Australian Freight Labelling Guideline

Based on GS1 Open Global Standards

Implementation Guideline for the Automatic Identification and Data Capture (AIDC) of transport units in the Australian Transport & Logistics Industry.

Version 2.0, September 2017

Table of Contents

Table of Figures

1. Document purpose

This guideline has been developed by the ALC Supply Chain Standards working Group and provides guidance on how to physically identify and mark Freight Units to improve efficiency, productivity and visibility across the supply chain.

The guideline is based on the GS1 standards described in the GS1 General Specifications, and on best practices gathered via the ALC Transport & Logistics Labelling Work Group and in various implementation projects.

1.1. Document version control

Version #	Date	Nature of change / comments	Author
0.01	23-Jun-15	Creation	Michiel Ruighaver
0.02	01-Jul-15	Updated, label size, positioning, data requirements and 2D barcodes info	Michiel Ruighaver
0.03	08-Sep-15	Updated label specifications & Transport only label design. Added 2D barcode design.	Michiel Ruighaver
0.04	22-Sep-15	Added Landscape Transport label design	Michiel Ruighaver
0.05	05-Oct-15	Made changes outlined in GS1 standards review	Michiel Ruighaver
0.06	21-Oct-15	Reviewed and suggested amendments	Bonnie Ryan
1.0	16-Nov-15	Published guideline	Michiel Ruighaver
1.1	04-Mar-16	Updated label image & consolidated label positioning	Michiel Ruighaver
0.21	01-Aug-17	Split document into Business and Technical sections. Added FAQ & next steps. Updated mandatory & optional data requirements and label designs based on project group feedback.	Michiel Ruighaver
0.22	08-Aug-17	Reviewed and suggested amendments	Stephan Wijnker
0.23	18-Aug-17	Made changes outlined in GS1 standards review	Michiel Ruighaver
2.0	13-Sep-17	Published guideline	Michiel Ruighaver

1.2. Approval decision

Steering Team Member(s)	Company	Title	Date Approved
Australian Logistics Council Supply Chain Standards Working Group	Various	Work Group participants	5 November 2015
Michael Kilgariff	Australian Logistics Council	Managing Director	26 November 2015
David McNeil	Liberty OneSteel	ALC Technology Committee Chair	13 September 2017

2. Contributors

Name	Company
Adam Crawford	Coles
Andrew Mitchell	MessageXchange
Andy Kim	Toll Group
Bonnie Ryan	GS1 Australia
Brad Jeavons	Winson Group
Cate Hull	FreightExchange
Chris Orford	BagTrans Pty Ltd
Dale Paul	DB Schenker
David McNeil	OneSteel
Ian Veysie	GS1 Australia
Jeff Shillington	Avery Dennison RBIS
Karl Brooks	DHL
Kieren James	messageXchanage
Mandeep Sodhi	Nestle
Mark Brown	Toll Global Forwarding
Mark Chaston	Border Express
Mark Dingley	Matthews Australasia
Michael Romanous	Woolworths
Michiel Ruighaver	GS1 Australia

Neil Temperley	Data61 (NICTA)
Peter Tate	CDM Logistics
Renato Landayan	DB Schenker Australia Pty Ltd
Richard O'Brien	Toll Global Express
Rob Simpson	K&S Freighters
Sareth Suon	Tigers International Solutions Pty Ltd
Scott Fitzgerald	CEVA Logistics
Silvio Mueller	Couriers Please
Timothy Harris	Border Express Pty Ltd
Vin Elder	Barcode Print

3. 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 **Australian Freight Labelling Guideline** (which incorporates parts of the GS1 Logistics Label Guideline version 1.1) to agree to grant to GS1 members a royalty-free license or a RAND license 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 licensing obligations of GS1. Moreover, the agreement to grant licenses 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 organization is developing in compliance with the Specification and whether a license under a patent or other intellectual property right is needed. Such a determination of a need for licensing should be made in view of the details of the specific system designed by the organization in consultation with their own patent counsel.

THIS DOCUMENT IS PROVIDED "AS IS" WITH NO WARRANTIES WHATSOEVER, INCLUDING ANY WARRANTY OF MERCHANTABILITY, NONINFRINGMENT, FITNESS FOR PARTICULAR PURPOSE, OR ANY WARRANTY OTHER WISE 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.

4. Contacts

The principle contact with regard to the contents of this document is:

GS1 Australia Ltd
8 Nexus Court
Mulgrave, VIC 3170
Telephone: 1300 227 263
Facsimile: (03) 9558 9559
Website: www.gs1au.org

Michiel Ruighaver – Senior Advisor, Trade, Transport & Heavy Industry
Email: michiel.ruighaver@gs1au.org

For additional information, please refer to the GS1 Australia Fact Sheets and the GS1 General
Specifications available at www.gs1au.org

5. How to use this document

For the convenience of the reader, this document has been organised in two main sections:

5.1. Business Section

The business section provides the reader with an understanding of the background and purpose of this initiative. It outlines some examples and learnings and what the Australian Transport industry can expect to gain from the implementation of GS1 supply chain standards for the management of Freight.

5.2. Technical Section

The technical section is aimed at the IT departments of those organisations who have made a business decision to proceed with implementation. It outlines the technical data elements and schemas for designing how the information should be represented and structured in enterprise systems and encoded in barcodes.

The technical section outlines the minimum requirements for the Australian Transport industry but does not preclude an organisation going beyond these requirements should they wish.

Additionally, this guideline will reference other GS1 technical documentation where applicable so as not to duplicate effort. Appropriate links and references are highlighted throughout the document.

Further technical support can be obtained from GS1 Australia or any number of independent solution providers who offer GS1 standards compliance within their product/service suites. A directory of such providers can be found on the GS1 Australia website:

www.gs1au.org/for-your-industry/trade-and-transport/certified-transport-software-and-solution-providers/

6. Business Section

6.1. Introduction

The Transport & Logistics industry involves the movement of goods using multiple transport modes, including road, rail, air and maritime. T&L processes involve a wide variety of parties such as consignor and consignee, freight forwarders and carriers as well as official bodies like customs and port authorities. The often complex logistics flows and the variety of involved parties imply there is a need for easy physical identification of logistic units to aid end to end interoperability and visibility along the value chain from point of origin to final destination. GS1 offers a solution to help accomplish this by providing a standard approach to identifying and labelling freight using a common GS1 Logistics Label

The Australia's Logistics Sector has an important impact on the national economy of Australian:

- 8.6% of the nation's GDP
- $131.6 billion contribution to Australia's economy in 2013
- 1.2m people employed
- 1% improvement in efficiency will increase GDP by $2 billion

Australia's freight task is expected to increase:

- 80% between 2010 and 2030
- Triple by 2050

More efficient supply chains will:

- Improve the flow of goods from production to consumption
- Reduce transport costs, resulting in cheaper goods
- Generate economic growth

6.2. Why do this?

The use of proprietary freight labels across the Australian Transport industry causes inefficiencies, reduced visibility and cost across the supply chain. A 2017 Austroads Report Estimated a $1.63 billion productivity penalty extrapolated for SMEs in the sector due to the inability to integrate incompatible formats[1]

GS1 standards break down these barriers by creating common identification, labelling and data sharing standards across the supply chain.

The benefits listed below are defined for users throughout the entire supply chain

- Common identification across industry
- Reduced manual entry
- Reduced re-work
- Reduced development & maintenance requirements

---

[1] Austroads Report "Investigating the Potential Benefits of Enhanced End to End Supply Chain Visibility" Published 07-MAR-2017
https://www.onlinepublications.austroads.com.au/items/AP-R538-17

The GS1 system is the most widely used supply chain standards system in the world and comprises the standards, guidelines, solutions and services created in formalised and collaborative processes.

6.3. Who should be involved

The movement of freight across the supply chain involve a wide range of stakeholders:

- Shippers (i.e. manufacturers/distributors)
- 3rd party warehouse/logistic providers
- Transport operators
- Sub-contractors (i.e. providing last mile delivery)
- Solution providers

6.4. Scope of the guideline

The focus of this guideline is to provide Australian standard recommendations as to what is the most effective way for industry to identify and label transport units to enable improved interoperability, visibility and productivity in the transportation value chain.

Where applicable, this guideline leverages the existence of shipper applied logistics labels that follow standard principles outlined in the GS1 Logistics Label Guideline but with added supplementary information to enable Australian transport service providers to execute the physical transportation of the goods.

It caters for both manual transport processes and automated transport processes (i.e. scanning, EDI transport instructions & transport status notifications).

