

WR #	GSCN Name	Effective Date
18-160	2D on logistic label	1-Oct-2018

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

18-000160  
17-000063

**Background:**

- There is an expressed need to allow for the inclusion of optional GS1 2D barcodes on logistic labels. Trading partners that may not have access to master data would like to be able to capture pertinent label information quickly and accurately.
- Inclusion of a GS1 2D barcode containing attributes along with the SSCC will allow for efficient data capture and save label space when encoding multiple AIs.
- The proposed changes here are for the GS1 General Specifications only. To fulfil the requirements of this Work Request, changes will be needed to the Logistics Label Guideline and collateral material will be needed to educate GS1 users on implementation of this option.

**GS1 General Specification Change:**

The recommended changes are highlighted below, relative to GS1 General Specifications version 18.

**Disclaimer**

GS1®, under its IP Policy, seeks to avoid uncertainty regarding intellectual property claims by requiring the participants in the Work Group that developed this **General Specifications Change Notification** to agree to grant to GS1 members a royalty-free licence or a RAND licence to Necessary Claims, as that term is defined in the GS1 IP Policy. Furthermore, attention is drawn to the possibility that an implementation of one or more features of this Specification may be the subject of a patent or other intellectual property right that does not involve a Necessary Claim. Any such patent or other intellectual property right is not subject to the licencing obligations of GS1. Moreover, the agreement to grant licences provided under the GS1 IP Policy does not include IP rights and any claims of third parties who were not participants in the Work Group.

Accordingly, GS1 recommends that any organization developing an implementation designed to be in conformance with this Specification should determine whether there are any patents that may encompass a specific implementation that the organisation is developing in compliance with the Specification and whether a licence under a patent or other intellectual property right is needed. Such a determination of a need for licencing should be made in view of the details of the specific system designed by the organisation in consultation with their own patent counsel.

THIS DOCUMENT IS PROVIDED "AS IS" WITH NO WARRANTIES WHATSOEVER, INCLUDING ANY WARRANTY OF MERCHANTABILITY, NONINFRINGEMENT, FITNESS FOR PARTICULAR PURPOSE, OR ANY WARRANTY OTHERWISE ARISING OUT OF THIS SPECIFICATION. GS1 disclaims all liability for any damages arising from use or misuse of this Standard, whether special, indirect, consequential, or compensatory damages, and including liability for infringement of any intellectual property rights, relating to use of information in or reliance upon this document.

GS1 retains the right to make changes to this document at any time, without notice. GS1 makes no warranty for the use of this document and assumes no responsibility for any errors which may appear in the document, nor does it make a commitment to update the information contained herein.

GS1 and the GS1 logo are registered trademarks of GS1 AISBL.



## 2.2 Logistic units

A logistic unit is an item of any composition established for transport and/or storage that needs to be managed through the supply chain.

Tracking and tracing logistic units in the supply chain is a major application of the GS1 system. Scanning the standard identification number, marked on each logistic unit, allows the physical movement of units to be individually tracked and traced by providing a link between the physical movement of items and the associated information flow. It also opens up the opportunity to implement a wide range of applications, such as cross docking, shipment routing, and automated receiving.

Logistic units are identified with a GS1 identification number called the SSCC (Serial Shipping Container Code). The SSCC is the only GS1 key that SHALL be used as the identifier of a logistic unit. The SSCC ensures that logistic units are identified with a number that is unique worldwide.

If, in addition to being a logistic unit, the item is regarded as a trade item by the brand owner, it may additionally be identified with a GTIN. The combination of a GTIN and a serial number must not replace the SSCC as the identifier of a logistic unit.

If, in addition to being a logistic unit, the item is part of a consignment and or a shipment, it may also be associated with the GINC and or the GSIN.

Attribute information, such as a Global Identification Number for Consignment, AI (401), may be optionally encoded using internationally agreed data structures and a barcode symbology that allow unambiguous interpretation.

### 2.2.1 Individual logistic units

#### Application description

A logistic unit is an item of any composition established for transport and/or storage that needs to be managed through the supply chain. The identification and symbol marking of logistic units enables a large number of user applications. In particular, the SSCC (Serial Shipping Container Code) provides a link between the physical logistic unit and information pertaining to the logistic unit that is communicated between trading partners using Electronic Data Interchange (EDI).

The SSCC element string AI (00) is used for the identification of logistic units (see section 3). Each individual logistic unit is allocated a unique number, which remains the same for the life of the logistic unit. When assigning an SSCC, the rule is that an individual SSCC number must not be reallocated within one year of the shipment date from the SSCC assignor to a trading partner. However, prevailing regulatory or industry organisation specific requirements may extend this period.

In principle, the SSCC provides a unique reference number that can be used as the key to access information regarding the logistic unit in computer files. However, attributes relating to the logistic unit (e.g., ship to information, logistic weights) are also available as standardised element strings.

#### GS1 key

##### Definition Required

~~The SSCC is the GS1 identification key used to identify logistics units. The key is comprised of an extension digit, the GS1 Company Prefix, serial reference, and check digit.~~

The GS1 Application Identifier for the SSCC is AI (00), see section 3.2, for details of the SSCC and associated data elements.

#### Rules

All SSCC rules described in section 4.2.2.

