



## EPCglobal RFID standards

The path to an efficient and accurate supply chain



---

# The path to an efficient and accurate supply chain



Radio Frequency Identification (RFID) is set to change the face of the supply chain. It is essential that anyone involved in the supply chain understands this technology and the positive impact it is having on organisations worldwide.

As with the introduction of the bar code over 30 years ago, RFID will not be adopted overnight, but the decision to adopt and deploy RFID is not a question of if – it is when.

Standards, collaboration and open lines of communication have always been the fastest route to widespread, low-cost adoption of any new technology, and RFID is no exception.



EPCglobal, part of the supply chain standards body GS1, has been charged by its members with making the RFID vision a reality. By working with industry, and understanding its requirements, EPCglobal is developing a set of standards to cover all aspects of RFID in the supply chain, including the management of RFID generated information.

These standards have led to many manufacturers developing EPCglobal compliant hardware. The natural progression of this global, open market is that the price of hardware is dropping significantly while performance is increasing.

In order to keep in step with your customers and pre-empt their requirements, it is vital you understand the business case for RFID. But it is important to remember that RFID is simply a technology and by itself will not deliver a return on investment (ROI). Understanding how the technology can help to streamline internal business processes, as opposed to simply meet requirements, will deliver greater long-term benefits and a higher ROI.

## About GS1 UK

Our mission is to make it faster, cheaper and safer for our members to serve their customers. This is achieved by the industry wide adoption of global GS1 standards and locally delivered services.

Life is simpler when we all have the same information. GS1 UK licenses unique numbers to identify everything from products to patients to enable increased efficiency. These numbers are used to automate the flow of goods and information and are integrated into one or more GS1 UK Solutions to increase supply chain efficiency.



# Setting the standard for RFID



EPCglobal is leading the development of industry-driven standards for the Electronic Product Code (EPC) to support the use of RFID in today's fast-moving, information-rich, trading networks. EPCglobal is a subscriber-driven organisation, comprised of industry leaders and organisations focused on creating global standards for RFID in the supply chain.

The goal of EPCglobal is to increase visibility and efficiency throughout the supply chain and improve the quality of information flow between companies and their key trading partners. It will achieve this by developing multi-industry, user-driven standards for collaborative commerce utilising the EPC.

## What is RFID?

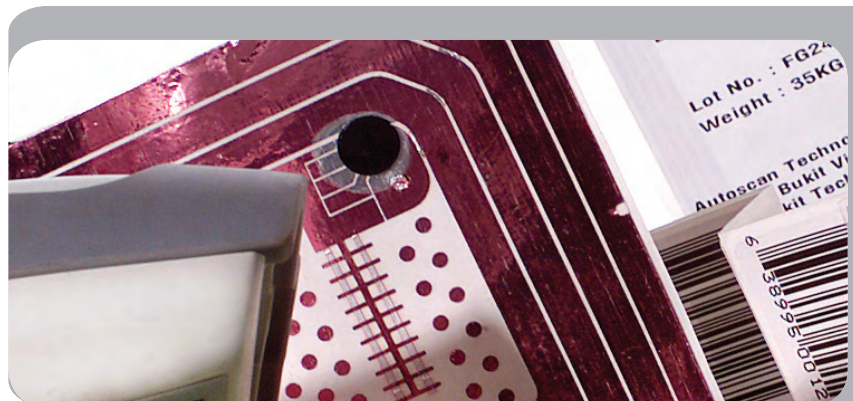
RFID is an established data-carrying technology used throughout industry. Data relating to an item is stored on a tag which is attached to the item. The tag is activated by radio waves emitted from a reader. Once activated, the tag sends data stored in its memory relating to the item back to the reader. This data can then be shared between organisations and trading partners via the EPCglobal Network in a secure manner.

## What is EPC?

The EPC is a globally unique serial number that identifies the individual item to which it is attached – be that an individual product, pallet, case, roll cage etc. This enables enquiries to be made about the individual item wherever it is within the global supply chain.

## What is the EPCglobal Network?

The EPCglobal Network will enable the immediate, automatic retrieval of accurate, trusted information regarding individual items in the supply chain. Using a combination of RFID, EPC and current information systems (for example, the internet), the EPCglobal Network will allow trading partners to share this information securely.



# RFID delivers real business benefits



## Faster and more precise reads

An RFID reader can instantly detect all EPC tags passing through its radio frequency field. As a result, it is capable of reading every tagged object in one operation, thus removing the line of sight requirement for reading product identification numbers. Typically, readers are able to operate without manual intervention and so produce consistent and precise results.