Note:

- A transport unit is an item of any composition (e.g. a single carton or pallet containing many cartons or a bundle of steel) established for transport which needs to be managed throughout the supply chain.
- For more information about the GS1 XML EDI transport messages that enable electronic data exchange between a shipper of goods and a transport service provider, please refer to the guidelines available at www.gs1au.org/transport-edi-guidelines.

6.5. Transport Scenarios

Scenarios covered in this guideline include:

- Single leg/carrier transport process
- Multiple leg/carrier transport process
- Allocation of the SSCC[2] to a freight unit by the transport buyer, using the transport buyer's Global Company Prefix[3]
- Allocation of the SSCC to freight unit by the transport provider, using the transport provider's Global Company Prefix (i.e. where transport buyer does not have a Global Company Prefix).

---

[2] Serial Shipping Container Code (SSCC) is a GS1 Identification Key used to identify logistics units. The key comprises an Extension digit, GS1 Company Prefix, Serial Reference, and Check Digit (see section 3.3.1, GS1 General Specifications)

[3] To obtain a Global Company Prefix you will need to apply for a GS1 Australia Full Membership.

7. Technical Section

7.1. GS1 system of supply chain standards

The GS1 System of global supply chain standards is an integrated suite of standards that enable visibility and interoperability in the Value Chain. The GS1 Identification Keys are the foundation of the GS1 System. They, and other GS1 data standards, are defined independently of data carrier and information sharing technology in which they are used.

The GS1 System embodies an open architecture approach. It has been carefully designed for modular expansion with minimal disruption to existing applications. Enterprise Resource Planning (ERP) and other supply chain application software drive implementation of the system.

The GS1 System is designed based on three layers (Identify, Capture and Share) which assist in establishing a modular approach where individual components of the GS1 System can be defined and documented independently of one another:

Figure 1   GS1 system of standards

Figure 2   Identify, capture and share

Identify - The GS1 Identification Keys offer standards for globally unique identification (numbering or codification) of trade-able items, fixed and returnable assets, shipments, consignments, locations, entities, documents etc. so that interested parties can get relevant information about them. These globally-recognised keys are the foundation of the GS1 System.

Capture - GS1 Barcodes and GS1 EPC/RFID[4] are global standards for data carriers that provide accurate and automatic capture of data. GS1 data carrier standards help companies improve many critical business processes, such as tracking product shipments, tracing medical devices in hospitals, managing inventory in warehouses or depots, facilitating maintenance & repair activities, etc.

Share - GS1 EDI[5], GS1 GDSN[6] and GS1 EPCIS[7] are global standards that enable electronic data exchange. They provide secure and efficient sharing of information to, from and between trusted and authentic sources.

Business data shared between trading partners includes:

Master data – Detailed information about a trade item or logistic unit, such as weight and size, description, brand, country of origin etc. – synchronised via the GS1 GDSN;

---

[4] EPC/RFID – Electronic Product Code Radio Frequency Identification http://www.gs1.org/epc-rfid

[5] EDI – Electronic Data Interchange http:/www.gs1.org/edi

[6] GDSN – Global Data Synchronisation Network http://www.gs1.org/gdsn

[7] EPCIS – Electronic Product Code Information Services http://www.gs1.org/epcis

Master Data

GDSN
Global Data Synchronisation Network

The GDSN connects trading partners to the GS1 Global Registry® via GS1-certified Data Pools, enabling automated electronic sharing of standardised, up-to-date, accurate, product information.

What Goes Into It

- GTIN, GLN
- Brand Owner Identification
- Product Descriptions
- Global Product Classification (GPC)
- Target Market

Figure 3   Master Data Standards & Services

Transaction data – Includes purchase or service order, despatch and receival advice, transport instruction, invoice etc - exchanged automatically with GS1 EDI;
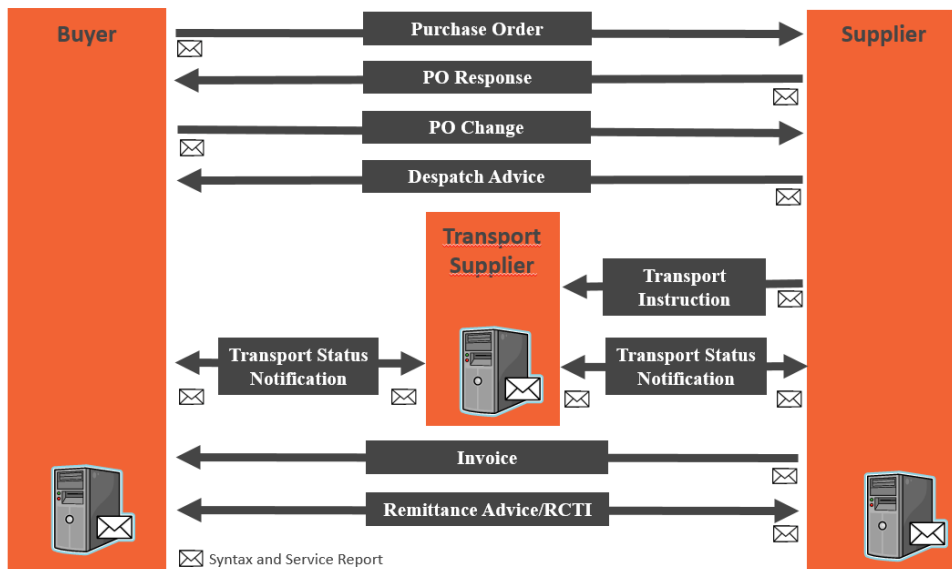
Figure 4   Electronic order to cash cycle

Physical event based traceability data – Information about the physical movement of an object (ideally in real-time) as it moves from origin to destination – shared with GS1 EDI or GS1 EPCIS.

Event Data
EPCIS Electronic Product Code Information Services
EPCIS is the standard for immediate sharing of information about critical events between trading partners. It provides evidence of what is occurring in the supply chain, and observations of the *what*, *when*, *where* and *why*.

What Goes Into It	
• What	SGTIN
• Where	GLN
• When	SSCC
• Why	GIAI
	GRAI
	GSRN
	GDTI

Figure 5   Event Data Standards and Services

7.2. GS1 identification system

GS1 Identification Keys are the foundation of the GS1 system and ensure the global and cross sector unique identification of products, locations, assets, etc. All GS1 primary identification keys require a Globally Unique "**GS1 Global Company Prefix**" (GCP).

7.2.1.   GS1 Global Company Prefix

The GS1 Global Company Prefix (GCP) provides a way for GS1 users to create globally unique identification codes for physical objects such as items, logistic units, locations, assets, containers, consignments, etc.

The GCP is the basis to create any of the GS1 Identification Keys. The GCP provides a company with access to the full suite of GS1 standards. Before you can begin using GS1 identification keys and barcodes, you need a GS1 company prefix. GCPs are allocated by GS1 Member Organisations in each country (GS1 is an issuing agency under ISO 15459). This document will guide users on how to use the GCP to create relevant identifiers for use by the Australian Transport industry with the knowledge that any implementation of any aspect of the GS1 System of standards will interoperate anywhere in the world and across all sectors, not just transport.

7.3. GS1 primary identification keys

GS1 ID Key	Used to Identify	Example
Global Trade Item Number (GTIN)	Products and services	Can of coke, air freight - overnight
Global Location Number (GLN)	Parties and locations	Companies, warehouses, factories, stores
Serial Shipping Container Code (SSCC)	Logistics units	Pallets of items, roll cages, parcels
Global Shipment Identification Number (GSIN)	Shipments	Grouping of logistics units shipped together
Global Identification Number for Consignment (GINC)	Consignments	Grouping of shipments containing logistics units transported together
Global Individual Asset Identifier (GIAI)	Assets	Transport equipment
Global Returnable Asset Identifier (GRAI)	Returnable assets	Crates, totes
Global Service Relation Number (GSRN)	Service provider and recipient relationships	Employees, Subcontractors
Global Document Type Identifier (GDTI)	Documents	Shipment forms, Proof of Delivery Documents
Global Coupon Number (GCN)	Coupons	Digital Coupons
Component/Part Identifier (CPID)	Components and parts	Automobile parts

For more information about GS1 primary identification keys, go to www.gs1.org/id-keys.

8. Label Specifications

8.1. Mandatory data on Transport Label

A key mandatory requirement is that each transport/logistic unit is identified with a unique **Serial Shipping Container Code (SSCC)**.

The SSCC is a crucial key for traceability as it allows all parties in the supply chain to uniquely identify each transport/logistic unit and its content.