#### Attributes

##### Required

##### Not applicable

Fixed measure AI (02) or routing code AI (403) are used when:

Commented [CJ52]: WR18-cip1

Commented [CJ53]: WR18-200



- A logistic unit is a grouping of trade items, it is sometimes useful to indicate the Global Trade Item Number (GTIN) of the contained items in association with the SSCC. See section 3.2, *Identification of trade items contained in a logistic unit – fixed measure, AI (02)*, and *Count of trade items contained in a logistic unit, AI (37)*.
- Use of AI (02) and AI (37) with SSCC AI (00) is not the preferred option for regulated healthcare trade items. For regulated healthcare trade items, AI (02) + AI (37) is limited to bilateral use between trading partners for exception handling during a migration period to EDI implementation or if the product is sold as a non-regulated trade item within a retail distribution channel for certain markets. SSCC is the approach selected by healthcare and provides the appropriate level of identification when associated with EDI messaging to provide traceability inclusive of count for trade items contained. SSCC when associated with EDI is required for identification purposes to reach our extended goals for traceability.
- The routing code, AI (403), is assigned by a parcel carrier. It is intended to provide a migration path to the adoption of a yet to be defined international, multi-modal solution. See section 3.2, *Routing code, AI (403)*.

**Optional**

The use of attribute information on logistic units is optional. However, when used, attribute information SHOULD be processed with the SSCC that identifies the logistic unit.

- The element string *Ship to – Deliver to Global Location Number, AI (410)* has been designed to allow the automatic sortation of logistic units using the Global Location Number (GLN).
- The element string *Ship for – Deliver for – Forward to Global Location Number, AI (413)*, has been designed to allow the cross-docking of logistic units using the Global Location Number (GLN). It is used in conjunction with the element string AI (410) to indicate the cross-docking station and the final destination of the logistic unit.
- The element string *Ship to – Deliver to Postal Code within a Single Postal Authority, AI (420)* has been designed to allow the automatic sortation of logistic units using the postal code in a single postal area.
- The element string *Ship to – Deliver to Postal Code with Three-Digit ISO Country Code, AI (421)* has been designed to allow the automatic sortation of logistic units using the postal code. As the postal code is prefixed by the ISO country code, it may be used internationally.

For all the GS1 Application Identifiers that may be used with an SSCC, see section 3.2 for more details and the list of all GS1 Application Identifiers.

Commented [CJ54]: WR18-200

 **Note:** Although the use of AI (02), Identification of trade items contained, and AI (37), Count of trade items contained, is common in some sectors to describe the content of a logistic unit, the healthcare sector prefers the use of the SSCC alone. The SSCC is used with EDI communications to enable identification and traceability.

**Rules**

Refer to section 4.14 for the mandatory associations: Not applicable.

**Data carrier specification**

**Carrier choices**

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

A GS1 DataMatrix or GS1 QR Code symbol 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.

Commented [CJ55]: WR18-160

For healthcare, see the recommendations at the end of section 2.1.6 in figure 2.1.6-2 Carrier choices.

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

See section 5.9.3.5, GS1 symbol specification table 5.



**Symbol placement**

All the symbol placement guidelines defined in section 6.

**Unique application processing requirements**

For a description of processing requirements, see section 7.

**2.2.2 Multiple logistic units – Global Identification Number for Consignment**

**Application description**

- Consignments can comprise one or many logistic units. If the consignment comprises more than one physical object there is no requirement that they are attached together. A consignment number identifies a logical grouping. When a consignment number is read the message is that this physical unit should be associated with any other physical units carrying the same consignment number. Individual physical units carry the SSCC as described in the previous section.
- The Global Identification Number for Consignment is assigned by the freight forwarder or carrier of the transport units and is referenced in the relevant transport messages and documents (e.g., waybill). It may be used as a communication reference by all parties in the transport chain, such as in Electronic Data Interchange (EDI) messages where it can be used as a consignment reference and/or freight forwarders or carriers loading list. See section 3.2, Global Identification Number for Consignment (GINC): AI (401).



**Note:** Shipment and consignment are terms, which may be used interchangeably within the transport and logistics sector however for the purposes of clarity, when referring to multiple logistic unit identification for trade, GS1 uses the term shipment and when referring to multiple logistic unit identification for transport, GS1 uses the term consignment

**GS1 key**

**Definition Required**

- ~~The Global Identification Number for Consignment GINC, AI (401), identifies a logical grouping of goods (one or more physical entities) that has been consigned to a freight forwarder or carrier and is intended to be transported as a whole. Refer to section 3.2 for the list of GS1 Application Identifiers with detailed information.~~

Commented [CJ56]: WR18-cip1

~~The GS1 Application Identifier for the GINC is AI (401), see section 3.2~~

**Rules**

The data transmitted means that the element string denoting a Global Identification Number for Consignment has been captured. The Global Identification Number for Consignment may be processed as stand-alone information where applicable or with other identification data appearing on the same unit. ~~See section 2.2.1 for use of the GINC in combination with the SSCC.~~

Commented [CJ57]: WR18-160

~~See section 4.9.~~

**Attributes**

**Required**

Not applicable

**Optional**

Not applicable

**Data carrier specification****Carrier choices**

The data carriers used to represent the Global Identification Number for Consignment ~~is~~ are the GS1-128, [GS1 DataMatrix](#), or [GS1 QR Code](#) barcode symbologies.

