

The Global Language of Business

General Specifications Change Notification (GSCN)

WR #	GSCN Name	Effective Date
18-207	Encoding transport process information to support transport and logistics	10 Aug 2020

#### Associated Work Request (WR) Number:

GSMP:

#### **Background:**

This work to update the *General Specifications* is intended to define mandatory and optional data elements to enable interoperability amongst transport operators using GS1 standards when encoding address and delivery information in a GS1 data carrier. These data elements will work in concert with the Application Standard for encoding transport process information. Done correctly these standard data elements can support greater efficiency and increased freight visibility across the supply chain.

Transport data elements need to support three primary processes:

- Auto-sortation
- First/Last Mile activities
- Administration activities (i.e. proof of delivery, invoicing, etc.)

**Note for reading this document:** Mark-ups of existing sections are visible as mark ups. New sections that are to be added to the *General Specifications* are shown with a **section title highlighted in green**. Disregard empty sections as the numbering is required by the template to display the sections that have been edited or added.

#### **GS1** General Specifications Change:

#### 2.6.14 Encoding transport process information

#### Introduction

The global Transport & Logistics industry is experiencing exponential growth in freight volumes and becoming ever more open and competitive to support the growing needs. The increasing number of service providers (especially in Last Mile) and new entrants coming in from outside the traditional T&L environment causes challenges within the supplychain where parties involved in a supply chain at times don't even know each other, let alone have integrated systems. The fragmented nature of the industry, connectivity limitations (e.g. internet access) and the need for redundancy (e.g. absence of advance information exchange) drives the need for greater interoperability and the ability to capture transport process information via barcode(s). Information such as ship-to / deliver-to address and other delivery information is encoded directly on the logistic label to support first/last mile and sortation processes.

**Note (informative)**: For further guidance and supporting standards see the *GS1* Application Standard for encoding transport process information.

#### **Application description**

This application describes the creation of transport unit labels when using 2D barcodes to include necessary transport data on GS1 transport labels. The SSCC is the mandatory identifier required on all transport labels in a GS1-128 barcode and this application defines how it should be used together with optional attributes in 2D barcodes to support transport and logistic processes.

#### GS1 Key

#### Required

#### SSCC

The GS1 Application Identifier for the SSCC is AI (00), see section 3.2.

#### Rules

All SSCC rules described in section 4.4.

#### Attributes

#### Required

Not applicable

#### Optional

To provide optional transport process information, see Figure 2.6.15 for a listing of GS1 Application Identifiers. For all the GS1 Application Identifiers that may be used with an SSCC in support of encoding transport process information and their format, see section 3.2.

#### Figure 2.6.15 Application Identifiers used to support the transport process

AI	Data Content	Permits Non-Latin Characters
420	Ship-to / Deliver-to postal code with a single postal authority	
4300	Ship-to / Deliver-to company name	Х
4301	Ship-to / Deliver-to contact	Х
4302	Ship-to / Deliver-to address line 1	Х
4303	Ship-to / Deliver-to address line 2	Х
4304	Ship-to / Deliver-to suburb	Х
4305	Ship-to / Deliver-to locality	Х
4306	Ship-to / Deliver-to region	Х
4307	Ship-to / Deliver-to country code	
4308	Ship-to / Deliver-to telephone number	
4310	Return-to company name	Х
4311	Return-to contact	Х
4312	Return-to address line 1	Х
4313	Return-to address line 2	Х
4314 Return-to suburb X		Х
4315	Return-to locality	Х
4316	Return-to region	Х
4317	Return-to country code	
4318	18 Return-to postal code	
4319	Return-to telephone number	
4320	Service code description	Х
4321	Dangerous goods flag	
4322	Authority to leave	



4323	Signature required flag	
4324	Not before delivery date time	
4325	Not after delivery date time	
4326	Release date	

To encode non-Latin characters within the alphanumeric value, use percent-encoding as defined within RFC 3986. A space character should be encoded as a single plus symbol, +.

#### Rules

All transport process information rules see section 7.

For general human readable interpretation rules see section 4.15.

#### **Data carrier specification**

#### **Carrier choices**

- GS1-128
- GS1 DataMatrix
- GS1 QR Code
- EPC/RFID

The mandatory data carrier used to represent the SSCC on individual logistic units is the GS1-128 barcode symbology.

As indicated by figure 2.16.5, 2D symbols MAY be included in addition to the GS1-128 symbol. When used, the GS1 2D symbol SHALL include all element strings included in the GS1-128 symbol(s), and MAY include additional element strings.

If a logistic unit does not have at least one surface area greater than an A6 or  $4^{"} \times 6^{"}$  logistic label (see section <u>6.6.4.5</u>), a GS1 DataMatrix or GS1 QR Code MAY be used by itself on a logistic label, though a GS1-128 containing a SSCC is still recommended. If a logistic label is used with only a GS1 DataMatrix or GS1 QR Code, care must be taken to ensure trading partners are able to scan this barcode.

#### Symbol X-dimension, minimum symbol height, and minimum symbol quality

For GS1-128, GS1 DataMatrix and GS1 QR Code, see section 5.10.3.5 GS1 symbol specification table 5.

#### Symbol Placement

All the symbol placement guidelines in section 6.

#### Unique application processing requirements

For a description of processing requirements, see section 7. Note that some transport process information may include accented / non-Latin characters and space characters which are not available in the subset of *ISO/IEC 646 International Reference Version* defined in figure 7.11-1 used for all GS1 Application Identifier (AI) element strings. Encoding these characters can be accomplished using percent encoding as defined in RFC 3986 while using existing characters from the subset of *ISO/IEC 646 International Reference Version* defined in figure 7.11-1. Note that space character can be encoded as a plus symbol (+) as an alias of %20.



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### 3.2 GS1 Application Identifiers in numerical order

	Figure 3.2-1. GS1 Application Identifiers			
AI	Data Content	Format <sup>(1)</sup>	FNC1 required <sup>(4)</sup>	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+X20	(FNC1)	BATCH/LOT
11 (2)	Production date (YYMMDD)	N2+N6		PROD DATE
12 (2)	Due date (YYMMDD)	N2+N6		DUE DATE
13 (2)	Packaging date (YYMMDD)	N2+N6		PACK DATE
15 (2)	Best before date (YYMMDD)	N2+N6		BEST BEFORE or BEST BY
16 (2)	<u>Sell by date (YYMMDD)</u>	N2+N6		SELL BY
17 (2)	Expiration date (YYMMDD)	N2+N6		USE BY OR EXPIRY
20	Internal product variant	N2+N2		VARIANT
21	Serial number	N2+X20	(FNC1)	SERIAL
22	Consumer product variant	N2+X20	(FNC1)	CPV
235	Third Party Controlled, Serialised Extension of GTIN (TPX): AI (235)	N3+X28	(FNC1)	ТРХ
240	Additional product identification assigned by the manufacturer	N3+X30	(FNC1)	ADDITIONAL ID
241	Customer part number	N3+X30	(FNC1)	CUST. PART NO.
242	Made-to-Order variation number	N3+N6	(FNC1)	MTO VARIANT
243	Packaging component number	N3+X20	(FNC1)	PCN
250	Secondary serial number	N3+X30	(FNC1)	SECONDARY SERIAL
251	Reference to source entity	N3+X30	(FNC1)	REF. TO SOURCE
253	Global Document Type Identifier (GDTI)	N3+N13+X17	(FNC1)	GDTI
254	GLN extension component	N3+X20	(FNC1)	GLN EXTENSION COMPONENT
255	Global Coupon Number (GCN)	N3+N13+N12	(FNC1)	GCN
30	Variable count of items (variable measure trade item)	N2+N8	(FNC1)	VAR. COUNT
310n <sup>(3)</sup>	Net weight, kilograms (variable measure trade item)	N4+N6		NET WEIGHT (kg)
311n <sup>(3)</sup>	Length or first dimension, metres (variable measure trade item)	N4+N6		LENGTH (m)
312n (3)	Width, diameter, or second dimension, metres (variable measure trade item)	N4+N6		WIDTH (m)
313n <sup>(3)</sup>	Depth, thickness, height, or third dimension, metres (variable measure trade item)	N4+N6		HEIGHT (m)
314n <sup>(3)</sup>	Area, square metres (variable measure trade item)	N4+N6		AREA (m <sup>2</sup> )
315n (3)	Net volume, litres (variable measure trade item)	N4+N6		NET VOLUME (I)



