International Post Corporation

Simple TRacking Of Blind E-commerce

STROBE provides the postal industry and the e-Commerce customers (e-retailers and shoppers) with a low-cost 'auto-tracking' solution for the +/- 60% of cross-border low value e-Commerce items that are currently not tracked. By the use of passive RFID technology, items travel in the 'untracked' operational flows, bypassing the more expensive barcode tracking process.

Passive RFID is a mature technology that has already been deployed by many postal operators e.g. for measurement and process control. STROBE builds upon this existing infrastructure to create an international network for the growing e-commerce sector.

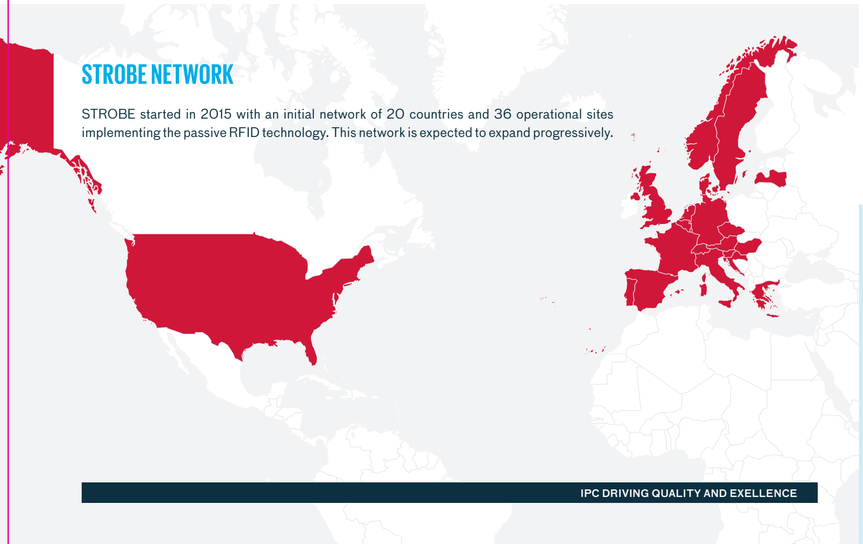
The passive RFID technology has potential for numerous additional operational opportunities, such as receptacle tracking, asset management and measurement.

STROBE Lite is the base tracking service. All tracked events are based on the passive RFID, no barcode is included. This limits operational complexity and costs.

STROBE combines a passive RFID which is read at all tracked points before delivery; with a barcode which is scanned at delivery, to provide the delivery confirmation to the e-retailer.

STROBE NETWORK

STROBE started in 2015 with an initial network of 20 countries and 36 operational sites implementing the passive RFID technology. This network is expected to expand progressively.