Scanning the SSCC barcoded on each transport/logistic unit allows the physical movement of units to be matched with the electronic business messages that refer to them. Using the SSCC to identify individual units opens up the opportunity to implement a wide range of applications such as cross docking, shipment routing, and automated receiving. Mandatory data elements include:

Element	Human Readable	Barcode	Comments
Authority to leave	Mandatory	N/A	Include "ATL" when authority has been given - otherwise leave blank
Cubic Volume	Mandatory	N/A	
Destination Depot ID	Mandatory (Road Freight)	N/A	Required by some providers to assist manual operations (road freight)
Destination State	Mandatory	N/A	Black background with white text
Destination Suburb	Mandatory	N/A	Black background with white text
Full Address of Receiver	Mandatory	N/A	
Full Name of Receiver	Mandatory	N/A	
GINC[8]/Consignment ID	Mandatory	Optional	
Gross weight of transport unit	Mandatory	N/A	
Item Count	Mandatory	N/A	i.e. 1 of X and 4 of 4 once the last Freight unit has been packed.
Primary & Secondary Routing Code	Mandatory (Air Freight)	Mandatory	Required by some providers (air freight)
Receiver contact phone	Optional	N/A	Important for B2C shipments (ideally exchanged via EDI)
Service Type	Mandatory	N/A	Default value to be "STD" (i.e. If not used by transport provider)
Shipper details - Name & suburb	Mandatory	N/A	
SSCC - Serial Shipping Container Code	Mandatory	Mandatory	

---

[8] Global Identification Number for Consignment (GINC) is a GS1 Identification Key used to identify a logical grouping of logistic or transport units that are assembled to be transported. The key comprises a GS1 Company Prefix and the Freight Forwarder's or Carrier's transport reference. (see section 3.7.2, GS1 General Specifications)

8.2. Optional data on Transport Label

Element	Human Readable	Barcode	Comments
Additional/Special Instructions	Optional	N/A	
Air Carrier Declaration	Optional	N/A	Recommended to be included in separate label
Carrier name (initial pick-up)	Optional	N/A	
Customer order number	Optional	N/A	Include as special instructions (if needed)
Dangerous Goods (Basic flag only) [9]	Optional	N/A	Only used when Dangerous Goods contained within Freight Unit
Delivery date	Optional	N/A	Include as special instructions (if needed)
Despatch Date	Optional	N/A	Include as special instructions (if needed)
Despatch Time	Optional	N/A	Include as special instructions (if needed)
Despatch Zone/Staging Area	Optional	N/A	Include as special instructions (if needed)
Despatch/Pick details	Optional	N/A	Include as special instructions (if needed)
Device	Optional	N/A	Include as special instructions (if needed)
Global Location Number (GLN) of Receiver[10]	Optional	Optional	
Operator	Optional	N/A	Include as special instructions (if needed)
Sales Order Number/Internal reference	Optional	N/A	Include as special instructions (if needed)
Transport Unit type (Standard Pallet, Carton, etc.)	Optional	N/A	Include as special instructions (if needed)

---

[9] This guideline does not replace standard operating procedures for meeting dangerous goods regulatory requirements.

[10] Global Location Number (GLN) is a GS1 Identification Key used to identify physical locations or parties. The key comprises a GS1 Company Prefix, Location Reference, and Check Digit. (see section 2.4, GS1 General Specifications)

8.3. Free format Text & Non-Human Readable Interpretation Text

The Free Format Text on the label should not be any text or graphics meant for automated processing. The name and address of the sender and receiver are typical examples. In many instances companies may also want to add specific graphics to a label (e.g. company logos).

All text shall be clearly legible and no less than 3 millimetres / 0.118 inches high.

The Non-Human Readable Interpretation Text (with Data Titles) is designed to support manual operations and to facilitate manual data entry in systems. It should at a minimum contain the text equivalent of all data elements represented in barcodes.

The data content should be at least 7 mm (0.275 inch) in height

Application Identifiers (AIs) must not be included in the text with data titles.

8.4. Design Options

To cater for various scenarios, there are three transport label design options outlined in this guideline:

- **Transport label** - Used to uniquely identify the logistics units when the goods receiver does not require a logistics/Serial Shipping Container Code (SSCC) label. This label may also be used when the freight owner is not a GS1 Member and the earliest Transport & Logistics Provider in the supply chain allocates a unique SSCC using their GS1 number range. (see section 9)

- **Two part Transport & Logistics Label** - Used when the freight already has a Serial Shipping Container Code (SSCC) label affixed by the cargo owner prior to knowing its final destination (i.e. goods picked from a finished goods warehouse). The Transport information is applied as an additional label to facilitate the transport process. (see section 10)

- **Consolidated Transport & Logistics Label** - Combines the labelling needs of both the goods receiver and the carrier of the goods in one label. It is applied when the cargo owner knows the transport details and labelling requirements of the goods receiver at the time the freight is constructed. Refer to Section 11 Consolidated Transport & Logistics Label

8.5. Label size

The physical dimensions of the label are determined by the party applying the label, however the size of the label should be consistent with the data requirements for 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/transport unit to be labelled.

8.5.1. Minimum label size - Transport label

Transport Label - Minimum size recommended is 148mm (6") long x 105mm (4") wide

6inch
(150mm)

4inch
(100mm)

8.5.2. Minimum label size – Two-part transport & logistics label

Transport Label -Minimum size recommended is 105mm (4") long x 148mm (6") wide

Logistics Label - Minimum size recommended is 105mm (4") long x 148mm (6") wide

4inch
(100mm)

6inch
(150mm)
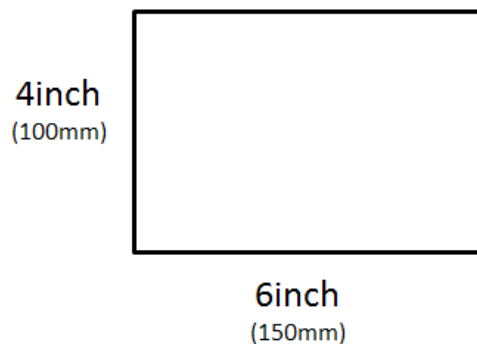
8.5.3. Minimum label size - Consolidated Transport & logistics label

The Consolidated Transport label combines the needs of both the goods receiver and the carrier of the goods.

Minimum size recommended is 210mm (8") long x 105mm (4") wide

8inch
(200mm)

4inch
(100mm)
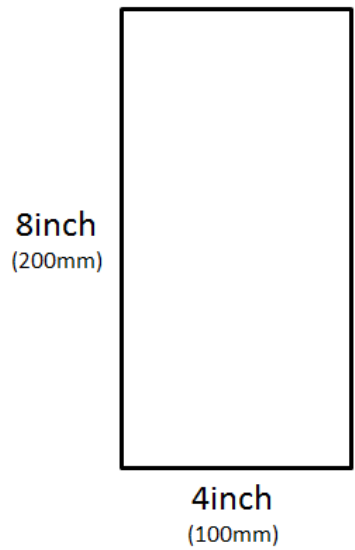
9. Transport Label

9.1. When to use the Transport Label

The Transport Label is used when the freight does not have a Logistics Label containing a Serial Shipping Container Code (SSCC) applied and the receiver of the freight does not require a logistics label. This label may also be used when the freight owner is not a GS1 Member. The earliest Transport & Logistics Provider in the chain uses their GS1 number range to add a unique SSCC to the transport label.

9.2. Transport Label Designs

9.2.1. Transport Label Portrait Design (3 Linear barcodes)
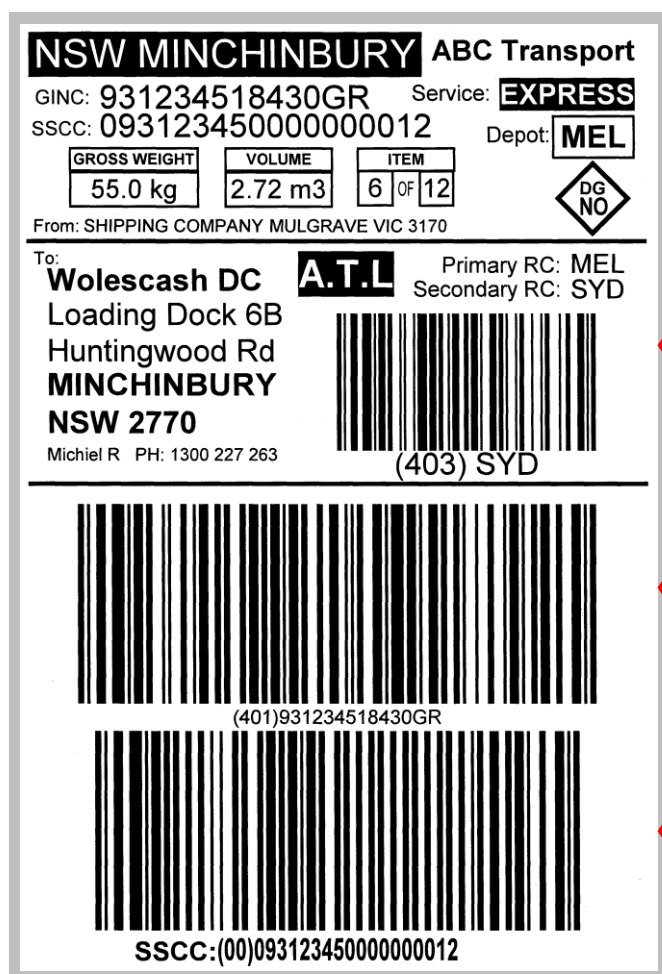
GS1-128 Barcode Symbology
Minimum x dimension: 0.36mm
Minimum Bar height: 22mm
Data encoded can include:
(403) Routing Code