AI	Data Content	Format <sup>(1)</sup>	FNC1 required <sup>(4)</sup>	Data title
316n <sup>(3)</sup>	<u>Net volume, cubic metres (variable measure trade item)</u>	N4+N6		NET VOLUME (m <sup>3</sup> )
320n <sup>(3)</sup>	Net weight, pounds (variable measure trade item)	N4+N6		NET WEIGHT (Ib)
321n <sup>(3)</sup>	Length or first dimension, inches (variable measure trade item)	N4+N6		LENGTH (i)
322n <sup>(3)</sup>	Length or first dimension, feet (variable measure trade item)	N4+N6		LENGTH (f)
323n (3)	Length or first dimension, yards (variable measure trade item)	N4+N6		LENGTH (y)
324n <sup>(3)</sup>	Width, diameter, or second dimension, inches (variable measure trade item)	N4+N6		WIDTH (i)
325n (3)	Width, diameter, or second dimension, feet (variable measure trade item)	N4+N6		WIDTH (f)
326n (3)	Width, diameter, or second dimension, yards (variable measure trade item)	N4+N6		WIDTH (y)
327n <sup>(3)</sup>	Depth, thickness, height, or third dimension, inches (variable measure trade item)	N4+N6		HEIGHT (i)
328n <sup>(3)</sup>	Depth, thickness, height, or third dimension, feet (variable measure trade item)	N4+N6		HEIGHT (f)
329n <sup>(3)</sup>	Depth, thickness, height, or third dimension, yards (variable measure trade item)	N4+N6		HEIGHT (y)
330n (3)	Logistic weight, kilograms	N4+N6		GROSS WEIGHT (kg)
331n <sup>(3)</sup>	Length or first dimension, metres	N4+N6		LENGTH (m), log
332n <sup>(3)</sup>	Width, diameter, or second dimension, metres	N4+N6		WIDTH (m), log
333n <sup>(3)</sup>	Depth, thickness, height, or third dimension, metres	N4+N6		HEIGHT (m), log
334n <sup>(3)</sup>	Area, square metres	N4+N6		AREA (m <sup>2</sup> ), log
335n <sup>(3)</sup>	Logistic volume, litres	N4+N6		VOLUME (I), log
336n (3)	Logistic volume, cubic metres	N4+N6		VOLUME (m <sup>3</sup> ), log
337n (3)	Kilograms per square metre	N4+N6		KG PER m <sup>2</sup>
340n (3)	Logistic weight, pounds	N4+N6		GROSS WEIGHT (lb)
341n (3)	Length or first dimension, inches	N4+N6		LENGTH (i), log
342n (3)	Length or first dimension, feet	N4+N6		LENGTH (f), log
343n (3)	Length or first dimension, yards	N4+N6		LENGTH (y), log
344n (3)	Width, diameter, or second dimension, inches	N4+N6		WIDTH (i), log
345n (3)	Width, diameter, or second dimension, feet	N4+N6		WIDTH (f), log
346n (3)	Width, diameter, or second dimension, yard	N4+N6		WIDTH (y), log
347n <sup>(3)</sup>	Depth, thickness, height, or third dimension, inches	N4+N6		HEIGHT (i), log
348n (3)	Depth, thickness, height, or third dimension, feet	N4+N6		HEIGHT (f), log
349n <sup>(3)</sup>	<u>Depth, thickness, height, or third dimension, yards</u>	N4+N6		HEIGHT (y), log



AI	Data Content	Format <sup>(1)</sup>	FNC1 required <sup>(4)</sup>	Data title
350n <sup>(3)</sup>	<u>Area, square inches (variable measure trade item)</u>	N4+N6		AREA (i <sup>2</sup> )
351n <sup>(3)</sup>	Area, square feet (variable measure trade item)	N4+N6		AREA (f <sup>2</sup> )
352n <sup>(3)</sup>	<u>Area, square yards (variable measure trade item)</u>	N4+N6		AREA (y <sup>2</sup> )
353n <sup>(3)</sup>	Area, square inches	N4+N6		AREA (i <sup>2</sup> ), log
354n <sup>(3)</sup>	Area, square feet	N4+N6		AREA (f <sup>2</sup> ), log
355n (3)	<u>Area, square yards</u>	N4+N6		AREA (y <sup>2</sup> ), log
356n <sup>(3)</sup>	<u>Net weight, troy ounces (variable measure trade item)</u>	N4+N6		NET WEIGHT (t)
357n <sup>(3)</sup>	<u>Net weight (or volume), ounces (variable measure trade item)</u>	N4+N6		NET VOLUME (oz)
360n <sup>(3)</sup>	<u>Net volume, quarts (variable measure trade item)</u>	N4+N6		NET VOLUME (q)
361n <sup>(3)</sup>	<u>Net volume, gallons U.S. (variable measure</u> <u>trade item)</u>	N4+N6		NET VOLUME (g)
362n (3)	Logistic volume, quarts	N4+N6		VOLUME (q), log
363n (3)	Logistic volume, gallons U.S.	N4+N6		VOLUME (g), log
364n <sup>(3)</sup>	<u>Net volume, cubic inches (variable measure</u> <u>trade item)</u>	N4+N6		VOLUME (i <sup>3</sup> )
365n <sup>(3)</sup>	<u>Net volume, cubic feet (variable measure trade</u> <u>item)</u>	N4+N6		VOLUME (f <sup>3</sup> )
366n <sup>(3)</sup>	<u>Net volume, cubic yards (variable measure trade item)</u>	N4+N6		VOLUME (y <sup>3</sup> )
367n <sup>(3)</sup>	Logistic volume, cubic inches	N4+N6		VOLUME (i <sup>3</sup> ), log
368n (3)	Logistic volume, cubic feet	N4+N6		VOLUME (f <sup>3</sup> ), log
369n <sup>(3)</sup>	Logistic volume, cubic yards	N4+N6		VOLUME (y <sup>3</sup> ), log
37	<u>Count of trade items or trade item pieces</u> <u>contained in a logistic unit</u>	N2+N8	(FNC1)	COUNT
390n (3)	Applicable amount payable or Coupon value, local currency	N4+N15	(FNC1)	AMOUNT
391n <sup>(3)</sup>	Applicable amount payable with ISO currency code	N4+N3+N15	(FNC1)	AMOUNT
392n <sup>(3)</sup>	392n <sup>(3)</sup> Applicable amount payable, single monetary area (variable measure trade item)		(FNC1)	PRICE
393n <sup>(3)</sup>	Applicable amount payable with ISO currency code (variable measure trade item)	N4+N3+N15	(FNC1)	PRICE
394n (3)	Percentage discount of a coupon	N4+N4	(FNC1)	PRCNT OFF
400	Customer's purchase order number	N3+X30	(FNC1)	ORDER NUMBER
401	Global Identification Number for Consignment (GINC)	N3+X30	(FNC1)	GINC
402	Global Shipment Identification Number (GSIN)	N3+N17	(FNC1)	GSIN
403	Routing code	N3+X30	(FNC1)	ROUTE
410	Ship-to / Deliver-to Global Location Number	N3+N13		SHIP TO LOC



AI	Data Content	Format <sup>(1)</sup>	FNC1 required <sup>(4)</sup>	Data title
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
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
417	Party GLN: AI (417)	N3+N13		PARTY
420	Ship-to / Deliver-to postal code within a single	<u>N3+X20</u>	(F <u>NC1)</u>	SHIP TO POST
421	Ship-to / Deliver-to postal code with ISO country code	<u>N3+N3+X9</u>	(F <u>NC1)</u>	SHIP TO POST
422	Country of origin of a trade item	N3+N3	(FNC1)	ORIGIN
423	Country of initial processing	N3+N3+N12	(FNC1)	COUNTRY - INITIAL PROCESS.
424	Country of processing	N3+N3	(FNC1)	COUNTRY - PROCESS.
425	Country of disassembly	N3+N3+N12	(FNC1)	COUNTRY - DISASSEMBLY
426	Country covering full process chain	N3+N3	(FNC1)	COUNTRY - FULL PROCESS
427	Country subdivision of origin	N3+X3	(FNC1)	ORIGIN SUBDIVISION
<u>4300</u>	Ship-to / Deliver-to company name	<u>N4+X35</u>	<u>(FNC1)</u>	SHIP TO COMP
<u>4301</u>	Ship-to / Deliver-to contact	<u>N4+X35</u>	<u>(FNC1)</u>	SHIP TO NAME
<u>4302</u>	Ship-to / Deliver-to address line 1	<u>N4+X70</u>	<u>(FNC1)</u>	SHIP TO ADD1
<u>4303</u>	Ship-to / Deliver-to address line 2	<u>N4+X70</u>	<u>(FNC1)</u>	SHIP TO ADD2
<u>4304</u>	Ship-to / Deliver-to suburb	<u>N4+X70</u>	(FNC1)	SHIP TO SUB
<u>4305</u>	Ship-to / Deliver-to locality	<u>N4+X70</u>	(FNC1)	SHIP TO LOC
<u>4306</u>	Ship-to / Deliver-to region	<u>N4+X70</u>	(FNC1)	SHIP TO REG
<u>4307</u>	Ship-to / Deliver-to country code	<u>N4+X2</u>	<u>(FNC1)</u>	SHIP TO COUNTRY
<u>4308</u>	Ship-to / Deliver-to telephone number	<u>N4+X30</u>	<u>(FNC1)</u>	SHIP TO PHONE
<u>4310</u>	Return-to company name	<u>N4+X35</u>	(FNC1)	RTN TO COMP
<u>4311</u>	Return-to contact	<u>N4+X35</u>	<u>(FNC1)</u>	RTN TO NAME
<u>4312</u>	Return-to address line 1	<u>N4+X70</u>	(FNC1)	RTN TO ADD1
<u>4313</u>	Return-to address line 2	<u>N4+X70</u>	(FNC1)	RTN TO ADD2
<u>4314</u>	Return-to suburb	<u>N4+X70</u>	(FNC1)	RTN TO SUB
<u>4315</u>	Return-to locality	<u>N4+X70</u>	(FNC1)	RTN TO LOC
<u>4316</u>	Return-to region	<u>N4+X70</u>	(FNC1)	RTN TO REG
<u>4317</u>	Return-to country code	<u>N4+X2</u>	(FNC1)	RTN TO COUNTRY
<u>4318</u>	Return-to postal code	<u>N4+X20</u>	(FNC1)	RTN TO POST
<u>4319</u>	Return-to telephone number	<u>N4+X30</u>	(FNC1)	RTN TO PHONE

