GS1 EPCglobal

GS1 EPCglobal Certification Program
Deploying EPC/RFID technology in full confidence

The GS1 EPCglobal Certification Program is a standards based compliance and interoperability testing program which is developed by the EPCglobal community to provide:

- A neutral and authoritative source for testing EPC/RFID technology
- Information regarding certified hardware and software products as well as the vendors who manufacture them

The main purpose of the program is to facilitate the product development by solution providers and the selection by the end users giving them confidence that the products will perform to a high level of compliance to the mandatory requirements of the applicable standards and will facilitate integration with existing systems.

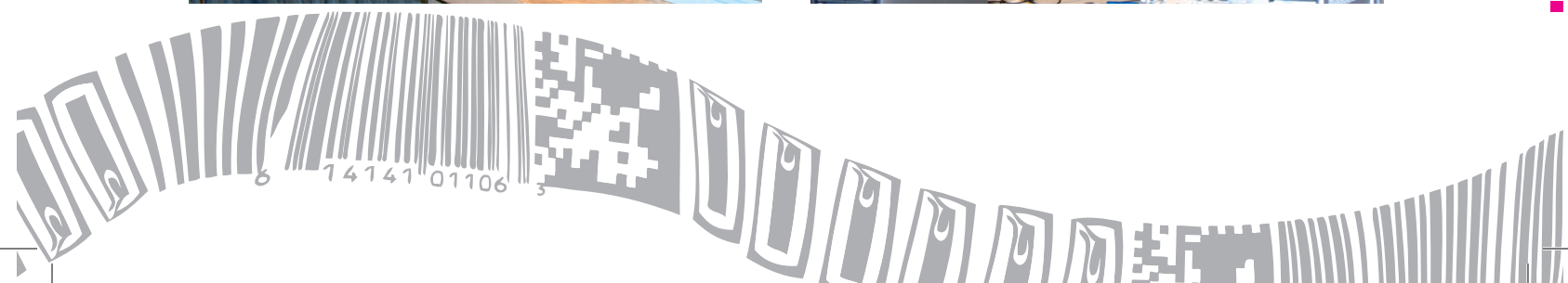With the globalization of business, increasing visibility and optimizing processes become central to an organization's success. Companies of all sizes are now forming partnerships and alliances in order to gain greater access to customers on domestic, cross-border, and global markets. Hence, the need for standards behind EPC/RFID technology enabling the secure sharing of real-time information between trading partners. This allows businesses to monitor the location and state of individual items as they pass through the supply chain thereby increasing visibility, safety, security, efficiency and traceability.

"Certification helps instill confidence for end users and their trade partners by ensuring performance through interoperability within the supply chain. In turn, Accredited Test Centers determine what works best for your product, and how well it interacts with certified hardware and software as it flows from supplier to manufacturer to vendor."

John Onderko, Kimberly Clark

In the past manufacturers and distributors were reluctant to invest in expensive technology. This was compounded by the fact that there was a wide range of technical solutions to choose from, meaning that businesses had difficulties to understand what they actually needed. Thrown into this mix were solution providers who had the technology and

integration services that could help these companies, but were not always exposed to the user needs and challenges. GS1 EPCglobal has played a crucial role in bringing manufacturers, distributors and solution providers together to create open royalty-free standards and to drive EPC and RFID adoption throughout many industries.

The GS1 EPCglobal Certification Program is an important component of the GS1 EPCglobal System as it provides confidence to end users who know that other end users are going to use the same certified technology. In addition, the program also provides certainty to solution providers who know that they are developing technology based upon standards which are going to be deployed by their customers.

It's all about Visibility	
Inventory Visibility • Product Visibility • Asset Visibility • Factor Utilization • Aggregation/Disaggregation	**Visibility provides a means to determine where a product is (track) and where a product has been (trace)**
Protection • Anti-theft/diversion • Inspection • Homeland security • Anti Counterfeit	**Visibility enables authentication of products**
Chain of Custody • Electronic Pedigree	**Visibility supplies the custody information for creating authenticated chain of custody**

Benefits of the GS1 EPCglobal Certification Program

End Users:

The GS1 EPCglobal Certification Program enables end users to quickly and more easily identify solution providers offering products and services that comply with GS1 EPCglobal Standards. The advantages could be summarized as follows:

• Realization of intelligent investment:
  o Certified products validate the spirit of the specification and the community effort to create the specification

• Managed/reduced risk:
  o Assured that the certified characteristics are accurate and determined on the basis of a standardized, industry test procedure
  o Confidence that the product is capable of performing its intended function and may expedite the implementation phase

• Lowered total cost of ownership
  o Simplify vendor selection and monitoring
  o Enhance purchased product quality
  o Reduce vendor audit and test costs

• Disciplinary process to follow in case of complaints

Solution Providers:

This GS1 EPCglobal Certification Program offers a single, authoritative source for neutral certification for EPC/RFID products. Vendors with certified products receive a direct link to the EPCglobal community and end user subscribers who are looking for specific products and services to help them implement EPC/RFID technology based upon GS1 EPCglobal Standards.