GS1-128 Barcode Symbology
Minimum x dimension: 0.495mm
Minimum Bar height is 31.75mm
Data encoded can include:
(401) Global Identification Number for Consignment
(410) Ship to Global Location Number
(421) Ship to ISO Country Code + Post Code

GS1-128 Barcode Symbology
Minimum x dimension: 0.495mm
Minimum Bar height is 31.75mm
Data encoded must include:
(00) Serial Shipping Container Code

Note: sample label is not to scale

Figure 6   Transport Label Portrait Design (3 Linear barcodes)

9.2.2. Transport Label Portrait Design (Linear and 2D Barcode Symbology)

NSW MINCHINBURY ABC Transport
GINC: 931234518430GR   Service: EXPRESS
SSCC: 093123450000000012   Depot: MEL

GROSS WEIGHT	VOLUME	ITEM
55.0 kg	2.72 m3	6 OF 12

DG NO

From: SHIPPING COMPANY MULGRAVE VIC 3170

To:
Wolescash DC A.T.L   Primary RC: MEL
Loading Dock 6B   Secondary RC: SYD
Huntingwood Rd
MINCHINBURY
NSW 2770
Michiel R PH: 1300 227 263

(401)931234518430GR

SSCC:(00)093123450000000012

Figure 7   Transport Label Design incorporating 2D Barcode Symbology

GS1-DataMatrix Barcode Symbology
Minimum x dimension: 1.0mm
Data encoded can include:
(00) Serial Shipping Container Code
(401) Global Identification Number for Consignment
(403) Routing Code
(410) Ship to Global Location Number
(421) Ship to ISO Country Code + Post Code

GS1-128 Barcode Symbology
Minimum x dimension: 0.495mm
Minimum Bar height is 31.75mm
Data encoded can include:
(401) Global Identification Number for Consignment
(403) Routing Code
(410) Ship to Global Location Number
(421) Ship to ISO Country Code + Post Code

GS1-128 Barcode Symbology
Minimum x dimension: 0.495mm
Minimum Bar height is 31.75mm
Data encoded must include:
(00) Serial Shipping Container Code

Note: sample label is not to scale
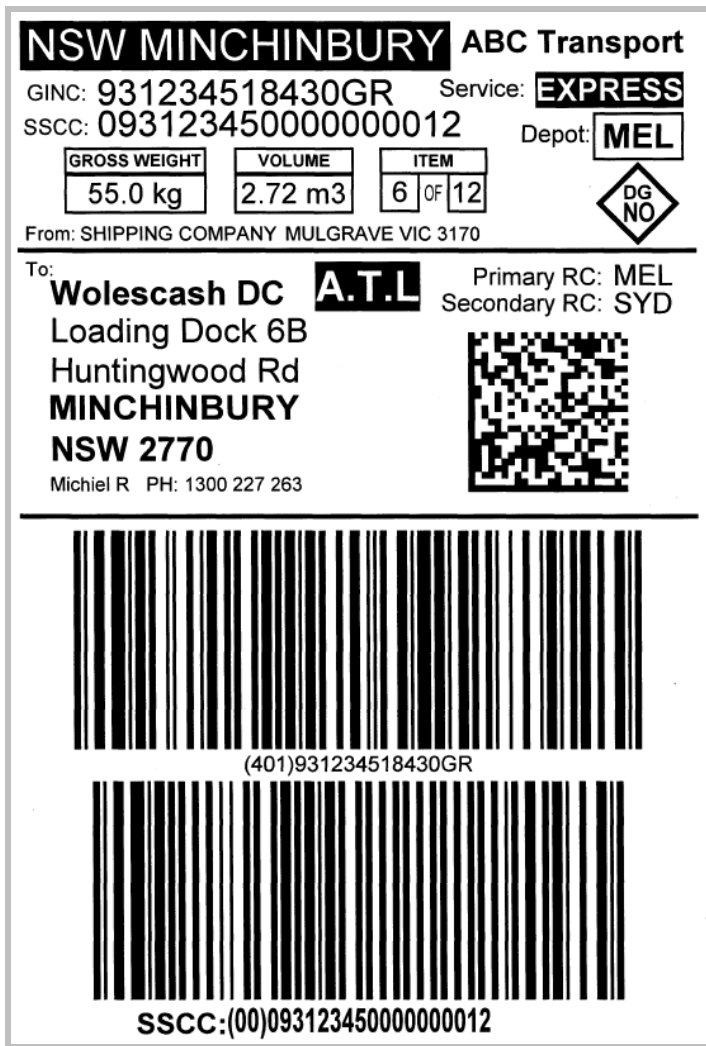
9.2.3. Transport Label Landscape Design

GS1-128 Barcode Symbology
Minimum x-dimension: 0.495mm
Minimum Bar height: 31.75mm
Data encoded can include:
(401) Global Identification Number for
Consignments
(410) Ship to Global Location Number
(421) Ship to ISO Country Code + Post Code

GS1-128 Barcode Symbology
Minimum x-dimension: 0.495mm
Minimum Bar height: 31.75mm
Data encoded must include:
(00) Serial Shipping Container Code

GS1-128 Barcode Symbology
Minimum x-dimension: 0.36mm
Minimum Bar height: 22mm
Data encoded can include:
(403) Routing Code

NSW MINCHINBURY
From: SHIPPING COMPANY
MULGRAVE VIC 3170
GINC: 931234518430GR
SSCC: 093123450000000012

GROSS WEIGHT	VOLUME
55.0 kg	2.72 m3

ITEM
6 OF 12

ABC Transport
Service: **EXPRESS**
Depot: **MEL**
Primary RC: MEL
Secondary RC: SYD

(401)931234518430GR

(403) SYD

SSCC:(00)093123450000000012

To: **Wolescash DC**
Loading Dock 6B
Huntingwood Rd
DG NO.
A.T.L **MINCHINBURY**
NSW 2770
Michiel R   PH: 1300 227 263