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AI	Data Content	Format <sup>(1)</sup>	FNC1 required <sup>(4)</sup>	Data title
<u>4320</u>	Service code description	<u>N4+X35</u>	(FNC1)	SRV DESCRIPTION
<u>4321</u>	Dangerous goods flag	<u>N4+N1</u>	(FNC1)	DANGEROUS GOODS
<u>4322</u>	Authority to leave	<u>N4+N1</u>	(FNC1)	AUTH TO LEAVE
<u>4323</u>	Signature required flag	<u>N4+N1</u>	(FNC1)	SIG REQUIRED
<u>4324</u>	Not before delivery date time	<u>N4+N10</u>	(FNC1)	NOT BEF DEL DT
<u>4325</u>	Not after delivery date time	<u>N4+N10</u>	(FNC1)	NOT AFT DEL DT
<u>4326</u>	Release date	<u>N4+N6</u>	(FNC1)	REL DATE
7001	NATO Stock Number (NSN)	N4+N13	(FNC1)	NSN
7003	Expiration date and time	N4+N10	(FNC1)	EXPIRY TIME
7004	Active potency	N4+N4	(FNC1)	ACTIVE POTENCY
7005	Catch area	N4+X12	(FNC1)	CATCH AREA
7006	First freeze date	N4+N6	(FNC1)	FIRST FREEZE DATE
7007	Harvest date	N4+N612	(FNC1)	HARVEST DATE
7008	Species for fishery purposes	N4+X3	(FNC1)	AQUATIC SPECIES
7009	Fishing gear type	N4+X10	(FNC1)	FISHING GEAR TYPE
7010	Production method	N4+X2	(FNC1)	PROD METHOD
7020	Refurbishment lot ID	N4+X20	(FNC1)	REFURB LOT
7021	Functional status	N4+X20	(FNC1)	FUNC STAT
7022	Revision status	N4+X20	(FNC1)	REV STAT
7023	<u>Global Individual Asset Identifier (GIAI) of an</u> <u>assembly</u>	N4+X30	(FNC1)	GIAI – ASSEMBLY
703s <sup>(8)</sup>	Number of processor with ISO Country Code	N4+N3+X27	(FNC1)	PROCESSOR # s
7040	GS1 UIC with Extension 1 and Importer index: AI (7040)	N4+N1X2+X3+X 4	(FNC1)	UIC+EXT
710	<u>National Healthcare Reimbursement Number</u> (NHRN) – Germany PZN	N3+X20	(FNC1)	NHRN PZN
711	<u>National Healthcare Reimbursement Number</u> (NHRN) – France CIP	N3+X20	(FNC1)	NHRN CIP
712	<u>National Healthcare Reimbursement Number</u> (NHRN) – Spain CN	N3+X20	(FNC1)	NHRN CN
713	<u>National Healthcare Reimbursement Number</u> ( <u>NHRN) – Brasil DRN</u>	N3+X20	(FNC1)	NHRN DRN
714	<u>National Healthcare Reimbursement Number</u> ( <u>NHRN) – Portugal AIM</u>	N3+X20	(FNC1)	NHRN AIM
(5)	<u>National Healthcare Reimbursement Number</u> ( <u>NHRN) – Country "A" NHRN</u>	N3+X20	(FNC1)	NHRN xxx
723s <sup>(6)</sup>	Certification reference	N4+X2+X28	(FNC1)	CERT # s
7240	Protocol ID	X20	(FNC1)	PROTOCOL
8001	Roll products (width, length, core diameter, direction, splices)	N4+N14	(FNC1)	DIMENSIONS
8002	Cellular mobile telephone identifier	N4+X20	(FNC1)	CMT No
8003	Global Returnable Asset Identifier (GRAI)	N4+N14+X16	(FNC1)	GRAI



AI	Data Content	Format <sup>(1)</sup>	FNC1 required <sup>(4)</sup>	Data title
8004	Global Individual Asset Identifier (GIAI)	N4+X30	(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 (7)
8007	International Bank Account Number (IBAN)	N4+X34	(FNC1)	IBAN
8008	Date and time of production	N4+N8+N4	(FNC1)	PROD TIME
8009	Optically Readable Sensor Indicator	N4+X50	(FNC1)	OPTSEN
8010	Component/Part Identifier (CPID)	N4+X30	(FNC1)	CPID
8011	<u>Component/Part Identifier serial number (CPID</u> <u>SERIAL)</u>	N4+N12	(FNC1)	CPID SERIAL
8012	Software version	N4+X20	(FNC1)	VERSION
8013	<u>Global Model Number (GMN)</u>	N4+X30	(FNC1)	GMN
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+N10	(FNC1)	SRIN
8020	Payment slip reference number	N4+X25	(FNC1)	REF No
8110	<u>Coupon code identification for use in North</u> <u>America</u>	N4+X70	(FNC1)	-
8026	<u>Identification of pieces of a trade item (ITIP)</u> <u>contained in a logistic unit: AI (8026)</u>	N4+N14+N2+N2	(FNC1)	ITIP CONTENT
8111	Loyalty points of a coupon	N4+N4	(FNC1)	POINTS
8112	Positive offer file coupon code identification for use in North America: (AI 8112)	N4+X70	(FNC1)	-
8200	Extended Packaging URL	N4+X70	(FNC1)	PRODUCT URL
90	Information mutually agreed between trading partners	N2+X30	(FNC1)	INTERNAL
91 to 99	Company internal information	N2+X90	(FNC1)	INTERNAL

NOTES:

(1): 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

N3 3 numeric digits, predefined length

N..3 up to 3 numeric digits

• X..3 up to 3 characters in figure 7.11-1

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



(3): 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

(4): All GS1 element strings that begin with GS1 Application Identifiers not contained in the predefined table shown in figure <u>7.8.4-2</u> SHALL be separated by a separator character unless this element string is the last one to be encoded in the symbol. For details on the separator character see section <u>7.8.3</u>.

(5) An example to illustrate future additional National Healthcare Reimbursement Numbers (NHRNs). If additional NHRN AIs are required, a request for a new NHRN AI SHALL be made through GSMP.

(6) The fourth digit of this GS1 Application Identifier indicates the sequence number, allowing for multiple occurrences of the AI.

(7) ITIP is the preferred data title for AI (8006) and GCTIN will have a sunset date of January 2020.

#### 3.7.2

#### 3.7.3

#### 3.7.4 Routing code: AI (403)

The GS1 Application Identifier (403) indicates that the GS1 Application Identifier data field contains a routing code. The routing code is assigned by the parcel carrier and is an attribute of the SSCC (Serial Shipping Container Code). It is intended to provide a migration path to the adoption of a yet-to-be-defined international, multi-modal solution. The routing code must not be used to encode information for which other element strings have been created (such as a ship to postal code).

The routing code field is alphanumeric and may include all characters contained in figure 7.11-1. Its content and structure are at the discretion of the parcel carrier issuing the code. If parcel carriers wish to enter co-operative agreements with other parcel carriers, then a mutually agreed indicator is required to designate the structure of the routing code.

Figure 3.7.4-1. Format of the element string

GS1 Application Identifier	Routing code
403	X <sub>1</sub> ————variable length———>X <sub>30</sub>

The data transmitted from the barcode reader means that the element string denoting a routing code has been captured. As this element string is an attribute of a logistic unit, it must be processed together with the SSCC to which it relates (see section <u>4.14</u> Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **ROUTE** 

NOTE: This field may be used to encode the UPU S10 freight unit identifier within a GS1 symbol.



#### 3.7.13 Ship-to / Deliver-to postal code within a single postal authority: AI (420)

The GS1 Application Identifier (420) indicates that the GS1 Application Identifier data field contains the postal code of the addressee (national format). The postal code field contains the postal code of the addressee as defined by the appropriate postal authority. It is left justified and must not contain any fill characters.

Figure 3.7.13-1. Format of the element stri				
	GS1 Application Identifier	Postal code		
	420	X <sub>1</sub> —variable length—>X <sub>20</sub>		

The data transmitted from the barcode reader means that the element string denoting the national version of a postal code of the addressee of the transport unit has been captured. This element string may be processed as stand-alone information or in combination with the GS1 identification key to which it relates. Restrictions apply to the use of AI (420) in combination with other AIs, see section <u>4.14</u> Data relationships. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO POST** 

#### 3.7.14 Ship\_to / Deliver-to postal code with three-digit ISO country code: AI (421)

The GS1 Application Identifier (421) indicates that the GS1 Application Identifier data field contains the postal code of the addressee (international format). The ISO country code field contains the three-digit country number of the numerical international standard *ISO 3166*.

The national postal code field, which follows the three-digit ISO country code, contains the postal code of the addressee as defined by the appropriate postal authority. It is left justified and must not contain any fill characters.

Figure 3.7.14-1. Format of the element string		
GS1 Application Identifier	ISO country code	Postal code
421	N1 N2 N3	X <sub>4</sub> —variable length—>X <sub>12</sub>

The data transmitted from the barcode reader means that the element string denoting the international version of a postal code of the addressee of the transport unit has been captured. This element string may be processed as stand-alone information or in combination with the GS1 identification key to which it relates. Restrictions apply to the use of AI (421) in combination with other AIs, see section <u>4.14</u> Data relationships.

When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO POST** 

Deleted: Deleted: -Deleted:

Deleted: Ship to - Deliver to



#### 3.7.21 Ship-to / Deliver-to Company name: AI (4300)

The GS1 Application Identifier (4300) indicates that the GS1 Application Identifier data field contains the name of a company. The company is name of the organization intended to receive the logistic unit.

	Fig	ure 3.7.21-1.	Format of	the e	lement string
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GS1 Application Identifier	Ship-to / Deliver-to Company
4300	$X_1$

The data transmitted from the barcode reader means that the element string denoting the ship-to / deliver-to company has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. As this element string is an attribute of a logistic unit, it must be processed together with the SSCC of the logistic unit to which it relates (see section 4.14 Data relationships).

When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used:  ${\bf SHIP}\ {\bf TO}\ {\bf COM}$ 

#### 3.7.22 Ship-to / Deliver-to contact: AI (4301)

The GS1 Application Identifier (4301) indicates that the GS1 Application Identifier data field contains the ship-to contact. The contact is the name of the individual intended to receive the logistic unit.