• Consumer confidence:
  o Independent confirmation that their products comply
  o Assured that certified characteristics are accurate and determined on the basis of a standardized, industry approved test procedure
  o Demonstrates a high level of professional commitment to the field of practice

• Risk management:
  o Mitigate risk by performing an independent technical assessment on a product and ensuring future production matches the certified design should result in fewer field incidents and recalls

• Market access:
  o Break into new markets with certified products
  o Enhances competitiveness of products in domestic and export markets

- Product differentiation and competitive edge:
  - o Globally recognized product certification mark
  - o Receive international recognition of high quality and reduce qualification costs
  - o Demonstrates specialized knowledge

- IP Protection:
  - o Only mandatory required functionality is donated royalty free and applicable only to certified products

Types of (Testing) Certification

Within the framework of the GS1 EPCglobal Certification Program, we can distinguish between conformance and interoperability testing. EPCglobal Inc also provides support to companies, through performance testing and self testing tools, to ensure that EPC/RFID technology is successfully introduced in their operations.

- GS1 EPCglobal Conformance Testing:

The GS1 EPCglobal Compliance Testing verifies that EPC hardware and software comply with the GS1 EPCglobal standards.

- GS1 EPCglobal Interoperability Testing:

The GS1 EPCglobal Interoperability Testing builds on the GS1 EPCglobal Compliance Testing. Devices participating in the Interoperability testing must use components that are certified for compliance. The GS1 EPCglobal Interoperability Testing demonstrates the ability of different compliance certified products to work with other compliance certified products.

- Performance Testing: Accredited Test Centers (ATCs):

In order to best reap the benefits of RFID technology, it is crucial for companies to employ tags which fulfill a number of key performance criteria, such as a high read rate. Hence, the reason why EPCglobal Inc has developed and continually enhances standardized RFID tests which are applicable worldwide. These tests are executed by the GS1 EPCglobal Accredited Test Centers provide a lot more than mere "Testing services" since they bring a wealth of experience and competence in RFID that can benefit end users from different industries in finding the right solutions for their particular needs and give them the confidence in the technology and its application in finding new business value.

- Self Testing of Data Validation: EPCIS Validation Portal:

A Self-Testing Service over the internet (http://www.epcisvp.com) for end users to verify that their EPCIS implementations adhere to the EPCIS Specification and Industry Standard Vocabularies (Data Content). This service is a software tool for companies to validate their EPCIS deployments that complements EPCIS certified Products. One of the key features is the powerful and descriptive reporting capabilities.

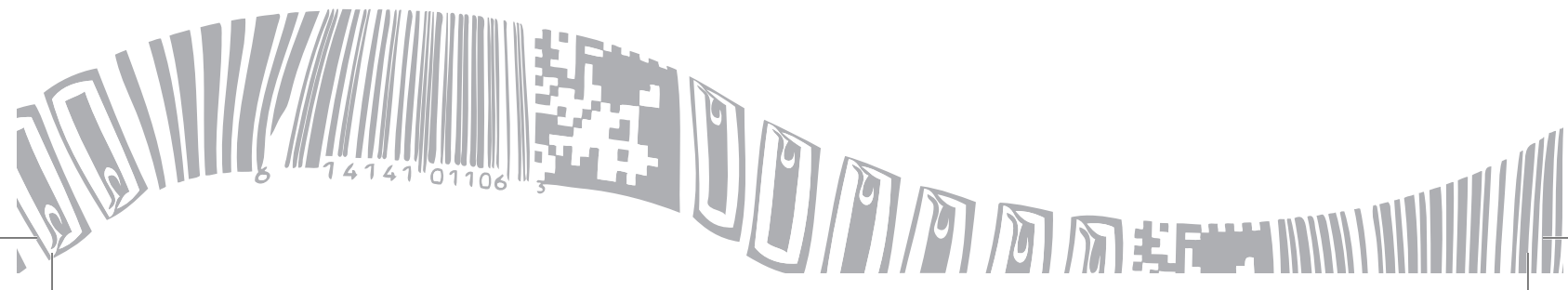## GS1 EPCglobal Certification Mark

EPCglobal Inc has rolled out the new mark for hardware and software certification. Products carrying the new mark represent that the eligible device (Silicon Chips/Tag Integrated Circuits, Readers, Reader Modules, Printers/encoders with embedded reader modules) have successfully demonstrated all applicable mandatory testing for both conformance and interoperability requirements.