## Accurate and trusted data

The EPCglobal Network will enable any individual item to be accurately tracked and traced, allowing any errors or process deviations to be immediately highlighted and rectified. This will result in systems maintaining accurate, trusted data from which operators can make accurate, trusted decisions.

## Lower inventory levels

RFID can reduce inventory levels and improve product availability by providing trusted real-time information about where products are. This gives companies the confidence to reduce inventory buffers along all parts of the supply chain, improving cash flow and potentially reducing overheads.

## Fewer out of stocks

RFID has the potential to inform staff or alert managers when shelves require re-stocking or a product is placed in the wrong location. Retailers generally use the estimate that a one per cent uplift in shelf availability results in a half per cent increase in sales.

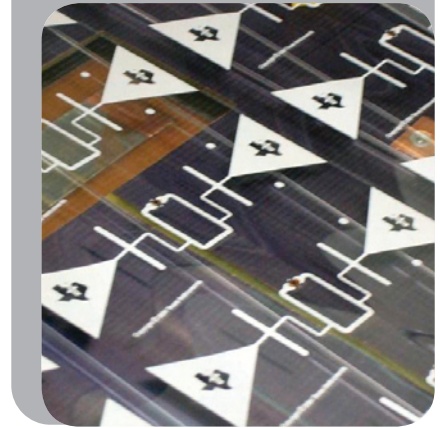
## Reduced shrinkage

It is estimated that two per cent of sales is lost due to shrinkage. By scanning tags to identify accurately stock actually received, RFID can reduce shrinkage for the average retailer by up to 25 per cent at the case level and 40 per cent at the item level.

Source: GCI EPC Roadmap

## Better asset utilisation

The EPCglobal Network will enable companies to track and manage their reusable assets – roll cages, crates, dollies etc – more efficiently and accurately, leading to a reduction in the required number of capital assets employed within the business.



## Authentication and anti-counterfeiting

Tags act as a deterrent to counterfeit manufacturers. If a tag is damaged or absent from the product then suspicion is aroused. Tag data can be encrypted, read and cross-referenced to the manufacturer's database to determine authenticity.

## Targeted recalls

Product recalls can be significantly improved. The EPCglobal Network will allow each item to be uniquely tracked and traced, enabling the exact location of an item to be known so that only those items that have been affected are recalled, thereby reducing costs and minimising damage to the brand.



---

# Five steps for planning an EPCglobal implementation



## 1 Investigation – gain

general EPCglobal and RFID knowledge

- Utilise the assistance and help available from GS1 UK
- Research and learn about the EPCglobal Network and RFID technology and processes
- Learn about the EPC and its use, standards and structure
- Attend RFID and EPCglobal conferences, and collect examples of existing and future business benefits
- Join the RFID community by subscribing to EPCglobal

## 2 Experiment – gain hands-on experience

- Develop a high-level business case
- Perform small-scale RFID proof-of-concept process tests using EPCglobal technology within your working environment
- Evaluate offerings and investigate working implementations from solution providers

## 3 Field trials – gain practical knowledge of targeted business processes and applications

- Identify, prioritise and test high priority business problems for which RFID and EPCglobal technology potentially provide solutions
- Select trading and solution partners
- Test various product, component and environmental configurations
- Check process-related and technical impacts

## 4 Pilots – build towards long-term deployment

- Evaluate results from field trials
- Undertake deployment, transition and education planning, including budgeting and funding
- Plan for process and systems integration
- Prepare partner collaboration
- Focus on ROI analysis and measurement

## 5 Deployment – ongoing, permanent deployments

- Collaborate with trading partners on process, technical and information/data flow
- Undertake ongoing system integration
- Build on and improve process and information flows



# RFID services for GS1 UK members



GS1 UK members have access to independent advice and information for all EPCglobal-related aspects of RFID deployment, including:

- Telephone helpdesk for advice and information – (Freefone) 0808 178 8799
- The GS1 UK RFID Interest Group – a regular discussion forum for issues relating to RFID and EPCglobal implementation
- EPCglobal newsletter – a regular email newsletter which keeps you informed of the latest EPCglobal developments
- Access to online resources – including planning and implementation guides, solution provider directory and much more.