<b>Figure 3.7.22-1.</b> Format of the element string	
GS1 Application Identifier	Ship-to / Deliver-to Contact
4 3 0 1	$X_1 \longrightarrow variable length \longrightarrow X_{35}$

The data transmitted from the barcode reader means that the element string denoting the ship-to / deliver-to contact of a logistic unit has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. As this element string is an attribute of a logistic unit, it must be processed together with the SSCC of the logistic unit to which it relates (see section 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO NAME** 

#### 3.7.23 Ship-to / Deliver-to address line 1: AI (4302)

The GS1 Application Identifier (4302) indicates that the GS1 Application Identifier data field contains line one of the ship-to / deliver-to street address line 1 (e.g. street).

|--|

GS1 Application Identifier	Ship-to / Deliver-to address line 1
4 3 0 2	X1>variable length>X70



The data transmitted from the barcode reader means that the element string denoting ship-to / deliver-to address line 1 has been captured. As this element string is an attribute of a logistic unit, it must be processed together with the SSCC of the logistic unit to which it relates (see section 4.14 Data relationships). As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO ADD1** 

#### 3.7.24 Ship-to / Deliver-to address line 2: AI (4303)

The GS1 Application Identifier (4303) indicates that the GS1 Application Identifier data field contains line two of the ship-to / deliver-to street address.

Figure 3.7.24-1.	Format of the	element string
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GS1 Application Identifier	Ship-to / Deliver-to address line 2
4303	$X_1$

The data transmitted from the barcode reader means that the element string denoting line two of the ship-to / deliver-to address has been captured. This element string must be processed to together with the Ship-to / Deliver-to address line 1, (see section 4.14 *Data relationships*). Restrictions apply to the use of AI (4303) in combination with other AIs, see section 4.14 *Data relationships*. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO ADD2** 

#### 3.7.25 Ship-to / Deliver-to suburb: AI (4304)

The GS1 Application Identifier (4304) indicates that the GS1 Application Identifier data field contains suburb information for the ship-to / deliver-to address.

Figure 3.7.	<b>25-1</b> . Format of the element string
GS1 Application Identifier	Ship-to / Deliver-to suburb
4 3 0 4	X1>variable length>X70

The data transmitted from the barcode reader means that the element string denoting the suburb for the ship to address has been captured. As this element string is an attribute of a logistic unit, it must be processed together with the SSCC of the logistic unit to which it relates (see section 4.14 Data relationships).

As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO SUB** 



#### 3.7.26 Ship-to / Deliver-to locality: AI (4305)

The GS1 Application Identifier (4305) indicates that the GS1 Application Identifier data field contains locality information for the ship-to / deliver-to address. Locality typically means a town or city.

Figure 3.7.2	<b>26-1</b> . Format of the element string	
GS1 Application Identifier	Ship-to / Deliver-to locality	
4 3 0 5	X1>variable length>X70	

The data transmitted from the barcode reader means that the element string denoting the locality for the ship to / deliver-to address has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. As this element string is an attribute of a logistic unit, it must be processed together with the SSCC of the logistic unit to which it relates (see section 4.14 Data relationships).

When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO LOC** 

#### 3.7.27 Ship-to / Deliver-to region: AI (4306)

The GS1 Application Identifier (4306) indicates that the GS1 Application Identifier data field contains the region information for the ship-to / deliver-to address. Region typically means a first-tier federal state within a country, such as a state in the USA or Australia or a county within the UK.

#### Figure 3.7.27-1. Format of the element string

GS1 Application Identifier	Ship-to / Deliver-to region
4 3 0 6	X1>variable length>X70

The data transmitted from the barcode reader means that the element string denoting region or the ship to / deliver-to address has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. As this element string is an attribute of a logistic unit, it must be processed together with the SSCC of the logistic unit to which it relates (see section 4.14 Data relationships).

When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO REG** 

#### 3.7.28 Ship-to / Deliver-to country code: AI (4307)

The GS1 Application Identifier (4307) indicates that the GS1 Application Identifier data field contains the country code for the ship-to / deliver-to address. Alpha-2 codes from ISO 3166 *Country Codes* SHALL be used, e.g. FR for France, DE for Germany.

#### Figure 3.7.28-1. Format of the element string

GS1 Application Identifier Ship-to / Deliver-to country code



4207	V.V.
4307	A1 A2

The data transmitted from the barcode reader means that the element string denoting the country code for ship-to / deliver-to country code has been captured. As this element string is an attribute of a logistic unit, it must be processed together with the SSCC of the logistic unit to which it relates (see section 4.14 Data relationships).

When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO COUNTRY** 

#### 3.7.29 Ship-to / Deliver-to telephone number: AI (4308)

The GS1 Application Identifier (4308) indicates that the GS1 Application Identifier data field contains the phone number associated with the ship-to / deliver-to address.

#### Figure 3.7.29-1. Format of the element string

GS1 Application Identifier	Ship-to / Deliver-to telephone number
4 3 0 8	X1>variable length>X30

The data transmitted from the barcode reader means that the element string denoting the ship-to / deliver-to telephone number has been captured. As this element string is an attribute of a logistic unit, it must be processed together with the SSCC of the logistic unit to which it relates (see section 4.14 Data relationships).

This AI permits up to 30 alphanumeric characters from the GS1 AI encodable character set 82, Figure 7.11-1. It is recommended to specify a full International Direct Dial (IDD) phone number including country code, area code and subscriber number (and any extension if required). Note that a space character is not included in Figure 7.11-1, so hyphen character may be used in place of space.

ITU standard E.164 format is an all-numeric format for IDD and assumes that the country code are the first digits; it contains no International Dialling Prefix.

For example, the E.164 format for the same example (GS1 Global Office in Brussels) is 3227887800. Either format (IDD or E.164) (e.g. +32-2-788-78-00 or 3227887800) are acceptable for the value of this Application Identifier.

When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SHIP TO PHONE** 

#### 3.7.30 Return-to company name: AI (4310)

The GS1 Application Identifier (4310) indicates that the GS1 Application Identifier data field contains the return-to name of the company associated with the return-to address.

Figure 3.7.30-1. Format of the element string		
GS1 Application Identifier	Return-to company name	
4310	X1> variable length>X35	



The data transmitted from the barcode reader means that the element string denoting the return-to company name has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **RTN TO COMP** 

#### 3.7.31 Return-to contact name: AI (4311)

The GS1 Application Identifier (4311) indicates that the GS1 Application Identifier data field contains the contact name for the return-to address. The contact name is the individual intended to receive the logistic unit for returned units.

Figure 3.7.31-1. Format of the element string			
GS1 Application Identifier	Return-to contact		
4311	$X_1$		

The data transmitted from the barcode reader means that the element string denoting the Return to contact of a logistic unit has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **RTN TO NAME** 

#### 3.7.32 Return-to address line 1: AI (4312)

The GS1 Application Identifier (4312) indicates that the GS1 Application Identifier data field contains street address line 1 information for line one of a return to street address for the return-to address (e.g. street).

Figur	e 3.7.32-1	. Format of	the el	ement string

GS1 Application Identifier	Return-to address line 1
4 3 0 2	X1>variable length>X70

The data transmitted from the barcode reader means that the element string denoting return to address line 1 has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **RTN TO ADD1** 

#### 3.7.33 Return-to address line 2: AI (4313)

The GS1 Application Identifier (4303) indicates that the GS1 Application Identifier data field contains street address information for line two of a return-to street address.



#### Figure 3.7.33-1. Format of the element string

GS1 Application Identifier	Return-to address line 2	
4313	X1>variable length>X70	

The data transmitted from the barcode reader means that the element string denoting return-to address line two has been captured. Restrictions apply to the use of AI (4303) in combination with other AIs, see section 4.14 *Data relationships*. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **RTN TO ADD2** 

#### 3.7.34 Return-to suburb: AI (4314)

The GS1 Application Identifier (4314) indicates that the GS1 Application Identifier data field contains suburb information for the return-to address.

Figure 3.7.34-1. Format of the element string			
GS1 Application Identifier	Return-to suburb		
4314	X <sub>1</sub> variable length X <sub>70</sub>		

The data transmitted from the barcode reader means that the element string denoting the suburb for the return-to address has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **RTN TO SUB** 

#### 3.7.35 Return-to locality: AI (4315)

The GS1 Application Identifier (4315) indicates that the GS1 Application Identifier data field contains locality information for the return-to address. A locality is typically a town or city.

Figure 3.7.35-1. Format of the element string			
GS1 Application Identifier	Return to locality		
4 3 0 5	X1 variable length X70		

The data transmitted from the barcode reader means that the element string denoting the locality for the return to address has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **RTN TO LOC** 



#### 3.7.36 Return-to region: AI (4316)

The GS1 Application Identifier (4316) indicates that the GS1 Application Identifier data field contains the region information for the return-to address. Region typically means a first-tier federal state within a country, such as a state in the USA or Australia or a county within the UK.

Figure 3.7.36-1. Format of the element string		
GS1 Application Identifier	Return to region	
4316	X1>variable length>X70	

The data transmitted from the barcode reader means that the element string denoting the region the return to address has been captured. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **RTN TO REG** 

#### 3.7.37 Return-to country code: AI (4317)

The GS1 Application Identifier (4317) indicates that the GS1 Application Identifier data field contains the country code for the return-to address. Alpha-2 codes from ISO 3166 *Country Codes* SHALL be used, e.g. AT for Austria, AU for Australia.

#### Figure 3.7.37-1. Format of the element string

GS1 Application Identifier	Return-to country code
4317	X <sub>1</sub> X <sub>2</sub>

The data transmitted from the barcode reader means that the element string denoting the country code for the return-to address 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **RTN TO COUNTRY** 

#### 3.7.38 Return-to post code: AI (4318)

The GS1 Application Identifier (4318) indicates that the GS1 Application Identifier data field contains the post code associated with the return-to address.