Figure 8   Transport Label Landscape Design

Note: *sample label is not to scale*

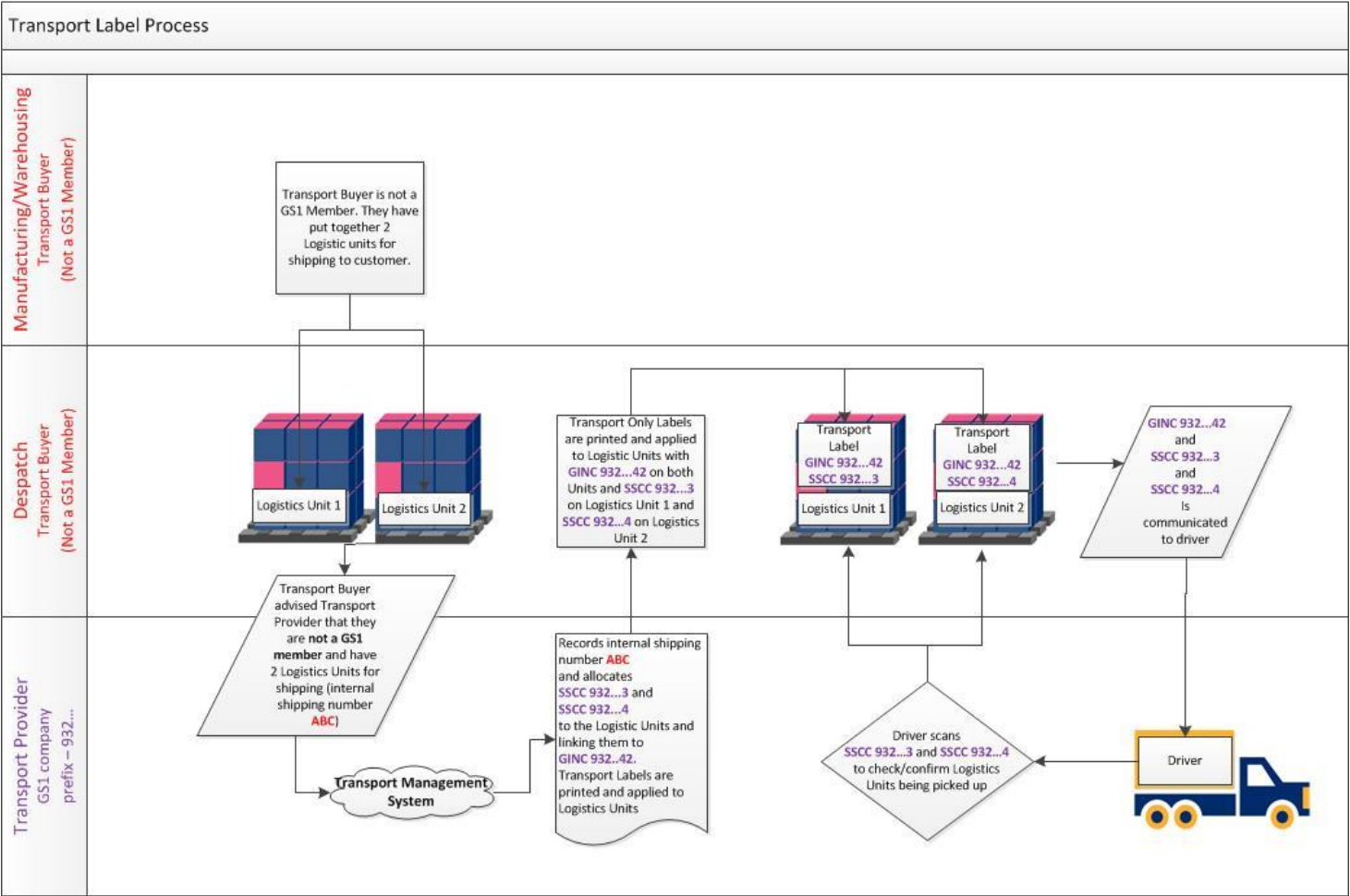## 9.3. Typical Allocation Process for Transport Label

Figure 9   Flowchart: Typical allocation process for Transport Only Label

10. Two-part Transport & Logistics Label

10.1. When to use the Two-part Transport & Logistics Label

The Two-part Transport & Logistics Label is used when the freight already has a Serial Shipping Container Code (SSCC) label affixed by the cargo owner prior to knowing its final destination (i.e. goods picked from a finished goods warehouse). The Transport label is applied as an additional label containing the information required in the transport process.

10.2. Two-part Transport & Logistics Label Landscape Design

Freight Label component

GS1-128 Barcode Symbology
Minimum x-dimension: 0.495mm
Minimum Bar height: 31.75mm
Data encoded can include:
(401) Global Identification Number for Consignments
(410) Ship to Global Location Number
(421) Ship to ISO Country Code + Post Code

GS1-128 Barcode Symbology
Minimum x-dimension: 0.495mm
Minimum Bar height: 31.75mm
Data encoded can include:
(401) Global Identification Number for Consignments
(410) Ship to Global Location Number
(421) Ship to ISO Country Code + Post Code

GS1-128 Barcode Symbology
Minimum x-dimension: 0.36mm
Minimum Bar height: 22mm
Data encoded can include:
(403) Routing Code

Note: sample label is not to scale

Logistics Label component
(varies depending on requirements of receiver)

GS1-128 Barcode Symbology
Minimum x-dimension: 0.25mm
Minimum Bar height: 31.75mm
Data encoded can include:
(02) Global Trade Item Number
(17) Useby Date
(37) Quantity
(10) Batch

GS1-128 Barcode Symbology
Minimum x-dimension: 0.495mm
Minimum Bar height: 31.75mm
Data encoded must include:
(00) Serial Shipping Container Code

Figure 10   Two-part Transport & Logistics Label Landscape Design

Note: sample label is not to scale

10.3. Typical Allocation Process for Two-part Transport & Logistics Label

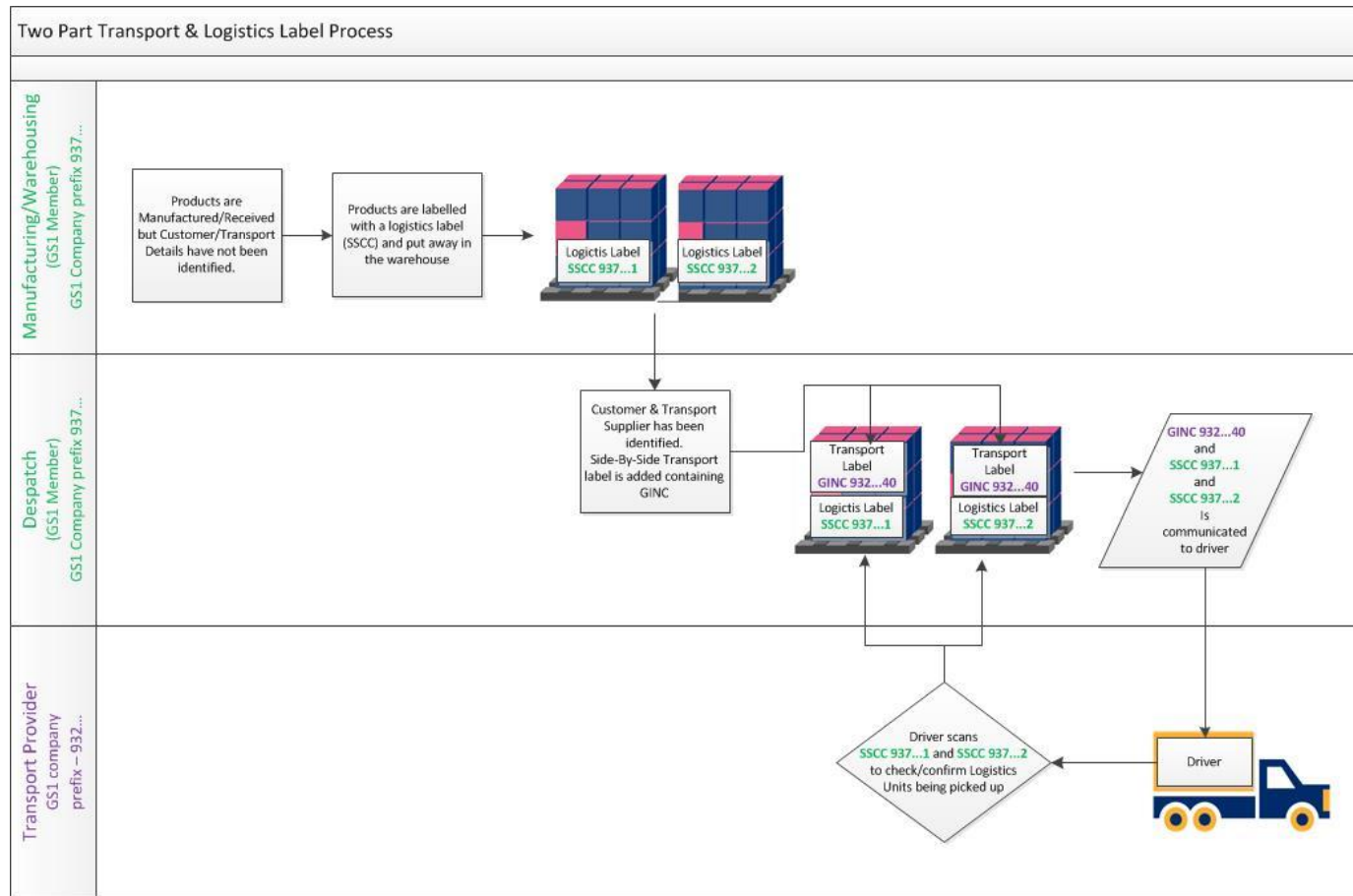**Two Part Transport & Logistics Label Process**

Figure 11   Flowchart: Typical allocation process for Two-part Transport Label

11. Consolidated Transport & Logistics Label

11.1. When to use the Consolidated Transport & Logistics Label

The Consolidated Transport label combines the needs of both the goods receiver and the carrier of the goods. It can be applied when the delivery destination is known at the time the freight is constructed and the cargo owner is able to produce both components in one label.

11.2. Consolidated Transport & Logistics Label Portrait Design

The top half of the label contains the Transport information and the bottom half contains information for the freight receiver.