## Professional services

GS1 UK also provides a range of consultancy services which can help you with:

- Formation of your EPCglobal and RFID strategy
- Development of your RFID business case
- Planning and start-up of a pilot programme
- On-boarding your RFID team
- Preparation for data exchange between trading partners
- Implementation advice

## The EPCglobal RFID Test Centre

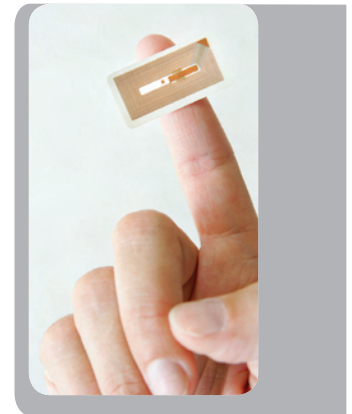
A GS1 UK service, hosted by Intellident



The EPCglobal RFID Test Centre is a vendor-independent demonstration, test and design centre where you can:

- View and interact with the latest RFID developments in a hands-on, real-world industrial environment
- Learn from successful, proven RFID implementations
- Receive impartial advice in a non-sales environment

The Centre will help ensure your RFID pilots and deployments are successful, cost-effective and in compliance with the latest standards and your trading partners' requirements, utilising best-of-breed technology from a wide range of technology suppliers. You will gain a realistic understanding of what RFID can do today in a production setting, identify its true business value and learn how it can be implemented in your organisation today.



## EPCglobal RFID Starter Pack

If you feel that an element of your operation may benefit from the application of RFID, GS1UK has developed a service to help you take the first steps:

### Phase 1 : Business Issue Analysis and Quantification

- Impacts on existing business processes
- The qualitative and quantitative costs to the business
- Benefits to be gained from implementing a solution enabled by RFID

### Phase 2 : Solution Development and Testing

- Research and source suitable tags and reading devices for evaluation
- Set up test platform at the UK RFID Test Centre and carry out tests to determine optimal solution design
- Report back and demonstrate results.



# EPCglobal subscription benefits



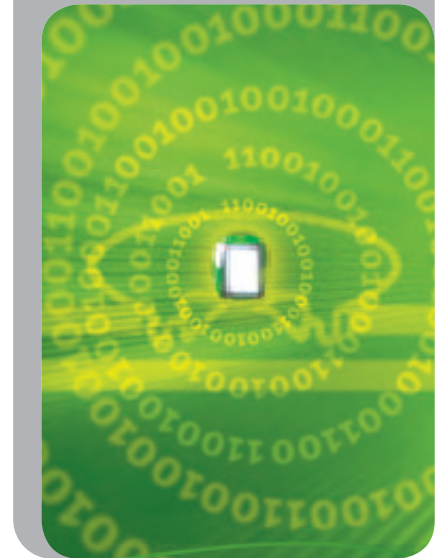
EPCglobal is a subscriber-driven organisation, comprised of industry leaders and organisations focused on creating global standards for the EPCglobal Network. As an EPCglobal subscriber you will benefit in many ways:

- Express your company's RFID needs on the global stage
- Fast track the development of your company's implementation strategies
- Benefit from the experience, research, business cases, pilots, implementations and deployments of others
- Understand and deploy RFID faster, cheaper and more effectively than if you work in isolation
- Collaborate and share best practice with companies in, and beyond, your industry who have adopted RFID and EPC
- Partner with industries to build and drive mass adoption and convergence of RFID and EPC
- Gain a head start and competitive advantage in the development and execution of your RFID strategy by being involved in the development of industry-wide standards

EPCglobal subscription is included in your GS1 UK membership fee. If you would like to participate in any of the EPCglobal standards groups you will need to sign an Intellectual Property Waiver. Please log on to 'My Account' in the member log in area of the GS1 UK website in order to do so.

By subscribing to EPCglobal you will also have access to the following:

- Participation in the development of EPCglobal standards
- EPCglobal standards, research and specifications
- Results of the EPCglobal Certification and Accreditation Programme – enabling you to quickly and easily identify solution providers offering products and services that comply with EPCglobal standards
- Links with other subscribers to create pilots and test cases
- Training and education on implementing and using EPC technology and the EPCglobal Network through more than 101 GS1 member organisations worldwide



## For more information

For more assistance with implementing EPCglobal in your business visit the GS1 UK website at [www.gs1uk.org](http://www.gs1uk.org) or contact the EPCglobal team at GS1 UK on +44(0)20 7092 3500 or by email at [epcglobal@gs1uk.org](mailto:epcglobal@gs1uk.org).



Staple Court, 11 Staple Inn Buildings,  
London WC1V 7QH

T +44 (0)20 7092 3500

F +44 (0)20 7681 2290

E [info@gs1uk.org](mailto:info@gs1uk.org)

Helpdesk (Freefone) 0808 178 8799

[www.gs1uk.org](http://www.gs1uk.org)