LIST OF EQUIPPED PASSIVE RFID SITES IN 2015

SITE CODE	SITE NAME	OPERATOR CODE	NUMBER OF READERS
ATHALA	6000 Hall in Tirol	J1CATA	3
ATSZGA	5000 Salzburg	J1CATA	5
ATVIE1	Vienna Customs	J1CATA	1
ATVIEA	1300 Vienna AMU	J1CATA	2
ATVIEC	1000 Vienna	J1CATA	7
ATWLRA	6960 Wolfurt	J1CATA	3
BEANRA	Antwerpen X	J1CBEA	2
BEBRUA	Brussels EMC	J1CBEA	16
BECRLA	Charleroi X	J1CBEA	2
BEGNEA	Gent X	J1CBEA	2
BELGGA	Liege X	J1CBEA	4
CHGVAA	Geneva AMU	J1CCHA	1
CHZRHO	Zurich AMU	J1CCHA	2
DECGNC	Köln IFS	J1CDEA	7
DEFRAA	Frankfurt IPZ	J1CDEA	32
DKCPHA	Copenhagen INC	J1CDKA	12
DKFRCA	Fredericia	J1CDKA	7
FRCDGA	Roissy HUB	J1CFRA	22
GBLALA	Langley ILC	J1CGBA	12
GBLHRA	London Heathrow AMU	J1CGBA	5
GRATHA	Athens AMU/SC	J1CGRA	6
HUBUDA	Budapest Exchange Centre	J1CHUA	6
ITLIN1	Linate Customs	J1CITA	3
ITLINA	Milano Borromeo CSI	J1CITA	17
ITLINX	Milano Linate Aeroporto	J1CITA	3
ITMXPX	Milano Malpensa Aeroporto	J1CITA	1
LUBETA	Bettembourg SC	J1CLUA	7
NOOSLA	Ostlandsterminalen (Oslo)	J1CNOA	8
NOOSLC	Gardermoen Airport	J1CNOA	6
PTLISA	Lisbon AMU	J1CPTA	2
SEMMAA	Malmoe Brevterminal	J1CSEA	5
SESTOB	Stockholm Arlanda Airport	J1CSEA	9
SILJUA	Ljubljana SC	J1CSIA	7
SILJUB	Ljubljana AMU	J1CSIA	2
USJFKA	New York JFK	J1CUSA	9
USORDA	Chicago O'Hare	J1CUSA	3

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STROBE

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INITIATION

STROBE items require to be 'initiated' by the e-retailer to inform the system that the specific tag numbers are in use. Available initiation options are:

INITIATION API

For high volume e-order processing, an API (Application Program Interface) is available for integration into the e-order processing system. This requires some IT development by either the post or the e-retailer. A conversion algorithm takes the S10 and creates the tag number.

INITIATION SCANNER

An Initiation Scanner can be used for medium to large batches of initiations. The scanners are provided ready for the posts or e-retailers to use – no IT development is required.

INITIATION WIDGET

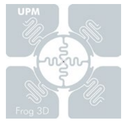
Three web-based options are provided:

- Single item
- Range of items to the same destination country ("batch initiation")
- .csv file containing multiple items to one or more destination countries

PASSIVE RFID EQUIPMENT, TAGS AND LABELS

The STROBE network is based on passive RFID technology. A base unit ("gate") consists of one passive reader and two passive patch antennas. This unit sends the data directly to the Central System in IPC. Currently the cost of a STROBE base unit is approximately €4,000.
A passive tag (e.g. Frog or Dogbone tag) does not contain a battery. The tag responds with its unique ID when energised by a radio wave transmitted by the antennas connected to the passive reader.

UPM FROG TAG



Size:
68x68 mm

Integrated circuit:
Impinj Monza 4

Frequency:
860-960 MHz

Price:
€0.23 (in 2015)

PRE-CODED/UN-CODED RFID TAGS

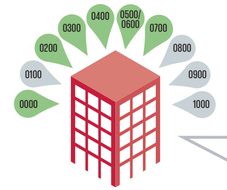
Pre-coded tags: The Post provides a range of S10 numbers which may be used to pre-code the RFID tags. This can be done either by IPC or any supplier.

As an alternative, the e-retailer can print and code their own RFID tag labels, which requires an **RFID printer**. This solution allows the e-retailer to print labels with embedded RFID tags according to their own label design and requirements. The cost of a typical RFID printer would range between €1,000 – €5,000.

OPTIONS FOR PACKET LABELS INCLUDE

RFID tag label with an associated S10 barcode, and a separate name & address label (hand-written or printed).

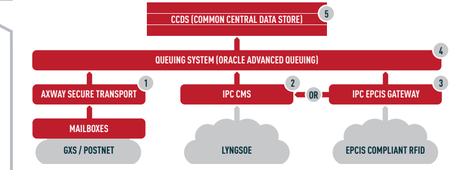
Interconnect harmonised label, containing the embedded RFID tag, the S10 barcode and name & address (hand-written or printed).