GS1-128 Barcode Symbology
Minimum x-dimension: 0.36mm
Minimum Bar height: 22mm
Data encoded can include:
(403) Routing Code

GS1-128 Barcode Symbology
Minimum x-dimension: 0.495mm
Minimum Bar height: 31.75mm
Data encoded can include:
(401) Global Identification Number for Consignment
(410) Ship to Global Location Number
(421) Ship to ISO Country Code + Post Code
(421) Ship to ISO Country Code + Post Code

GS1-128 Barcode Symbology
Minimum x-dimension: 0.495mm
Minimum Bar height: 31.75mm
Data encoded can include:
(02) Global Trade Item Number
(17) Useby Date
(37) Quantity
(10) Batch

GS1-128 Barcode Symbology
Minimum x-dimension: 0.495mm
Minimum Bar height: 31.75mm
Data encoded must include:
(00) Serial Shipping Container Code

Figure 12   Consolidated Transport & Logistics Label Portrait Design

Note: sample label is not to scale

11.3. Typical Allocation Process for Consolidated Transport & Logistics Label
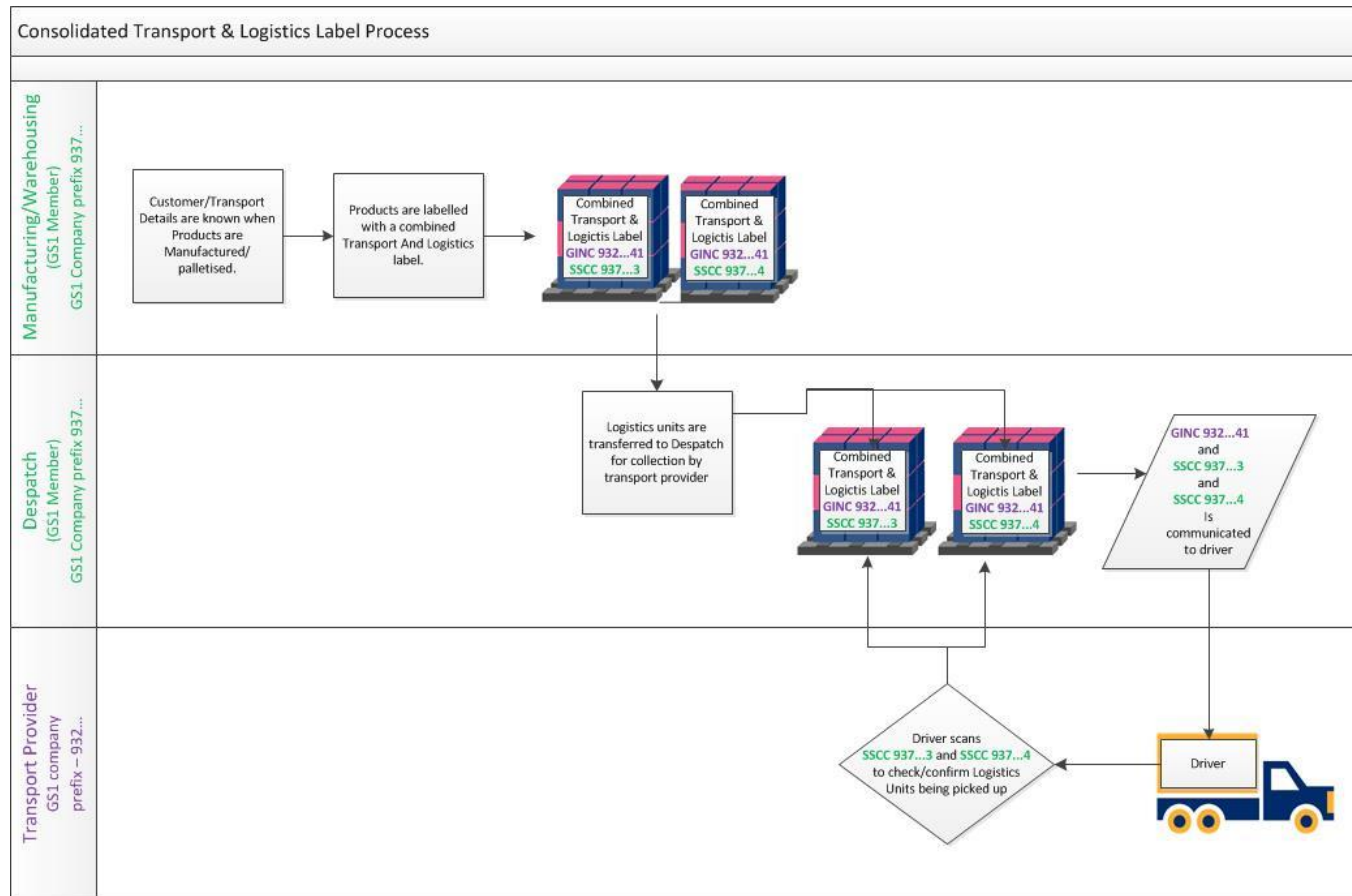

Figure 13   Flowchart: Typical allocation process for Consolidated Transport & Logistics Label

12. GS1 Application Identifiers

12.1. Application Identifier Specifications

The Element Strings encoded in any GS1 Symbology that uses GS1 Application Identifiers (such as GS1-128, GS1 DataMatrix and GS1 QR Code) are composed of one or more GS1 Application Identifiers and one or several data fields. The Application Identifier denotes the contents and structure of the respective data fields.

12.1.1. AI (00) - Serial Shipping Container Code (SSCC)

Data Encoded N2+N18

Example:

(00)593123450000000017

Application Identifier	SSCC (Serial Shipping Container Code)			
	Extension digit	GS1 Company Prefix $\longrightarrow$	Serial reference $\longleftarrow$	Check digit
0 0	N_1	N_2 N_3 N_4 N_5 N_6 N_7 N_8 N_9 N_{10} N_{11} N_{12} N_{13} N_{14} N_{15} N_{16} N_{17}		N_{18}

Figure 14   Format of the SSCC (AI 00) element string

For more information, see section 3.3.1 of the GS1 General Specifications:

http://www.gs1.org/docs/barcodes/GS1_General_Specifications.pdf

12.1.2. AI (401) - Global Identification Number for Consignment (GINC)

Data Encoded N3+X..30

Example:

(401)9312345184303686GR

Application Identifier	Global Identification Number for Consignment (GINC)			
	GS1 Company Prefix $\longrightarrow$		Consignment reference $\longrightarrow$	
4 0 1	N_1 ...	N_i	X_{i+1} ... variable length	$X_{j\,(j<=30)}$

Figure 15   Format of the GINC (AI 401) element string

For more information, see section 3.7.2 of the GS1 General Specifications:

http://www.gs1.org/docs/barcodes/GS1_General_Specifications.pdf

12.1.3. AI (403) – Routing Code

Data Encoded N3+X..30

Example:

(403)402621

Application Identifier	Routing code
4 0 3	X_1 ——————variable length——————$\rightarrow X_{30}$

Figure 16   Format of the Routing Code (AI 403) element string

For more information, see section 3.7.4 of the GS1 General Specifications:

http://www.gs1.org/docs/barcodes/GS1_General_Specifications.pdf

12.1.4. AI (410) – Ship to / Deliver to Global Location Number (GLN)

Data Encoded N3+N13

Example:

(410)9312345023226

Application Identifier	GS1 Company Prefix								Location reference				Check digit
4 1 0	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}

Figure 17   Format of the Ship to / Deliver to Global Location Number (AI 410) element string

For more information, see section 3.7.5 of the GS1 General Specifications:

http://www.gs1.org/docs/barcodes/GS1_General_Specifications.pdf

12.1.5. AI (421) – Ship to/Deliver to Postal Code with 3-Digit ISO Country Code

Data Encoded N3+N3+X..9

Example:

(421)0362770

Application Identifier	ISO country code	Postal code
4 2 1	N_1 N_2 N_3	X_4——variable length——>X_{12}

Figure 18   Format of the Ship to Postal Code with Three-Digit ISO Country Code (AI 421) element string

For more information, see section 3.7.13 of the GS1 General Specifications:

http://www.gs1.org/docs/barcodes/GS1_General_Specifications.pdf

12.2. Format of data elements

The following conventions are applied to indicate the format of Application Identifiers and data elements.

To indicate the allowed characters:
- N numeric digit
- X any character, see [GENSPECS, figure 7.11 – 1] for the allowed characters.

To indicate the length:
- Nn exact number of digits
- N..n maximum number of digits
- Xn exact number of characters
- X..n maximum number of characters

Examples:
- X3 exactly 3 characters
- N..18 up to 18 numeric digits

To indicate digit / character position:
- Nn
- Xn

Examples:
- N3 numeric digit on position 3
- X16 any character on position 16

13. GS1 Barcode Symbologies

13.1. GS1-128 Barcode Symbol

The GS1-128 barcode is a 1D symbology suitable for scanning in the General Distribution environment. This guideline has used the GS1-128 barcode symbol to encode the data (i.e. SSCC, GINC) using the relevant Application Identifiers (AIs).