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

See section [5.9.3.2](#), [5.9.3.5](#), [GS1 symbol specification table 5](#), ~~table 5~~, ~~GS1 symbol specification table 2~~.

**Symbol placement**

All the symbol placement guidelines defined in section [6](#).

**Unique application processing requirements**

For a description of processing requirements, see section [7](#).

Commented [CJ58]: WR18-160

Commented [CJ59]: ERv18-037

### 2.2.3 Multiple logistic units – Global Shipment Identification Number

**Application description**

- Shipment can comprise one or many logistic units. If the shipment comprises more than one physical object there is no requirement that they are attached together. A shipment number identifies a logical grouping. When a shipment number is read the message is that this physical unit should be associated with any other physical units carrying the same shipment number. Individual physical units carry the SSCC as described in the previous section.
- The Global Shipment Identification Number ([GSIN](#)) is assigned by a seller (sender) of the goods and is referenced in the despatch advice and bill of lading, etc. It is a globally unique number that identifies a logical grouping of physical units in a transport shipment. It may be used as a communication reference by all parties in the transport chain, such as in Electronic Data Interchange (EDI) messages where it can be used as a shipment reference and/or a consignor's loading list.
- Note: Shipment and consignment are terms which may be used interchangeably within the transport and logistics sector, however for the purposes of clarity, when referring to multiple logistic unit identification for trade, GS1 uses the term shipment and when referring to multiple logistic unit identification for transport, GS1 uses the term consignment.

**GS1 key****Definition Required**

- ~~The Global Shipment Identification Number (bill of lading GSIN ) is a number assigned by a seller (sender) of the goods. It provides a globally unique number that identifies a logical grouping of physical units for the purpose of a transport shipment.~~

The GS1 Application Identifier for the GSIN is AI (402), see section [3.2](#).

**Rules**

The data transmitted means that the element string denoting a shipment identification number has been captured. The Global Shipment Identification Number may be processed as stand-alone information where applicable or with other identification data appearing on the same unit. [See section 2.2.1 for use of the GSIN in combination with the SSCC.](#)

Commented [CJ60]: WR18-cip1

Commented [CJ61]: WR18-160

~~See section [4.10](#).~~

**Attributes****Required**

Not applicable



**Optional**

Not applicable

**Data carrier specification**

**Carrier choices**

The data carriers used to represent the Global Shipment Identification Number ~~is~~ are the GS1-128, GS1 DataMatrix, or GS1 QR Code barcode ~~symbolologies~~.

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

See section 5.9.3.5, GS1 symbol specification table 5.9.3.2, GS1 symbol specification table 2.

**Symbol placement**

All the symbol placement guidelines defined in section 6.

**Unique application processing requirements**

For a description of processing requirements, see section Z.

Commented [CJ62]: WR18-cip2

Commented [CJ63]: WR18-160

Commented [CJ64]: ERv18-037

- **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 [2.1.5](#)) 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 [3.2](#)) may be associated with the data instead of using the AI numbers. See figure [4.15-1](#) which shows expiry 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) 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 [system-identification](#) keys) such as the Global Trade Item Number (GTIN) or Global Document Type Identifier (GDTI) must always be shown. Application specifications provide guidance on human readable interpretation.

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



- **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 11.9.** 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.

Commented [CJ115]: WR18-160

**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 1211.** 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 <http://brandownerassignedURL.com/GTIN> (where GTIN expressed as 14 digits).

#### 4.15.1 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 4.14.

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.

**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 4.15.1-2.
- 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 4.15.1-3 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.



- The allowance for X-dimensions between 0.249 millimetre (0.0098 inch) or 75 percent magnification and 0.264 millimetre (0.0104 inch) or 80 percent magnification is only applicable to on demand (e.g., thermal, laser) print processes. For all other printing processes, an X-dimension of 0.264 millimetre (0.0104 inch) is attainable and is the minimum allowable size.
  - When printing a minimum symbol with any method of printing, the area provided for printing the symbol and the required Quiet Zone should never be less than the area required for an X-dimension of 0.264 millimetre (0.0104 inch).
  - When printing a minimum symbol with any method of printing, the symbol height SHALL never be truncated.
- (\*\*) The minimum symbol height dimensions listed for all symbologies including EAN/UPC symbols do not include the human readable interpretation (or bearer bars for ITF-14 symbols). The minimum heights of EAN/UPC symbols do not include the extended bars: see section 5.2.3.2 for dimensions of the extended bars.
- Because of the operative scanning environment for EAN/UPC symbols, there is a direct relationship between the symbol's height and width. This means the minimum symbol height listed is tied to the minimum, target, and maximum X-dimension listed.
- The minimum bar height for ITF-14 and GS1-128 symbols in this operative scanning environment is 12.70 millimetres (0.500 inch), but if the package is physically too small to accommodate this rule, further truncation is permitted. In no case SHALL the bar height be less than 5.08 millimetres (0.200 inch).
- There is no maximum for the symbol height, but if the maximum X-dimension is used, the symbol height must be equal to or greater than those listed in the Minimum Symbol Height column.
- Whereas, linear symbol heights are set at a fixed dimension, Composite Components are printed at the same X-dimension as the linear portion of the Composite symbology, and the barcode height varies depending on the amount of data, the X-dimension, and which linear symbol is used in conjunction with the Composite Component. Note that Composite Components have to be printed with a linear symbol such as GS1 DataBar, GS1-128, UPC-A, or EAN-13. ITF-14 cannot be used with Composite Components.
- (\*\*\*) 2D X-dimension - Optical effects in the image capture process require that the GS1 DataMatrix and GS1 QR Code symbols be printed at 1.5 times the equivalent printing X-dimension allowed for linear symbols.

