7021	Functional status	01 XOR 8006***	The functional status SHALL occur in combination with: - a GTIN; or - an ITIP
7022	Revision status	(01 XOR 8006***) AND 7021	The revision status SHALL occur in combination with the functional status <u>and</u> : - a GTIN; or - an ITIP
7041	UN/CEFACT freight unit type	00	The UN/CEFACT freight unit type SHALL occur with an SSCC.
723s	Certification reference	01 XOR 8004	Certification reference SHALL occur in combination with: - a GTIN; or - a GIAI
7240	Protocol ID	01 XOR 8006	The protocol ID SHALL occur in combination with a GTIN
7241	AIDC media type	8017 XOR 8018	The AIDC media type SHALL occur in combination with: - the GSRN for the provider; or - the GSRN for the recipient



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 [Table 7-1](#)[Table 7-1](#)[Table 7-1](#) and [Table 7-2](#)[Table 7-2](#)[Table 7-2](#).

Table 7-1 ~~7-1~~ ~~7-1~~ ~~7-1~~ ~~7-1~~ ~~7-1~~ 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 with N1 = 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
AI 01	AI 715		Identification of a trade item + National Healthcare Reimbursement Number
AI 01	AI 716		Identification of a trade item + National Healthcare Reimbursement Number
AI 01	AI 717		Identification of a trade item + National Healthcare Reimbursement Number

Table 7-2 ~~7-2~~ ~~7-2~~ ~~7-2~~ ~~7-2~~ ~~7-2~~ 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



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

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	
AI 01	AI 710	AI 711	AI 712	AI 713	AI 714	AI 715		GTIN Identification of a trade item + Country "A" NHRN + Country "B" NHRN + Country "C" NHRN + Country "D" NHRN + Country "E" NHRN + Country "F" NHRN	
AI 01	AI 710	AI 711	AI 712	AI 713	AI 714	AI 715	AI 716	<u>AI 717</u> GTIN Identification of a trade item + Country "A" NHRN + Country "B" NHRN + Country "C" NHRN + Country "D" NHRN + Country "E" NHRN + Country "F" NHRN + Country "G" NHRN + <u>Country "H" NHRN</u>	

This algorithm is identical for all fixed length numeric GS1 data structures (including GDTI, GLN, GRAI, etc.) that require a check digit.

	Digit positions																		
GTIN-8											N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	
GTIN-12							N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	
GTIN-13							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
GTIN-14						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
17 digits		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	N ₁₅	N ₁₆	N ₁₇	
18 digits	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	N ₁₅	N ₁₆	N ₁₇	N ₁₈	
	Multiply value of each position by																		
	x3	X1	x3	x1	x3	x1	x3	x1	x3	x1	x3	x1	x3	x1	x3	x1	x3		
	Accumulated results = sum																		
	Subtract sum from nearest equal or higher multiple of ten = check digit																	→	