Concatenation (stringing data elements together) is an effective means for presenting multiple element strings in a single GS1-128 barcode and is used to conserve label space and optimise scanning operations when permitted by the application standard.

The length of the GS1-128 barcode must never exceed 165.1mm in length, including the Quiet Zones.

When concatenating data strings the maximum number of characters in the GS1-128 barcode must not exceed 48 characters.

The size of the GS1-128 barcode depends on:

- the X-dimension (module width) chosen
- the number of characters encoded
- the number of non-numeric characters in the data

Note:
sample is not to scale

Figure 19   Example GS1-128 symbol

For more information, see section 5.4.2 of the GS1 General Specifications:

http://www.gs1.org/docs/barcodes/GS1_General_Specifications.pdf

13.2. GS1 2D Barcode Position Statement

With the emergence of 2D/Matrix barcode symbologies more compact combined representations of the SSCC and other data attributes are possible.

At the time these guidelines were created, Australian Supply Chains had limited ability to scan 2D barcodes.

GS1 does not expect an immediate switch from 1D/Linear to 2D/Matrix data carrier use, but expects over time 2D/Matrix data carriers will be phased in at least as additional symbols next to the already existing 1D/Linear symbol.

GS1 recommends companies that need to replace printing or scanning equipment invest in equipment capable of producing and scanning 2D/Matrix symbols as well as 1D/Linear symbols. GS1 will also investigate whether changes to the standards are needed in order to facilitate the phase-in and use of 2D/Matrix data carriers.

The 2D Transport Label design outlined in this guideline contains multiple symbols (1D & 2D) to enable interoperability as 1D scanners are replaced with 2D scanners across the supply chain.

Note: The GS1 DataMatrix 2D barcode has been used in the example in this guideline. The GS1 QR Code is an alternative 2D barcode symbology. 2D scanners are able to scan multiple barcodes (1D & 2D) at the same time and will need to be setup accordingly to process labels containing the same data encoded into multiple symbologies.

Note:
sample is not to scale

Figure 20   Example GS1 DataMatrix symbol

For more information, see section 5.7.2 of the GS1 General Specifications:

http://www.gs1.org/docs/barcodes/GS1_General_Specifications.pdf

Note:
sample is not to scale

Figure 21   Example GS1 QR Code symbol (normal orientation & reflectance arrangement)

For more information, see section 5.9.2 of the GS1 General Specifications:

http://www.gs1.org/docs/barcodes/GS1_General_Specifications.pdf

14. Label Positioning

14.1. Transport Label Positioning

PALLETS

LEGEND:

T = Transport Label
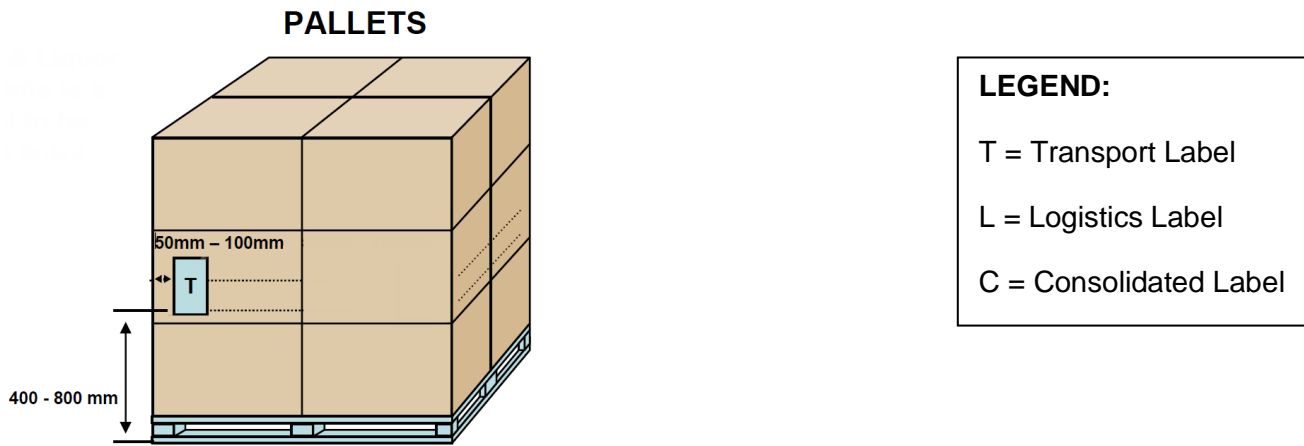
L = Logistics Label

C = Consolidated Label

Figure 22   Transport Label Positioning

The Transport label is to be positioned on the far left of the pallet between 400-800mm from the floor (where possible) and 50-100mm from the edge of the pallet.

Note: The Transport label is **not to be put over the top of the logistics label**. When a logistics unit moves from one transport leg to another, a new transport label can be put over the top of the old transport label.

14.2. Logistics Label Positioning

PALLETS

Figure 23   Logistics Label Positioning

The Logistics Label is to be positioned on the far right of the pallet between 400-800mm from the floor (where possible) and 50-100mm from the edge of the pallet.

14.3. Consolidated Transport & Logistic Label Positioning
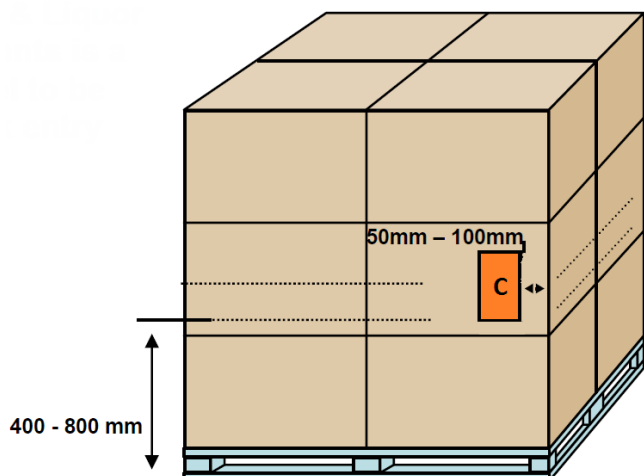
PALLETS

Figure 24   Consolidated Transport & Logistics Label Positioning

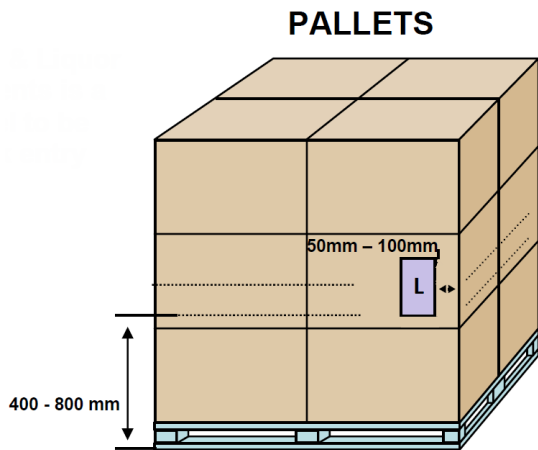The Consolidated Transport & Logistics Label is to be positioned on the far right of the pallet between 400-800mm from the floor (where possible) and 50-100mm from the edge of the pallet.

Note: The Transport label should **never** be put over the top of the Logistics label.

15. What not to do

15.1. Do not wrap labels around corners

Figure 25   Example - Do not wrap labels around corners

15.2. Do not place label under shrink wrap

Figure 26   Example - Do not place label under shrink wrap

15.3. Do not apply label unevenly (wrinkles)

Figure 27   Example - Do not apply label unevenly (wrinkles)

15.4. Do not place Transport Label over the top of Logistics Label

Figure 28   Example - Do not place Transport Label over the top of Logistics Label

16. Glossary of Terms – Transport Industry

Please refer to the Glossary of Terms document for the Transport Industry, available for download at www.gs1au.org.

17. Frequently Asked Questions

17.1. Do Transport Providers need a Global Company Prefix?

To allocate globally unique Consignment Numbers (i.e. GINC), Global Location Numbers for their Distribution Centres (i.e. GLN) and Freight Unit Identifiers (i.e. SSCC), Transport Providers need to obtain a Global Company Prefix.

17.2. Why can't I use proprietary numbers to identify freight units instead of a SSCC?

As a freight unit can pass through multiple parties in a supply chain, it needs to be identified with a globally unique number that can be used across the entire supply chain. This is to avoid a freight unit being identified with a different number by each party in the supply chain, causing inefficiencies, confusion and reduced visibility.

17.3. Whose company prefix is used to create the SSCC?

A SSCC should be allocated to a Freight Unit as early as possible in the supply chain. Ideally the initial shipper of the freight unit uses their Global Company Prefix to generate the SSCC. If the shipper does not have a Global Company Prefix, the Transport Provider should use their Global Company Prefix to allocate a unique SSCC to the Freight Unit.