**Note:** See section 2.7 to ensure the correct symbol specification table is used.

**5.9.3.5 Symbol specification table 5 – logistic units scanned in general distribution**

**Figure 5.9.3.5-1. GS1 symbol specification table 5**

Symbol(s) specified	(*) X-dimension mm (inches)			(**) Minimum symbol height for given X mm (inches)			Quiet Zone		Minimum quality specification
	Minimum	Target	Maximum	For minimum X-dimension	For target X-dimension	For maximum X-dimension	Left	Right	
GS1-128	0.495 (0.0195")	0.495 (0.0195")	0.940 (0.0370")	31.75 (1.250")	31.75 (1.250")	31.75 (1.250")	10X	10X	1.5/10/660
<a href="#">GS1 DataMatrix (ECC 200)</a>	<a href="#">0.743 (0.0292)</a>	<a href="#">0.743 (0.0292")</a>	<a href="#">1.50 (0.0591)</a>	<a href="#">Height is determined by X-dimension and data that is encoded</a>			<a href="#">1X on all four sides</a>		<a href="#">1.5/10/660</a>
<a href="#">GS1 QR Code</a>	<a href="#">0.743 (0.0292)</a>	<a href="#">0.743 (0.0292)</a>	<a href="#">1.50 (0.0591)</a>	<a href="#">Height is determined by X-dimension and data that is encoded</a>			<a href="#">4X on all four sides</a>		<a href="#">1.5/10/660</a>

**Commented [CJ117]:** WR18-160

- (\*) If the logistic unit is physically too small to accommodate the minimum X-dimension, the minimum X-dimension is 0.250 millimetre (0.0098 inch). For details on barcode production and quality assessment see section 5.9.
- (\*\*) The minimum symbol height indicated is for bar height only and does not include the human readable interpretation.
- If the logistic unit is physically too small to accommodate the minimum, the minimum bar height is the greater of 15 percent of the symbol width including Quiet Zones or 12.70 millimetres (0.500 inch). If the package is physically too small to accommodate this rule, further truncation is permitted, but in no case SHALL the bar height be less than 5.08 millimetres (0.200 inch). For details on barcode production and quality assessment see section 5.9.
- There is no maximum for the height, but if the maximum X-dimension is used, the symbol height must be equal to or greater than those listed in the Minimum Symbol Height column.

**Note:** See section 2.7 to ensure the correct symbol specification table is used.

## 6.6 GS1 Logistics Label design

These specifications constitute the basis for all GS1 Logistics Labels. Other sections, most notably section 3, GS1 Application Identifier definitions, and section 5.4, GS1-128, section 5.7, GS1 DataMatrix, and section 5.9, GS1 QR Code symbology specifications, **MUST SHALL** be read in conjunction with the following sub-sections.

**Commented [CJ119]:** WR18-160 various changes to this section related to the introduction of 2D symbols.

### 6.6.1 Scope

These specifications detail the structure and layout of GS1 Logistics Labels. Emphasis is given to the basic requirements for practical application in an open trade environment. Primary topics include:

- The unambiguous identification of logistic units.
- The efficient presentation of text and machine-readable data.
- The information requirements of the key partners in the supply chain: suppliers, customers, and carriers.
- Technical parameters to ensure systematic and stable interpretation of labels.

### 6.6.2 Concepts

#### 6.6.2.1 Logistics information flow

As a logistic unit moves through the supply chain, a series of events occurs that defines the information related to the unit. The whole supply chain process of manufacturing, finished goods distribution, transportation, and deployment into the marketplace adds layers of information related to the logistic unit.

For example, the physical content of the unit is typically defined at finished goods distribution. At that point in time the identification of the logistic unit as an entity is possible. Other elements of information, such as final destination or the composition of a multi-unit shipment, are not typically known until later in the supply chain process. In a trading relationship, different elements of information are generally known and applied by the supplier, carrier, and customer.

**Figure 6.6.2.1-1.** Logistics information flow



#### 6.6.2.2 Representation of information

The information included on a GS1 Logistics Label comes in two basic forms.

1. Information to be used by people: This is comprised of HRI, non-HRI text and graphics.
2. Information designed for data capture by a machine: Barcodes.

Barcodes are machine readable and are a secure and efficient method for conveying structured data, while HRI, non-HRI text and graphics allow people general access to basic information at any point in the supply chain. Both methods add value to GS1 Logistics Labels, and often co-exist on the same label.

### 6.6.3 GS1 Logistics Label design

The GS1 Logistics Label information may be grouped into logical segments for the supplier, customer, and carrier. Each label segment may be applied to the logistic unit at a different point in time as the relevant information becomes known.