Figure 3.7.38-1. Format of the element string		
GS1 Application Identifier	Return-to post code	
4318	X <sub>1</sub> >variable length>X <sub>20</sub>	



The data transmitted from the barcode reader means that the element string denoting the postal code for the return-to address 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **RTN TO POST CODE** 

#### 3.7.39 Return-to phone number: AI (4319)

The GS1 Application Identifier (4319) indicates that the GS1 Application Identifier data field contains the phone number associated with the return-to address.

Figure 3.7.39-1	. Format of the	e element string
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GS1 Application Identifier	Return-to phone number
4319	X <sub>1</sub> > variable length>X <sub>30</sub>

The data transmitted from the barcode reader means that the element string denoting the phone number for the return-to address 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 4.14 Data relationships).

This AI permits up to 30 alphanumeric characters from the GS1 AI encodable character set 82, Figure 7.11-1. It is recommended to specify a full International Direct Dial (IDD) phone number including country code, area code and subscriber number (and any extension if required). Note that a space character is not included in Figure 7.11-1, so hyphen character may be used in place of space.

ITU standard E.164 format is an all-numeric format for IDD and assumes that the country code are the first digits; it contains no International Dialling Prefix.

For example, the E.164 format for the same example (GS1 Global Office in Brussels) is 3227887800. Either format (IDD or E.164) (e.g. +32-2-788-78-00 or 3227887800) are acceptable for the value of this Application Identifier.

When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used:  ${\bf RTN}$  TO  ${\bf PHONE}$ 

#### 3.7.40 Service code description: AI (4320)

The GS1 Application Identifier (4320) indicates that the GS1 Application Identifier data field contains a description of the type of service or handling appropriate for the logistic unit.

<b>FIGURE 3.7.40-1</b> . Format of the element su	trin	trin	st	. :	nt	ner	em	ele	the	of	lat	For	·1.	.40-	.7	3	aure	Fi
---	------	------	----	-----	----	-----	----	-----	-----	----	-----	-----	-----	------	----	---	------	----

GS1 Application Identifier	Service code description
4 3 2 0	$X_1$ → variable length → $X_{35}$

The data transmitted from the barcode reader means that the element string denoting the type of service or handling appropriate for the logistic unit has been captured. The description may be a text field determined by the shipping company using this AI. As a free text field for transport process information, non-Latin characters and a space character may be encoded, see Figure 2.6.15. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SRV DESCRIPTION** 

#### 3.7.41 Dangerous goods flag: AI (4321)

The GS1 Application Identifier (4321) indicates that the GS1 Application Identifier data field contains an indication that the logisitic unit does or does not include dangerous goods.

Figu	re 3.7.41-1.Format of the element string	
Dangarauc	Defined values	

GS1 Application Identifier	goods flag	Defined values
4321	N1	0 (indicates not a dangerous good) 1 (indicates a dangerous good )

The data transmitted from the barcode reader means that the element string denoting dangerous goods flag has been captured. To indicate the item is not a dangerous good a zero will be encoded in the data, to indicate the item contains a dangerous good a one will be encoded in the data. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **DG FLAG** 

#### 3.7.42 Authority to leave flag: AI (4322)

The GS1 Application Identifier (4322) indicates that the GS1 Application Identifier data field indicates whether an item can be left with the recipient without requiring a signature or other confirmation.

	Figure 3.7.42-1. Format or the element string						
GS1 Application Identifier	Authority to leave flag	Defined values					
4320	N1	0 (meaning no) 1 (meaning yes)					

Figure 2 7 42 1 Format of the element string

The data transmitted from the barcode reader means that the element string denoting authority to leave flag has been captured. To indicate no (not authorized to leave) a zero will be encoded in the data, when indicating yes (authorized to leave) a one will be encoded in the data. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **AUTH LEAVE** 

#### 3.7.43 Signature required flag: AI (4323)

The GS1 Application Identifier (4323) indicates that the GS1 Application Identifier data field indicates whether a signature is required when delivering a logistic unit.



#### Figure 3.7.43-1. Format of the element string

GS1 Application Identifier	Signature required flag	Defined values
4323	N1	0 (meaning no)
		1 (meaning yes)

The data transmitted from the barcode reader means that the element string denoting signature required has been captured. To indicate no (no signature required) a zero will be encoded in the data, when indicating yes (signature is required) a one will be encoded in the data. 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **SIG REQ** 

#### 3.7.44 Not before delivery date/time: AI (4324)

The GS1 Application Identifier (4324) indicates that the data fields contain not before delivery date and time. This date indicates that the logistic unit cannot be delivered before the indicated date and local time to the receiver.

Figure 3.7.44-1 Format of the element string

GS1 Application Identifier	n Not before delivery date/time					
	YY	ММ	DD	нн	ММ	
4324	N1 N2	N3 N4	N5 N6	N7 N8	N9 N10	

The structure is:

- Year: the tens and units of the year (e.g. 2007 = 07), which is mandatory
- **Month**: the number of the month (e.g., January = 01), which is mandatory
- Day: the number of the day of the relevant month (e.g., second day = 02), which is mandatory
- Hour and Minutes: the number of the hour and minutes based on a local 24-hour time (e.g., 2:30 p.m. = 1430). If it is not necessary to specify a time, these fields must be filled with zeros.

**Note**: When it is not necessary to specify the day (the day field is filled with two zeros), the resultant data string SHALL be interpreted as the last day of the noted month including any adjustment for leap years (e.g., "130200" is "2013 February 28", "160200" is "2016 February 29", etc.).

**Note**: This element string can only specify dates ranging from 49 years in the past to 50 years in the future. Determination of the correct century is explained in section 7.12.

The data transmitted from the barcode reader means that the element string denoting a not before delivery data/time 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **NBEF DATE** 

#### 3.7.45 Not after delivery date/time: AI (4325)



The GS1 Application Identifier (4325) indicates that the data fields contain not after delivery date and time. This date indicates that the logistic unit cannot be delivered after the indicated date and local time to the receiver.

Figure 3.7.45-1 Format of the element string							
GS1 Application Identifier	Not after delivery date/time						
	YY	ММ	DD	нн	ММ		
4 3 2 5	N1 N2	N3 N4	N5 N6	N7 N8	N9 N10		

The structure is:

- Year: the tens and units of the year (e.g. 2007 = 07), which is mandatory
- **Month**: the number of the month (e.g., January = 01), which is mandatory
- **Day**: the number of the day of the relevant month (e.g., second day = 02), which is mandatory
- Hour and Minutes: the number of the hour and minutes based on a local 24-hour time (e.g., 16:30 p.m. = 1830). If it is not necessary to specify a time, these fields must be filled with zeros.

**Note**: When it is not necessary to specify the day (the day field is filled with two zeros), the resultant data string SHALL be interpreted as the last day of the noted month including any adjustment for leap years (e.g., "130200" is "2013 February 28", "160200" is "2016 February 29", etc.).

**Note**: This element string can only specify dates ranging from 49 years in the past to 50 years in the future. Determination of the correct century is explained in section 7.12.

The data transmitted from the barcode reader means that the element string denoting a not after delivery data/time 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **NAFT DATE**.

#### 3.7.46 Release date: AI (4326)

The GS1 Application Identifier (4326) indicates that the data fields contain the release for the logistic unit. This date indicates that the logistic unit can be released for delivery after the indicated date.

Figure 3.7.46-1 Format of the element string						
GS1 Application	Release date					
Identifier	YY	ММ	DD			
4326	N1 N2	N3 N4	N5 N6			

#### The structure is:

• Year: the tens and units of the year (e.g. 2007 = 07), which is mandatory



- **Month**: the number of the month (e.g., January = 01), which is mandatory
- **Day**: the number of the day of the relevant month (e.g., second day = 02), which is mandatory

The data transmitted from the barcode reader means that the element string denoting a release date 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 4.14 Data relationships). When indicating this element string in the non-HRI text section of a barcode label, the following data title SHOULD be used: **REL DATE**.



#### 4.14 Data relationships

This section defines the rules for allowed combinations of element strings on the same physical entity, irrespective of the data carrier(s) applied to the entity. The rules are application-neutral, which means that they apply to all applications listed in section 2 and to any other application where multiple element strings are combined on the same physical entity.

The rules are presented in two tables:

- 1. Invalid pairs of element strings, indicating which combinations of element strings are not allowed on the same physical entity.
- Mandatory pairs of element strings, indicating which element strings must occur in combination with one or more other element strings.
  - Note: In both tables, the GS1 Application Identifiers (AIs) are used to indicate the element string. But when evaluating the rule the complete element string, i.e. the AI and the data field, needs to be taken into account.
- Note: GTINs encoded in an EAN/UPC and ITF-14 symbols are to be regarded as element strings prefixed by an inferred AI (01).
- Note: Duplicate element strings (e.g., two serial numbers, two batch/lot numbers, two Extended Packaging URLs) MAY appear on the same physical entity (for example in multiple barcodes). In that case they SHALL have the same value in each occurrence on that entity.

#### 4.14.1 Invalid pairs of element strings

This section defines the pairs of element strings that SHALL NOT appear together on the same physical entity. The table does not provide a finite list of all possible rules, only situations that have proven to pose difficulties in practice are included.

Some explanation on figure 4.14.1-1:

- The table is sorted by AI value, with the lowest AI value displayed in the first column.
- Multiple AIs may be listed in the first or third column, separated by commas. This means that the same rule applies to all listed AIs.
- The rules work in both directions, e.g., if it states AI (01) SHALL NOT be combined with AI (37) this implies that AI (37) SHALL NOT be combined with AI (01).