17.4. Where do I obtain a Global Company Prefix?

You can obtain a Global Company Prefix from GS1 Australia, the Australian Licensor of the GS1 System of Standards.

Contact GS1 Australia on 1300 BARCODE (1300 227 263) or www.gs1au.org.

17.5. Where can I find solutions that can create the Australian Freight Label?

GS1 Australia have a program which tests the freight labels created by solution providers in relation to the standards outlined in this guideline. To view a list of GS1 Certified Freight Labelling Solutions, go to: www.gs1au.org/for-your-industry/trade-and-transport/certification-program/

18. What you need to do

To implement the standards outlined in this guideline, the following steps will be required:

18.1. Transport Buyers

Step 1 - Contact GS1 Australia if you have any questions regarding this guideline

If you have any questions regarding the standards outlined in this guideline, please contact GS1 Australia on 1300 BARCODE (1300 227 263) or email transport.team@gs1au.org.

Step 2 - Obtain a GS1 Company Prefix (GCP)

You can either identify Freight Units with a Serial Shipping Container Code (SSCC) allocated by your Transport Provider (using their GS1 Global Company Prefix) or you can allocate the SSCC using your own GS1 Global Company Prefix. If your Transport Provider doesn't have a GS1 Global Company Prefix or you prefer to be in control of allocating the SSCC regardless of which transport provider you use, you will need to obtain your own GS1 Global Company Prefix.

To obtain your own GS1 Global Company Prefix from GS1 Australia, go to:

www.gs1au.org/resources/application-forms-and-fees/

Costs to participate are not prohibitive; it encompasses a member joining fee and an annual subscription fee.

Step 3 - Identify which label design you are going to use and how you are going to create it.

You will need to identify at what stage in your process the labels will be produced and how you are going to produce them.

If you need assistance, software or hardware to create the label, there is a list of Certified Solution Providers available at:

www.gs1au.org/for-your-industry/trade-and-transport/certified-transport-software-and-solution-providers/

Step 4 - Get your Freight Label checked

Make sure that you get your freight label checked by your transport provider and/or GS1 Australia to ensure they scan correctly. For more information about GS1 barcode testing services, go to www.gs1au.org/our-services/barcode-check/.

Step 5 - Advise your transport providers

Make sure that you advise your transport providers that you are going to use the Australian Freight Labelling Standards for your shipments with them and confirm a date to go live with the new label.

Step 6 - Take advantage of your membership

Take advantage of your GS1 Australia membership; you will have access to many resources including how to guides, customer care support, training, professional services and more.

18.2. Transport Providers:

Step 1 - Contact GS1 Australia if you have any questions regarding this guideline

If you have any questions regarding the standards outlined in this guideline, please contact GS1 Australia on 1300 BARCODE (1300 227 263) or email transport.team@gs1au.org.

Step 2 - Obtain a GS1 Company Prefix (GCP)

Not all your transport customers will have their own GS1 Global Company Prefix to allocate a Serial Shipping Container Code (SSCC) to each freight unit. Subsequently, transport providers should obtain their own GS1 Global Company Prefix to allocate a SSCC to any freight units missing a SSCC.

You will also use the GS1 Global Company Prefix to generate the Global Identification Number for Consignment (GINC), Global Location Numbers (GLN) and Global Individual Asset Identifiers (GIAI).

To obtain your own GS1 Global Company Prefix from GS1 Australia, go to:

https://www.gs1au.org/resources/application-forms-and-fees/

Costs to participate are not prohibitive; it encompasses a member joining fee and an annual subscription fee.

Step 3 - Identify the data your business needs to perform the transport task and how you are going to capture it using the Freight Label.

You will need to identify all the data your business need to perform the transport task and determine if the Freight Label contains everything you need. You may need to capture additional data electronically via the Australian Transport EDI Guidelines[11] (i.e. EDI Transport Instruction).

If there is any essential data missing from the standards outlined in this guideline, please let us know by providing your feedback via the following form. This will enable us to investigate your requirements and identify if the guidelines or standard itself needs to be enhanced.
https://www.gs1au.org/for-your-industry/guideline-implementation-support/

Step 4 - Identify how your transport customers will create the Freight Label

There are many ways transport buyers can create Freight Labels. Some may use their own software, while others will use your website or custom software. Subsequently, you will need to manage the update of these systems to support the standards. You may also need to contact your key solution providers to discuss your requirements.

Step 5 - Identify how you are going to recreate the Freight Label if required (i.e. damaged)

You need to determine how you are going to create/recreate a Freight Label in the event a freight unit has not been identified with a SSCC or the label of a freight unit identified with a SSCC is damaged. As the visibility of a freight unit is effected when the ID is changed as it moves through the supply chain, it is important that you are able to recreate the SSCC barcode if required.

Step 6 - Advise your trading partners (Transport Customers and subcontractors)

Make sure that you advise your transport customers and subcontractors that you are supporting shipments using the Australian Freight Labelling Standards.

---

[11] Australian Transport EDI Guidelines - www.gs1au.org/transport-edi-guidelines

Step 7 - Take advantage of your membership

Take advantage of your GS1 Australia membership; you will have access to many resources including how to guides customer care support, training, professional services and more.

If you need any software, hardware or technical assistance, there is a list of Certified Solution Providers available at:

www.gs1au.org/for-your-industry/trade-and-transport/certified-transport-software-and-solution-providers/

19. About GS1 and the ALC

19.1. GS1 Australia

GS1 is an international not-for-profit association with member organisations in 112 countries. GS1 is dedicated to the design and implementation of global supply chain standards and solutions to improve the efficiency and visibility of supply and demand chains globally and across sectors. The GS1 system is the most widely used supply chain standards system in the world. For more information visit http://www.gs1au.org/

19.2. Australian Logistics Council (ALC)

The Australian Logistics Council represents the major Australian logistics supply chain customers, providers, infrastructure owners and suppliers, advocating for greater supply chain efficiency and safety. Their members span the entire supply chain, incorporating road, rail, sea, air, sea ports and intermodal ports. ALC works with all levels of government to ensure it considers the needs of the logistics industry in its investment and policy decisions. Visit www.austlogistics.com.au

20. References

GS1 General Specifications – Version 17.1, Jul-2017

http://www.gs1.org/docs/gsmp/barcodes/GS1_General_Specifications.pdf

GS1 Identification Keys in Transport & Logistics - Issue 1, Jun-2013

http://www.gs1.org/docs/tl/T_L_Keys_Implementation_Guideline.pdf

GS1 Logistics Label Guideline - Issue 1.1, Aug-2016

http://www.gs1.org/docs/tl/GS1_Logistic_Label_Guideline.pdf

GS1 Australia Full Membership Subscription and License Application Form 2017 (GS1 Company Prefix)
https://www.gs1au.org/WorkArea/DownloadAsset.aspx?id=2147485587

21. Submission and Standards Review Control

The GS1 Global Open Standards outlined in this document are voluntary. Standards are a living document and we value your feedback. If you see a need to modify the standard outlined in this document for your business purposes, please let us know via the following form, so that we can explore whether the standard itself can be enhanced.

https://www.gs1au.org/for-your-industry/guideline-implementation-support/

21.1. Submission and Standards Review Control Log

Submission date	Submitter name	Context of document – business owner/department, audience, usage, format (Hard copy, flier, web)	Required completion date
11-Nov-2015	Michiel Ruighaver Senior Advisor – Trade & Transport GS1 Australia	Freight Labelling Guideline for Australian Transport Buyers and Suppliers detailing a transport label based on GS1 Global standards. To be made available for download from web.	16-Nov-2015
27-Jul-2017	Michiel Ruighaver Senior Advisor – Trade & Transport GS1 Australia	Freight Labelling Guideline for Australian Transport Buyers and Suppliers detailing the updated Freight label designs based on GS1 Global standards and evolving requirements of the Australian marketplace. To be made available for download from web.	11-Aug-2017

21.2. Review comments Log

Date	Reviewed by	Identify Capture Share General	Comments
16-Nov-2015	Ankur Vaid Advisor – Standards Development (AIDC) GS1 Australia	Identify, Capture	This is the final version of the Labelling guideline and all previously suggested changes have been incorporated.
22-Aug-2017	Stephan Wjnker Senior Advisor – Standards (Share)	General	Recommendations on outdated figures, hyperlinks and terminology.

21.3. Approval Log

Date	Approver	Identify/Capture/Share
16-Nov-2015	Ankur Vaid	Identify, Capture
22-Aug-2017	Stephan Wijnker	Identify, Capture, Share