In addition to this, on the GS1 Logistics Label a distinction can be made between the types of data communicated on the GS1 Logistics Label, in order to facilitate interpretation by machines and people. For this purpose the data can be expressed in three types of building blocks:

1. Free format;
1. Non-HRI text including data titles;
2. Barcodes and HRI.

When segments are used, within the segments the data still need to be organised using building blocks. In that case segments are the primary grouping mechanism; building blocks are subordinate to that.

The SSCC is the single mandatory element for all GS1 Logistics Labels. Other information, when required, SHALL comply with the specifications in this document and with the proper use of GS1 Application Identifiers.

**6.6.3.1 Building blocks**

~~On the GS1 Logistics Label a distinction is made between the type of data communicated using~~comprises three types of building blocks:

1. The 'Free format'~~top~~ building block may contain anything, e.g. non-HRI text and graphics. This may include extra information about the logistic unit that is not encoded in the barcode(s).
2. The 'non-HRI text including data titles'~~middle~~ building block contains non-HRI text reflecting the information represented in the barcode(s) using data titles rather than AIs, and optionally additional information not represented in barcodes (preferably including data titles).
3. The 'Barcodes and HRI'~~bottom~~ building block contains the barcode(s) including human readable interpretation (HRI).

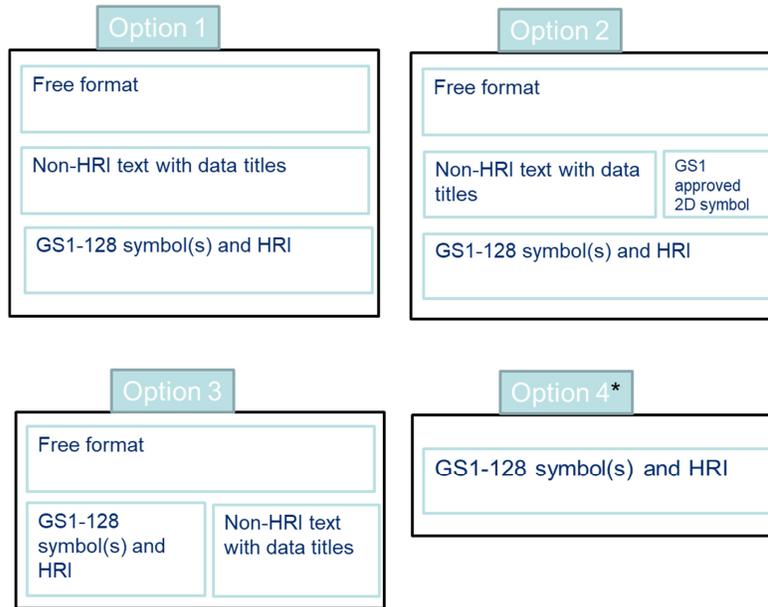
Only the bottom building block is mandatory.

A GS1 2D symbol, if used, SHOULD be placed to the right of the non-HRI text including data titles within the middle building block. See option 2 in Figure 6.6.3.2-1.

~~On the label and within label segments the building blocks are usually placed top down: Free format (top), non-HRI text including data titles (middle), Barcodes and HRI (bottom). If there is enough space, permits it, and providing the barcodes conform to the size specifications for the application, the lower two building blocks may be placed side by side. See option 3 in figure 1.1.1.1 6.6.3.2-1.~~

**Figure 6.6.3.1-1**, Placement of building blocks





\*Minimum requirement

### 6.6.3.1 6.6.3.2 Segments

A segment is a logical grouping of information that is generally known at a particular time. There may be up to three label segments on a GS1 Logistics Label, each representing a group of information. Generally, the order of the segments, from top to bottom, is: carrier (transport), customer, and supplier. However, this order and top/down alignment may vary depending on the size of the logistic unit and the business process being served.

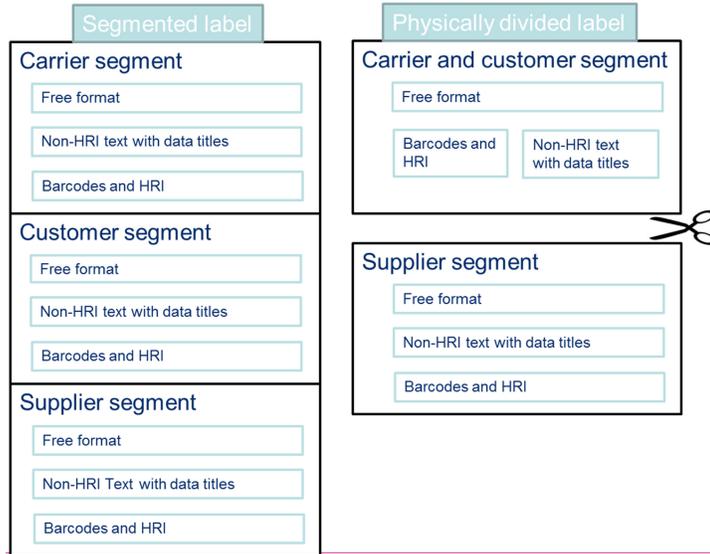
[Each segment may contain a combination of the defined building blocks as determined by trading partners.](#)

Segments may be printed [as separate labels](#), in which case they must be placed vertically in close proximity of each other, with the segment containing the SSCC at the bottom. The carrier segment may be replaced during the journey of the logistic unit, in which case special care should be taken to ensure the customer and supplier segments are preserved.