Invalid pairs	of element strings			Rule
AI	Designation	AI	Designation	
01	GTIN	01	GTIN	All occurrences of GTIN SHALL have one value. It is for example not allowed to include GTINs of other packaging levels.
01	GTIN	02	GTIN of contained trade items	GTIN of contained trade items is intended to list the trade items contained in a logistic unit, and SHALL NOT be used to identify the contents of a trade item.
01	GTIN	37	Count of units contained	The count of units contained SHALL only be used with GTIN of contained trade items or trade item pieces.

#### Figure 4.14.1-1. Invalid pairs of element strings



Invalid pairs	of element strings		Rule	
AI	Designation	AI	Designation	
01	GTIN	255	Global Coupon Number	A trade item SHALL NOT also be identified as a coupon.
21	Serial Number	235	Third Party Controlled, Serialised Extension of GTIN	Only Serial Number or Third Party Controlled, Serialised Extension of GTIN SHALL be used with GTIN.
420	Ship to postal code, single postal authority	421	Ship to postal code with ISO country code	Only one ship to postal code SHALL be applied on the same physical entity.
<u>421</u>	Ship-to / Deliver- to postal code with three-digit ISO country code	_ <u>4307</u>	<u>Ship-to / Deliver-</u> to country code	Only one ship-to country code SHALL be applied on the same physical entity
422, 423, 424, 425	Country of origin, initial processing, processing, or disassembly	426	Country of full processing	Country of origin, initial processing, processing, or disassembly SHALL NOT be used in combination with country of full processing, since this would lead to ambiguous data.
390n	Amount payable – single monetary area	391n	Amount payable – with ISO currency code	Only one amount payable element string SHALL be applied on a payment slip.
390n	Coupon value	394n, 8111	Percentage discount of a coupon, Loyalty points of a coupon	The element strings coupon value, percentage discount of a coupon and loyalty points of a coupon SHALL NOT be applied in combination.
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 SHALL be applied on a variable measure trade item.
394n	Percentage discount of a coupon	8111	Loyalty points of a coupon	The element strings percentage discount of a coupon and loyalty points of a coupon SHALL NOT be applied in combination.
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.



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#### 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.

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.

Some explanation on figure <u>4.14.2-1</u>:

- 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.
  - XOR means that one of the element strings SHALL appear on the physical entity, and the other element string SHALL NOT.

If element string		Then mandatory associated element string	Kule
AI	Designation	AI	
01 with $N_1$ = 0	GTIN of a variable measure trade	30 OR 3nnn*	The GTIN of a variable measure trade item scanned at POS SHALL occur in combination with:
	item scanned at		<ul> <li>variable count of items; or</li> </ul>
	PUS		<ul> <li>a trade measure</li> </ul>
			Note: Master data will be needed to determine whether the GTIN represents a variable measure trade item scanned at POS.
			Also see the note below this table.
01 with N <sub>1</sub> = 9, 02	GTIN of a variable measure trade item not scanned at POS	30 OR 3nnn* OR 8001	The GTIN of a variable measure trade item not scanned at POS SHALL occur in combination with:
with $N_1 =$			<ul> <li>variable count of items; or</li> </ul>
9			<ul> <li>a trade measure; or</li> </ul>
			the dimensions of a roll product.
			Note: The first position of the GTIN is "9" for such trade items. Also see the note below this table.
01 with N1 = 9	GTIN of a custom trade item.	242	The GTIN of a custom trade item SHALL be used in combination with the Made-to-Order variation number.
			Note. The first position of the GTIN is 9 101 such trade items.

#### Figure 4.14.2-1. Mandatory association of element strings



If element string		Then mandatory associated element string	Kule	
AI	Designation	AI		
02	GTIN of contained trade items	00 AND 37	The GTIN of contained trade items SHALL occur in combination with an SSCC and the count of the trade items.	
10	Batch/lot number	01 XOR 02 XOR 8006 XOR 8026 ***	<ul> <li>Batch/lot number SHALL occur in combination with:</li> <li>a GTIN; or</li> <li>a GTIN of contained trade items; or</li> <li>an ITIP</li> <li>an ITIP of contained trade item pieces</li> </ul>	
11, 13, 15, 16, 17	Production date, packaging date, best before date, sell by date, expiration date (of a trade item)	01 XOR 02 XOR 8006 XOR 8026 ***	These dates SHALL occur in combination with: • a GTIN; or • a GTIN of contained trade items; or • an ITIP • an ITIP of contained trade item pieces	
12	Due date	8020 AND 415	The due date SHALL occur in combination with the payment slip reference number and the GLN of the invoicing party	
17	Expiration date (of a coupon)	255	The expiration date of a coupon SHALL occur in combination with the GCN.	
20	Internal product variant	01 XOR 02 XOR 8006 XOR 8026 ***	Internal product variant SHALL occur in combination with: a GTIN; or a GTIN of contained trade items; or an ITIP an ITIP of contained trade item pieces	
21	Serial number	01 XOR 8006***	The serial number SHALL occur in combination with: • a GTIN; or • an ITIP Note: SGTIN is a common term for the combination of GTIN and serial number.	
22	Consumer product variant	01	The consumer product variant SHALL occur in combination with a GTIN of a retail consumer trade item.	
235	Third Party Controlled Serialised Extension of GTIN	01	The Third Party Controlled Serialised Extension of GTIN SHALL occur in combination with a GTIN of a trade item.	
240	Additional product identification	01 XOR 02 XOR 8006 XOR 8026 ***	The additional product identification SHALL occur in combination with: • a GTIN; or • a GTIN of contained trade items; or • an ITIP • an ITIP of contained trade item pieces	
241	Customer part number	01 XOR 02 XOR 8006 XOR 8026 ***	The customer part number SHALL occur in combination with: • the GTIN; or • the GTIN of contained trade items; or • an ITIP • an ITIP of contained trade item pieces	



		associated element string	Kule
AI	Designation	AI	
242	Made-to-Order variation number	(01 with $N_1 = 9$ ) XOR (02 with $N_1$ = 9) XOR (8006	The Made-to-Order variation number SHALL occur in combination with: the GTIN: or
		with $N_1 = 9$	<ul> <li>the GTIN of contained trade items: or</li> </ul>
		$N_1 = 9$ ***	• an ITIP
l		- /	<ul> <li>an ITIP of contained trade item pieces</li> </ul>
			Note: The GTIN must relate to a custom trade item. The first position of the GTIN is "9" for such trade items.
243	Packaging Component Number	01	The Packaging Component Number SHALL occur in combination with the GTIN
250	Secondary serial number	(01 XOR 8006***) AND	The secondary serial number SHALL occur in combination with the serial number <u>and</u> :
		21	a GTIN; or
			• an ITIP
251	Reference to source entity	01 XOR 8006***	The reference to source entity SHALL occur in combination with: • a GTIN; or
			An ITIP
254	GLN extension component	414	The GLN extension component SHALL occur with the Identification of a physical location (GLN).
30	Variable count of	01 XOR 02	The variable count of items SHALL occur with:
	items		• a GTIN; or
			a GIIN of contained trade items.  Note: The CTIN must relate to a variable management to do ite
3nnn*	Trade moacuras		Trade measures SHALL occur in combination with
JIIIII''	made medsures	UI AUR UZ	a GTIN: or
			<ul> <li>a GTIN of contained trade items.</li> </ul>
			Note: The GTIN must relate to a variable measure trade item.
3nnn**	Logistic measures	00 OR 01	Logistic measures SHALL occur in combination with:
			<ul> <li>an SSCC</li> </ul>
			• a GTIN
337n	Kilograms per square metre	01	Kilograms per square metre SHALL occur in combination with a GTIN.
37	Count of units contained	00 AND (02 XOR 8026)	The count of units contained SHALL occur in combination with the SSCC and:
			<ul> <li>GTIN of contained trade items, or</li> </ul>
			<ul> <li>ITIP of contained trade item pieces.</li> </ul>
390n	Amount payable – single monetary area	8020 AND 415	The amount payable (single monetary area) SHALL occur in combination with the payment slip reference number and the GLN of the invoicing party.
390n	Coupon value – single monetary area	255	The coupon value (single monetary area) SHALL occur in combination with the Global Coupon Number.



If element string		Then mandatory associated element string	Rule
AI	Designation	AI	
391n	Amount payable – with ISO currency code	8020 AND 415	The amount payable (with ISO currency code) SHALL occur in combination with the payment slip reference number and the GLN of the invoicing party.
392n	Applicable amount payable - single monetary unit	01 AND (30 XOR 3nnn*)	The applicable amount payable (single monetary area) SHALL occur in combination with the GTIN and either: variable count of items; or a trade measure. Note: The GTIN must relate to a variable measure trade item.
393n	Applicable amount payable – with ISO currency code	01 AND (30 XOR 3nnn*)	The applicable amount payable (with ISO currency code) SHALL occur in combination with the GTIN and either:     variable count of items; or     a trade measure. Note: The GTIN must relate to a variable measure trade item.
394n	Percentage of a coupon	255	The percentage of a coupon SHALL occur in combination with the Global Coupon Number.
403	Routing code	00	The routing code SHALL occur in combination with an SSCC.
415	GLN of the invoicing party	8020	The GLN of the invoicing party SHALL occur in combination with the payment slip reference number.
422	Country of origin	01 XOR 02 XOR 8006 XOR 8026 ***	The country of origin SHALL occur in combination with: a GTIN; or a GTIN of contained trade items; or an ITIP an ITIP of contained trade item pieces
423	Country of initial processing	01 XOR 02	The country of initial processing SHALL occur in combination with: • a GTIN; or • a GTIN of contained trade items.
424	Country of processing	01 XOR 02	The country of processing SHALL occur in combination with: • a GTIN; or • a GTIN of contained trade items.
425	Country of disassembly	01 XOR 02	The country of disassembly SHALL occur in combination with: • a GTIN; or • a GTIN of contained trade items.
426	Country of full processing	01 XOR 02	The country of full processing SHALL occur in combination with: a GTIN; or a GTIN of contained trade items.
427	Country subdivision of origin	(01 XOR 02) AND 422	The country subdivision of origin SHALL occur in combination with the country of origin <u>and</u> : • a GTIN; or • a GTIN of contained trade items.
<u>430n</u>	Ship-to / Deliver- to address application identifers	<u>00</u>	Ship-to / Deliver-to address application identifiers SHALL occur in combination with an SSCC