A list of GS1 EPCglobal certified products can be found at http://www.epcglobalinc.org/certification. As more products are getting certified, you should see the GS1 EPCglobal Certification Mark appearing on the websites and marketing materials of solution providers whose EPC/RFID products have been certified.
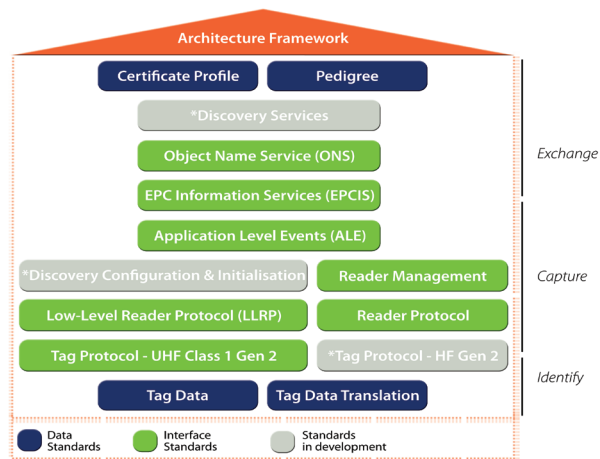
About GS1 EPCglobal Standards and EPCglobal Inc

GS1 EPCglobal Standards are a set of integrated industry-driven standards which have been developed to meet user requirements enabling the identification of objects, data capture and sharing of information among partners throughout the supply chain. These standards are developed within the framework of EPCglobal Inc.

EPCglobal Inc is a subsidiary of the global not-for-profit standards organization GS1, and supports the global adoption of the Electronic Product Code as industry-driven standards to enable accurate, immediate and cost-effective visibility of information throughout the supply chain.

Architecture Framework

Certificate Profile	Pedigree

*Discovery Services

Object Name Service (ONS) — Exchange

EPC Information Services (EPCIS)

Application Level Events (ALE)

*Discovery Configuration & Initialisation	Reader Management	— Capture
Low-Level Reader Protocol (LLRP)	Reader Protocol
Tag Protocol - UHF Class 1 Gen 2	*Tag Protocol - HF Gen 2	— Identify
Tag Data	Tag Data Translation

- Data Standards
- Interface Standards
- Standards in development

About the GS1 EPCglobal Certification Program

• Mission and Goal:

The goal of this program is to establish a neutral source to provide global certification and information about EPC compliant vendors and products. This program has been developed by the EPCglobal community for the EPCglobal community, to enable more efficient and effective implementation of EPC/RFID technologies in different industries.

• Target audiences:

The GS1 EPCglobal Certification Program is targeting all the players who have an interest in adopting EPC/RFID enabled business processes in their supply chain as well as solution providers who are developing the hardware and software products.

• What customers are saying

"Being able to choose from certified products gives us the confidence that they will integrate and work with our systems according to specifications."

"Certification plays an important role in ensuring interoperability amongst different products"

"The successful deployment of accurate and reliable RFID systems is greatly enhanced with the exclusive use of GS1 EPCglobal-certified components"

"Certification of equipment is an especially important factor when selecting any piece of RFID hardware and ensures it will work according to the standard"

"By earning GS1 EPCglobal certification, its assured that different tags and readers interoperate flawlessly with other Gen 2 certified products"

How to Join the GS1 EPCglobal Community

In order to find out more about the GS1 EPCglobal community, including becoming a subscriber, and to participate actively in the development and implementation of global standards to create visibility and improve efficiency throughout the supply chain, please visit http://www.epcglobalinc.org/home.

For more information regarding the GS1 EPCglobal Certification Program, contact Nicholas Fergusson at nicholas.fergusson@gs1.org, certification@epcglobalinc.org or your local GS1 Member Organization (contact details are available on www.epcglobalinc.org).