**Note:** (informative) See the [GS1 Logistics Label Guideline](#) for examples of some different segmented labels.

**Figure 6.6.3.1-1. Examples of segmented label structures**



**6.6.3.1.16.6.3.2.1 Supplier segment**

The supplier segment of the label contains information that is generally known at the time of packaging by the supplier. The SSCC is applied here as the logistic unit identifier, along with the Global Trade Item Number (GTIN) if included on the label.

Other information that may be of interest to the supplier but might also be useful for customers and carriers can be applied. This includes product-related information such as product variant; dates such as production, packaging, expiration, and best-before dates; and lot, batch, and serial numbers.

**6.6.3.1.26.6.3.2.2 Customer segment**

The customer segment of the label contains information that is generally known at the time of order and order processing by the supplier. Typical information includes the ship to location, purchase order number, and customer-specific routing and handling information. If several logistic units are assembled to be transported under one despatch advice or Bill of Lading (BOL) to one customer the GSIN, AI (402) may also be applied in this customer segment.

**6.6.3.1.36.6.3.2.3 Carrier (transport) segment**

The carrier (transport) segment of the label contains information that is generally known at the time of shipment and is typically related to transport. Typical information includes ship to postal codes, AI (420), Global Identification Number for Consignment, AI (401), and carrier-specific routing and handling information.

**6.6.3.21.1.1.1 Building blocks**

On the GS1 Logistics Label a distinction is made between the type of data communicated using three types of building blocks:

1. The 'Free format' building block may contain non-HRI text and graphics.

~~2.1. The 'non-HRI text including data titles' building block contains non-HRI text reflecting the information represented in the barcode(s) using data titles rather than AIs, and optionally additional information not represented in barcodes (preferably including data titles).~~

~~3.1. The 'Barcodes and HRI' building block contains the barcode(s) including human readable interpretation (HRI).~~

~~On the label and within label segments the building blocks are usually placed top-down: Free format (top), non-HRI text including data titles (middle), Barcodes and HRI (bottom). If space permits it, and providing the barcodes conform to the size specifications for the application, the lower two building blocks may be placed side-by-side. See figure 6.6.3.2-1.~~

~~Figure 6.6.3.2-1. Placement of building blocks~~



## 6.6.4 Technical specifications

### 6.6.4.1 Barcodes and ~~human readable interpretation~~[HRI](#)

#### 6.6.4.1.1 Barcode orientation and placement

~~GS1-128 b~~Barcodes ~~must~~[SHALL](#) be placed in a picket fence orientation relative to the base of a logistic unit, this means, the bars and spaces are perpendicular to the base on which the logistic unit stands. In all cases, the GS1-128 barcode encoding the SSCC [SHALL](#) be placed in the lowest portion of the label.

[A GS1 2D symbol, if used, SHOULD be placed immediately to the right of the middle building block. When a GS1 2D symbol is used, the symbol's quiet zone requirements must be respected.](#)

#### 6.6.4.1.2 ~~Human readable interpretation~~[HRI](#)

As a back-up key entry and diagnostic aid, a human readable interpretation (HRI) of each barcode [element string encoded in a GS1-128 SHALL be provided.](#) [For each element string included in a GS1 2D symbol that is not present in a GS1-128 symbol on the label either HRI associated with the GS1 2D symbol\(s\) or non-HRI text with data titles SHALL be provided. For more information see the general HRI rules for barcodes are maintained in section 4.15.](#)

#### 6.6.4.2 Non-HRI text including data titles

Text with data titles is non-HRI text designed to support manual operations and to facilitate key entry in menu driven systems. It may be used to specify the text equivalent of the data elements represented in barcodes, and is comprised of data titles and data content. The data content [SHOULD](#) be at least 7 millimetres/0.275 inches in height. If there is no other language agreed between trading partners, data titles must be printed in English. As an option left at the discretion of the labeller, a second language can be added. ~~GS1 Application Identifiers are not included in the data content.~~



#### 6.6.4.3 Data titles

Data titles are the standard abbreviated descriptions of element strings, used to support the manual interpretation of encoded data. Data titles SHOULD be used adjacent to all data fields included in the [non-HRI text including data titles/middle](#) building block. Data titles may also be used adjacent to barcodes and HRI.

All data titles are shown in section [3.2](#).

#### 6.6.4.4 Free format

Free format information may be comprised of non-HRI text and graphics. The name and address of the sender and receiver are typical examples of non-HRI text. Company logos and instruction pictograms are examples of graphics. All non-HRI text included in the [free-format/top](#) building block SHALL be clearly legible and no less than 3 millimetres/0.118 inches high.

#### 6.6.4.5 Label dimensions

The physical dimensions of the label are determined by the labeller, but the size of the label should be consistent with the data requirements of the label. Factors influencing label dimensions include the amount of data required, the content and X-dimension of the barcodes used, and the dimensions of the logistic unit to be labelled. The business requirements for most users of GS1 Logistics Labels are met by using one of following:

- A6 (105 mm x 148 mm), which is particularly suitable when only the SSCC, or the SSCC and limited additional data, is encoded.
- 4 x 6 inch, which is particularly suitable when only the SSCC, or the SSCC and limited additional data, is encoded.

-or-

- A5 (148 mm x 210 mm).
- 6 x 8 inch.

#### 6.6.4.6 Label location

Label placement specifications are maintained in section [6.7](#).