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in element string		Then mandatory associated element string			
AI	Designation	AI			
<u>4303</u>	Ship-to / Deliver- to address line 2	4302 AND 00	Ship-to / Deliver-to address line 2 SHALL occur in combination with line one of a ship-to address and SSCC		
<u>431n</u>	Return-to address application identifiers	<u>00</u>	Return-to address application identifiers SHALL occur in combination with an SSCC		
<u>4313</u>	Return-to address line 2	4312 AND 00	Return-to address line 2 SHALL occur in combination with line one of a return-to address		
<u>432n</u>	Service related application identifiers for transport process	<u>00</u>	Service related application identifiers SHALL occur in combination with an SSCC		
7001	NATO stock number	01 XOR 02 XOR 8006 XOR 8026 ***	The NATO stock number SHALL occur in combination with: a GTIN; or a GTIN of contained trade items; or an ITIP an ITIP of contained trade item pieces		
7002	UN/ECE meat carcasses and cuts classification	01 XOR 02	The UN/ECE meats carcasses and cuts classification SHALL occur in combination with: a GTIN; or a GTIN of contained trade items.		
7003	Expiration date and time	01 XOR 02	The expiration date and time SHALL occur in combination with: a GTIN; or a GTIN of contained trade items.		
7004	Active potency	01 AND 10	The active potency SHALL occur in combination with the batch/lot number and the GTIN.		
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.		



in element string		associated element string	Kule
AI	Designation	AI	
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	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 a n 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 and: a GTIN; or a n ITIP
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
8001	Dimensions of roll products	01	Dimensions of roll products SHALL occur in combination with the GTIN. Note: The GTIN must relate to a variable measure trade item.
8005	Price per unit of measure	01 XOR 02	The price per unit of measure SHALL occur in combination with: a GTIN; or a GTIN of contained trade items. Note: The GTIN must relate to a variable measure trade item.
8007	International Bank Account Number	8020 AND 415	The International Bank Account Number SHALL occur in combination with the payment slip reference number and the GLN of the invoicing party.
8008	Date and time of production	01 XOR 02	The date and time of production SHALL occur in combination with: a GTIN; or a GTIN of contained trade items.
8009	Optically readable sensor indicator	01 OR 00	The Optically Readable Sensor Indicator Number SHALL occur in combination with the GTIN or SSCC. Note the two data elements may or may not appear in the same data carrier.
8011	CPID serial number	8010	The CPID serial number SHALL occur in combination with the CPID.
8012	Software Version	01 XOR 8006***	The software version SHALL occur in combination with: a GTIN; or an ITIP



If element string		Then mandatory associated element string	Rule		
AI	Designation	AI			
8019	Service Relation Instance Number	8017 XOR 8018	The Service Relation Instance Number SHALL occur in combination with:		
			the GSRN for the provider; or		
			the GSRN for the recipient.		
8020	Payment slip reference number	415	The payment slip reference number SHALL occur in combination with the GLN of the invoicing party.		
8026	ITIP of contained pieces	00 AND 37	The ITIP of contained pieces SHALL occur in combination with an SSCC and the count of the pieces.		
8111	Loyalty points of a coupons	255	Loyalty points of a coupon SHALL occur in combination with the GCN.		
8200	Extended packaging URL	01	The extended packaging URL SHALL occur in combination with the GTIN.		
*	The AIs for trade measures are set out in section 3.6.2 Trade measures: AIs (31nn, 32nn, 35nn, 36nn)				
**	** The AIs for logistics measures are set out in		n section <u>3.6.3</u> Logistic measures: AIs (33nn, 34nn, 35nn, 36nn)		
***	If used in combination v pieces of the trade item	vith the identification SHALL be identical.	n of trade item pieces (ITIP), the optional AIs on all individual		

Note: Exception for point-of-sale. See figure <u>2.7-1</u>. Areas of GS1 system application.



#### 4.15 Human readable interpretation (HRI) rules

Human readable interpretation (HRI) rules are provided to standardise printing requirements and facilitate training of staff on how to deal with GS1 AIDC data carriers that fail to scan or read. There are two categories of rules:

- General rules that apply independent of sector, product category, or region.
- Sector specific rules which must be aligned with the general rules.

For the purposes of interpreting this standard, there are two types of text that appear on a label, package, or item; human readable interpretation (HRI) and non-HRI text.

- Human readable interpretation (HRI) is the information below, beside or above a barcode or tag which is encoded in the barcode or tag and represents the same characters as carried in the barcode or tag (See section <u>8</u> for full definition).
- Non-HRI text is all other text on package, label or item (See section <u>8</u> for full definition).

Figure 4.15-1. Example of HRI and non-HRI text



- Note: The following rules are intended for global use. Exceptions may occur only when local regulatory or legal requirements mandate otherwise.
- Note: At present, HRI rules are applicable to barcodes as rules for EPC/RFID tags are under development.
- **Note**: HRI rules for the EAN/UPC symbology and the add-on symbols are explained in section <u>5.2.5</u> *Human readable interpretation*.

#### Human readable interpretation rules

- Rule 1. Whether a GS1 AIDC data carrier encodes a GS1 identification key, GS1 key attributes, or a combination of both, the HRI SHOULD be placed below the barcode and grouped together wherever physically possible while maintaining the HRI legibility and minimum barcode height (as specified in the appropriate symbol specification table referenced by the GS1 AIDC application standard).
  - a. In cases where the HRI must be printed above, to the left, or to the right of the symbol due to packaging or space constraints, HRI SHALL always be printed adjacent to (obviously associated with) the GS1 AIDC data carrier while protecting Quiet Zones.
  - b. If the HRI for GS1 identification keys and GS1 key attributes is split (for example GS1 key HRI is below the barcode and GS1 key attributes HRI is above the barcode), the preference for GS1 key HRI placement is always below the barcode.



- c. When HRI is grouped together (for example, all HRI data is grouped below the barcode or all HRI data is grouped above the barcode), HRI SHALL always follow the encoding sequencing of the GS1 AIDC data carrier.
- Rule 2. A single data element SHALL NOT be broken into two lines of HRI, for example the data for a serial number would appear on one line of HRI.
- Rule 3. Parentheses SHALL surround AIs in HRI but are not encoded in the GS1 AIDC data carrier.
- Rule 4. A clearly legible font SHALL be used (e.g., OCR-B as defined in ISO 1073-2) and the character set as defined in section 7.11. Reasonable alternative type fonts and character sizes are acceptable provided the interpretation is clearly legible.
- **Rule 5.** On GS1 Logistic Labels HRI characters SHALL be no less than 3 mm (0.1181 inch) high
- Rule 6. HRI SHALL be limited to element strings and will not include GS1 AIDC data carrier overhead such as separator characters.
- Rule 7. If the required barcode and associated HRI is marked directly on the part, then both satisfy the requirements for healthcare primary package marking (see section 2.1.4) if the barcode can be scanned and the HRI is legible through a panel in the primary packaging.
- Rule 8. HRI SHALL appear except in rare circumstances for specific applications where there are extreme space constraints (e.g., direct part marking). If the GS1 AIDC data carrier cannot be read or scanned and the HRI does not appear on the label, package, or item, non-HRI text SHOULD be used as backup information.

As a non-HRI text option, the data title (see section <u>3.2</u>) may be associated with the data instead of using the AI numbers. See figure <u>4.15-1</u> which shows expiration date and lot number identified with non-HRI text and where in the same figure the same data is shown using the all-AI format. These presentations can be used with all GS1 AIDC data carriers using GS1 Application Identifiers, except GS1-128 symbology.

Rule 9. For symbols (Composite symbol, GS1 DataMatrix, GS1 QR Code) encoding a large amount of data, it may not be practical to display all the data in human readable interpretation form or, even if there is space to show it in this form, it may not be practical to key enter that much data. In these instances, some of the data may be omitted from the human readable interpretation. However, primary identification data (GS1 identification keys) such as the Global Trade Item Number (GTIN) or Global Document Type Identifier (GDTI) must always be shown. Applications provide guidance on human readable interpretation.

Figure 4.15-2. HRI with some of the data omitted



(01)13112345678906

- Rule 10. HRI alongside a GS1 2D symbol on a logistic label is not required if this is already
  present with the GS1-128 symbol, or is present as data titles and data content elsewhere on the
  label.
- Rule 11. If the barcode is printed in ladder orientation on the product, the HRI SHOULD remain clearly associated with the barcode and may appear below, to the left, or to the right of the symbol respecting Quiet Zones. See figure below.



#### Figure 4.15-3. Locations of HRI for barcode in ladder orientation



- Note: There may be local variants for non-HRI text on the label (e.g., dates, prices) which are formatted based on local practice rather than the way the data is encoded in GS1 AIDC data carriers. In this case, the HRI associated with AIDC SHALL still be expressed as it is encoded in the GS1 AIDC data carrier encodation (per GS1 Application Identifier definition).
- **Rule 12.** When AI (8200) appears on the label, the expression of the URL SHALL NOT appear in HRI. If it appears in non-HRI text, it SHALL be expressed as <a href="http://brandownerassignedURL.com/GTIN">http://brandownerassignedURL.com/GTIN</a> (where GTIN expressed as 14 digits).