### 6.6.5 Label examples

**Figure 6.6.5-1.** The basic label: an SSCC



**Notes:**

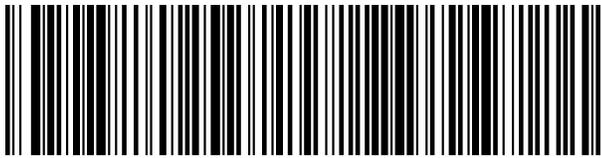
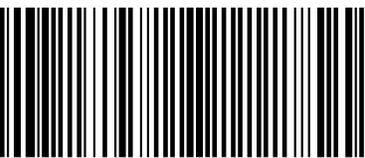
This example shows a label containing only an SSCC. Such labels can be applied at production time, but also during transport or receipt in case no label is present on the logistic unit.

Building blocks (top-down):

- [Middle block](#) (Text with data titles): SSCC.
- [Bottom block](#) (Barcodes + HRI): AI (00).

Formatted: Indent: Left: 0 cm, Hanging: 1.52 cm, Page break before

**Figure 6.6.5-2.** Label with combined supplier and carrier information

Von/From Mustermann GmbH Herr Schmidt Hauptstr. 35 60100 Frankfurt Germany	An/To Edificio de Servicios Generales Ms Alicia Romero Calle Centella 18 08820 Barcelona Spain
SSCC <b>395011015300000011</b> ROUTE                      GINC <b>402621                      950110153B01001</b> Dimensions / Weight: 80x20x20 cm / 50,0 kg Billing No.: 5020613963 69 01	
 (403)402621(401)950110153B01001  (00)395011015300000011	

**Notes:**

This example shows a pallet label that may be applied at the time of transport. Besides information on the logistic unit it contains information on the route and destination.

Building blocks (top-down):

- **Top block** (Free-format): Von/From; An/To.
- **Middle block** (Text with data titles): SSCC; ROUTE; Dimensions/Weight; Billing No.
- **Bottom block** (Barcodes and HRI): AI (403); AI (401); AI (00).

**Figure 6.6.5-3.** Label with supplier and carrier segments



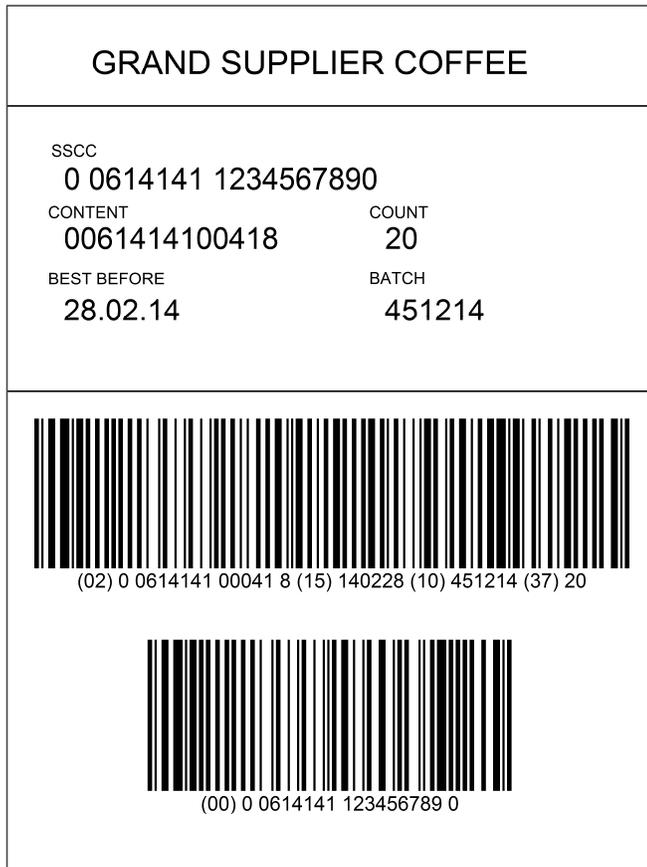
**Notes:**

This example shows a case label that may be applied at the time of transport. Besides the SSCC it contains information on the route and destination.

Segments and building blocks (top-down):

- Carrier **s**Segment (middle block and bottom block side by side):
  - **Top block** (Free-format): FROM; TO.
  - **Middle block** (Text with data titles): CARRIER; B/L; PRO.
  - **Bottom block** (Barcodes and HRI): SHIP TO POST.
- ~~Text with data titles: CARRIER; B/L; PRO.~~
- Supplier **s**Segment:
  - **Bottom block** (Barcodes and HRI): SSCC; AI (00).

**Figure 6.6.5-4.** Label with supplier information



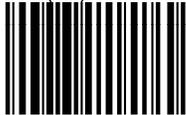
**Notes:**

This example shows a pallet label that may be applied at the time of production. It contains information on the supplier and the trade item, but no information on the transport and customer.

Building blocks (top-down):

- **Free-format** **Top block**: SUPPLIER NAME.
- **Middle block** (**t**Text with data titles): SSCC; CONTENT; COUNT; BEST BEFORE; BATCH.
- **Bottom block** (**B**arcodes and HRI): AI (02); AI (15); AI (10); AI (37); AI (00).

**Figure 6.6.5-5.** Label with supplier, customer, and carrier segments

<b>FROM</b> Good Time Supplier 1155 Battery St San Francisco CA 94111	<b>TO</b> Customer DC 1478 5241 San Antonio Dr Albuquerque, NM 87109
<b>SHIP TO POST</b> (420) 87109 	<b>CARRIER</b> <b>Best Freight</b> PRO: 2895769860 B/L: 853930
PO: 345-896779-0 DEPT: 092	
<b>Store Number</b> (90) 1528 	Customer Store 1528 1815 N Main Roswell NM 87109
<b>SSCC</b> (00) 0 0052177 513895717 2 	

**Notes:**

This example shows a case label that may be applied in a cross-docking scenario. Besides the SSCC it contains transport information and information on the final customer destination.

Segments and building blocks (top-down):

- Carrier segment (middle block and bottom block side by side):
  - ~~Free-format~~Top block: FROM; TO.
  - ~~Middle block (Text with data titles)~~: Carrier; B/L; PRO.
  - ~~Bottom block (Barcodes and HRI)~~: SHIP TO POST.
  - ~~Text with data titles: Carrier; B/L; PRO.~~
- Customer segment:
  - ~~Free-format~~Top block: PO; DEPT.
  - ~~Middle block (Text with data titles)~~: Customer.
  - ~~Bottom block (Barcodes and HRI)~~: Store Number.
  - ~~Text with data titles: Customer.~~
- Supplier segment:
  - ~~Bottom block (Barcodes and HRI)~~: SSCC; AI (00).

**Figure 6.6.5-6.** Label with GS1-128 and GS1 DataMatrix symbols

<b>FJP CARRIERS</b>								
<b>FROM</b>	GS1 Avenue Louise 326 1050 BE BRUXELLES BE - Belgique GLN: 9501101100015 <div style="float: right; text-align: right;">  +32 123456789         </div>							
<b>TO</b>	Hr. F. van den Bim Kerkstraat 319 1500 KM Wormerveer NL - Nederland							
								
<b>ROUTE</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">SSCC</td> <td style="width: 40%;">39501101 001300012 9</td> <td rowspan="3" style="width: 30%; text-align: center;">  </td> </tr> <tr> <td>ROUTE</td> <td>123+1021JK+0320+12</td> </tr> <tr> <td>SHIP TO POST</td> <td>528 1500KM</td> </tr> </table>	SSCC	39501101 001300012 9		ROUTE	123+1021JK+0320+12	SHIP TO POST	528 1500KM
SSCC	39501101 001300012 9							
ROUTE	123+1021JK+0320+12							
SHIP TO POST	528 1500KM							
<b>SSCC</b>	 (00) 3 9501101 001300012 9							

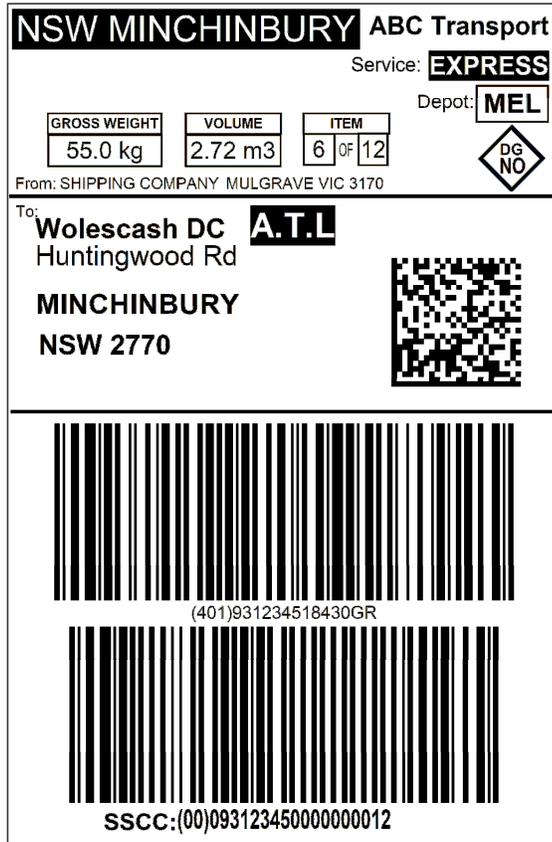
**Notes:**

[This example shows a label that may be applied in a parcel delivery scenario.](#)

[Building blocks \(top down\):](#)

- [Top block: Transport Carrier, From address with phone number, To address](#)
- [Middle block \(text with data titles\): SSCC, Routing Code, Ship to – Deliver to postal code with country code](#)  
[GS1 2D symbol \(GS1 DataMatrix\): AI\(00\), AI\(403\), AI\(421\)](#)
- [Bottom block \(barcodes and HRI\): AI\(00\)](#)

**Figure 6.6.5-7. Label with GS1 DataMatrix and GS1-128 symbols**



**Notes:**

[This example shows a label created specifically for transport purposes. No product information is included.](#)

**Building blocks (top-down):**

- [Top block: Transport Company, Weight, Volume, Item count, Service class](#)
- [Middle block:](#)
  - [GS1 approved 2D Symbol \(GS1 DataMatrix\): AI \(00\), AI\(421\), AI\(401\), AI\(403\),](#)
- [Bottom block \(barcodes and HRI\): AI \(401\); AI \(00\)](#)