# 4.15.1 Rule 13. When a logistic label displays a 2D symbol encoding transport process information that is otherwise represented in human readable format(text or graphic) elsewhere on the label, additional HRI is not required. Healthcare human readable interpretation rules

The GS1 system requires printing both the GS1 AIDC data carrier and the HRI that represents all the information encoded within that GS1 AIDC data carrier.

If the GS1 AIDC data carrier cannot be read or scanned, the HRI should be used as back up information. The GS1 preferred format for HRI when applied on healthcare trade items SHALL be as noted in the general HRI rules found in section 4.15.

When considering the practical implementation and application of HRI during the creation of the product packaging, many factors must be taken into account to determine if and how HRI is included with the symbol. These factors may include the type of product being labelled or marked, product use, available space for marking, alternate data availability, regulatory or legal requirements, technical constraints, etc.

However, printing both the GS1 AIDC data carrier and the associated HRI may not be possible due to many factors such as the intended use of the item, available space for marking, etc. Deviation from the HRI format should be minimised and consider impacts to downstream trading partners and users

Typical examples are shown the figure below.

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#### Figure 4.15.1-1. Preferred HRI format examples



If a deviation from the preferred format is required that results in HRI not being printed, then a combination of HRI and non-HRI text may be used. When doing so, the following rules apply:

- If the data represented in the non-HRI text is exactly as in the HRI, then the appropriate AI SHALL be printed along with the data title. See figure <u>4.15.1-2</u>.
- If data represented in the non-HRI text does not match the HRI, then only a data title may be used. The AI SHALL NOT be printed. This is illustrated in figure <u>4.15.1-3</u> by the GTIN and Expiry.
- The selection of data titles may be determined by the manufacturer based on regulatory, local language requirements, relevant standards (e.g., *ISO/IEC 15223*) or appropriate abbreviations.

Figure 4.15.1-2. Combination of HRI with AIs, non-HRI text and data titles

GTIN (01) 09504000059101 SERIAL (21) 12345678p901 LOT (10) 1234567p EXPIRY (17) 141120



Scan for online product information or go to: http://www.gs1.org/demo/09504000059101/

Figure 4.15.1-3. Combination of HRI with AIs, non-HRI text (GTIN and Expiry) and data titles

GTIN 9504000059101 SERIAL (21) 12345678p901 LOT (10) 1234567p EXPIRY 20 Nov 2014



Scan for online product information or go to: http://www.gs1.org/demo/09504000059101/

If it is not possible to print both the GS1 AIDC data carrier and the HRI, figure <u>4.15.1–4</u> SHOULD be used to determine how HRI will be implemented. When it is not possible to print all of the HRI, preference for printing SHALL be given to the GS1 key.





Figure 4.15.1-4. Healthcare human readable interpretation (HRI) decision tree (to be used only when limited space is available)

Note: Figure <u>4.15.1-1</u> is intended for use when there is no regulatory mandate that conflicts with this guidance and where space constraints limit the ability to provide both the GS1 AIDC marking and the associated HRI text—this document does not impact the non-HRI text that is required for compliance with labelling regulations. In all situations, applicable regulatory requirements HALL take precedence. Brand owners are responsible to understand and comply with applicable regulations and to document deviations from those regulations and their justifications for such deviations in the product master record files or other formal document control files.

**Note**: Active potency, AI (7004) HRI rule. Printing of the active potency on the item is controlled by regulation. Human readable interpretation of the active potency is not required on the trade item.

#### 4.15.2 Manual date marking

Where regulations and/or trade partner agreements require applied date markings for stock rotation and manual identification, the ISO standard (8601) for date sequence SHOULD be used. The format SHOULD be YYYY-MM-DD preceded by the date type short form (See figure <u>4.15.2-1</u> below for respective date types) based on ISO standard abbreviations (15223).



Figure 4.15.2-1.	Short forms	by	date	type
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Date type	Short form
Production	PROD
Packaging	PACK
Best Before	BEST
Expiration	EXP

AIDC techniques are suggested over any manual process to ensure accurate and timely stock rotation. Every effort should be made to adopt an automated process to increase productivity and date management.





6.6.5 Label Examples

Notes:



This example shows a label that may be applied in a parcel delivery scenario with transport process information encoded in a 2D symbol.

- Top block Transport carrier, From address with phone number, To address
- Middle Block (text with data title) SSCC, Routing Code, Ship-to / Deliver-to postal code with country code, GS1 DataMatrix with transport process information
- Bottom block (barcode and HRI)- AI (00)

#### 7.11 The GS1 subset of international standard ISO/IEC 646

Figure <u>7.11-1</u> lists all characters allowed for use in GS1 Application Identifier (AI) element strings with the exception of Component and Parts Identifier. Figure <u>7.11-1</u> corresponds to *ISO/IEC 646* Table 1. All other ISO 646 characters that are not listed here are not allowed in GS1 Application Identifier (AI) element strings. Figure <u>7.11-2</u> lists all the characters allowed for use in the GS1 Application Identifier for Component and Parts Identifier.

Note that some transport process information may include accented / non-Latin characters and space characters which are not available in the subset of *ISO/IEC 646 International Reference Version* defined in figure 7.11-1. Some AIs in the range 4300 – 4320 may use the characters from figure 7.11-1 in conjunction with percent-encoding as defined in RFC 3986 in order to support non-Latin characters, with the plus sign (+) being accepted as a way of encoding a literal space character.

Graphic symbol	Name	Coded representation	Graphic symbol	Name	Coded representation
!	Exclamation mark	2/1	М	Capital letter M	4/13
"	Quotation mark	2/2	N	Capital letter N	4/14
%	Percent sign	2/5	0	Capital letter O	4/15
&	Ampersand	2/6	Р	Capital letter P	5/0
1	Apostrophe	2/7	Q	Capital letter Q	5/1
(	Left parenthesis	2/8	R	Capital letter R	5/2
)	Right parenthesis	2/9	S	Capital letter S	5/3
*	Asterisk	2/10	Т	Capital letter T	5/4
+	Plus sign	2/11	U	Capital letter U	5/5
,	Comma	2/12	V	Capital letter V	5/6
-	Hyphen/Minus	2/13	W	Capital letter W	5/7
	Full stop	2/14	х	Capital letter X	5/8
/	Solidus	2/15	Y	Capital letter Y	5/9
0	Digit zero	3/0	Z	Capital letter Z	5/10
1	Digit one	3/1	-	Low line	5/15
2	Digit two	3/2	а	Small letter a	6/1
3	Digit three	3/3	b	Small letter b	6/2
4	Digit four	3/4	с	Small letter c	6/3
5	Digit five	3/5	d	Small letter d	6/4
6	Digit six	3/6	е	Small letter e	6/5
7	Digit seven	3/7	f	Small letter f	6/6

#### Figure 7.11-1. GS1 AI encodable character set 82



Graphic symbol	Name	Coded representation	Graphic symbol	Name	Coded representation
8	Digit eight	3/8	g	Small letter g	6/7
9	Digit nine	3/9	h	Small letter h	6/8
:	Colon	3/10	i	Small letter i	6/9
;	Semicolon	3/11	j	Small letter j	6/10
<	Less-than sign	3/12	k	Small letter k	6/11
=	Equals sign	3/13	1	Small letter I	6/12
>	Greater-than sign	3/14	m	Small letter m	6/13
?	Question mark	3/15	n	Small letter n	6/14
А	Capital letter A	4/1	0	Small letter o	6/15
В	Capital letter B	4/2	р	Small letter p	7/0
С	Capital letter C	4/3	q	Small letter q	7/1
D	Capital letter D	4/4	r	Small letter r	7/2
E	Capital letter E	4/5	S	Small letter s	7/3
F	Capital letter F	4/6	t	Small letter t	7/4
G	Capital letter G	4/7	u	Small letter u	7/5
н	Capital letter H	4/8	v	Small letter v	7/6
I	Capital letter I	4/9	w	Small letter w	7/7
J	Capital letter J	4/10	х	Small letter x	7/8
К	Capital letter K	4/11	У	Small letter y	7/9
L	Capital letter L	4/12	z	Small letter z	7/10

Figure 7.11-2. GS1 AI encodable character set 39

Graphic symbol	Name	Coded representation	Graphic symbol	Name	Coded representation
#	Number Sign	2/3	Н	Capital letter H	4/8
-	Hyphen/Minus	2/13	Ι	Capital letter I	4/9
/	Solidus	2/15	J	Capital letter J	4/10
0	Digit zero	3/0	К	Capital letter K	4/11
1	Digit one	3/1	L	Capital letter L	4/12
2	Digit two	3/2	М	Capital letter M	4/13
3	Digit three	3/3	Ν	Capital letter N	4/14
4	Digit four	3/4	0	Capital letter O	4/15
5	Digit five	3/5	Р	Capital letter P	5/0
6	Digit six	3/6	Q	Capital letter Q	5/1
7	Digit seven	3/7	R	Capital letter R	5/2
8	Digit eight	3/8	S	Capital letter S	5/3
9	Digit nine	3/9	Т	Capital letter T	5/4
А	Capital letter A	4/1	U	Capital letter U	5/5
В	Capital letter B	4/2	V	Capital letter V	5/6
С	Capital letter C	4/3	W	Capital letter W	5/7



Graphic symbol	Name	Coded representation	Graphic symbol	Name	Coded representation
D	Capital letter D	4/4	Х	Capital letter X	5/8
E	Capital letter E	4/5	Υ	Capital letter Y	5/9
F	Capital letter F	4/6	Z	Capital letter Z	5/10
G	Capital letter G	4/7	Intentionally left blank		

## 8 Glossary

Term	Definition
Transport unit	a logistic unit within the context of transport processes
Transport process information	a set of information relevant to the processing, delivery or return of a transport unit. For example, transport process information would include address details.