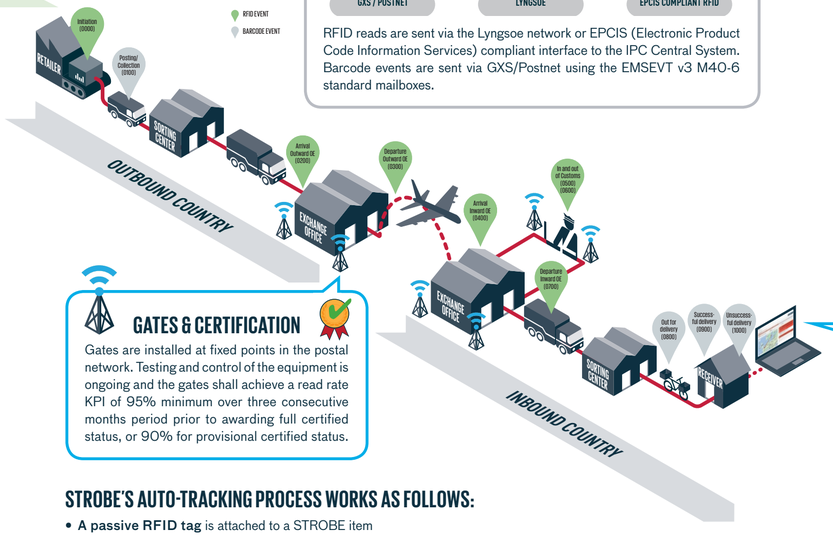
CENTRAL SYSTEM

The Central System including the Common Central Data Store (CCDS) captures all STROBE events.

DATA FLOW INTO CENTRAL SYSTEM



RFID reads are sent via the Lyngsoe network or EPCIS (Electronic Product Code Information Services) compliant interface to the IPC Central System. Barcode events are sent via GXS/Postnet using the EMSEVT v3 M40-6 standard mailboxes.



GATES & CERTIFICATION

Gates are installed at fixed points in the postal network. Testing and control of the equipment is ongoing and the gates shall achieve a read rate KPI of 95% minimum over three consecutive months period prior to awarding full certified status, or 90% for provisional certified status.

STROBE'S AUTO-TRACKING PROCESS WORKS AS FOLLOWS:

- **A passive RFID tag** is attached to a STROBE item
- **STROBE items** travel in 'untracked' operational flows
- **RFID gates** at key locations generate multiple reads
- **Filtering** removes unwanted data and duplicate STROBE reads
- **STROBE reads** are qualified to create events
- **Events** are matched to the appropriate STROBE item for Tracking

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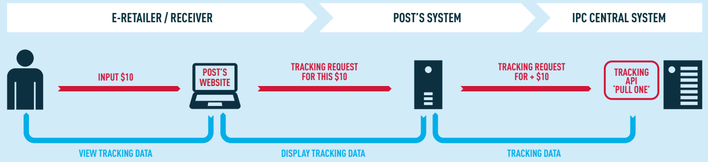
TRACKING



TRACKING API

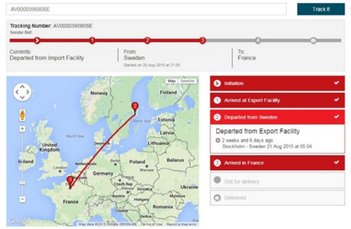
The Interconnect Tracking API can be integrated into the e-retailers/posts own tracking or order processing system. This will require some IT development by the e-retailer/post.

Once integrated, the Central System data is accessed online for enquiries on Interconnect S10 barcode and/or STROBE events.

TRACKING DATA PUSH

STROBE data may be imported into a Post's existing tracking system. A post may request a "push" of the STROBE RFID event data from the Central System. A batch file of new or changed RFID event data is sent at regular intervals (for example every hour) to the post. The file contains only RFID information as posts already have the EMSEVT events. Some IT development is required by the post to accept and integrate the data into their own database and tracking system.

TRACKING WIDGET



The simplest option for the posts or e-retailers is to install the 'Tracking Widget'. This can be integrated into any website in a few minutes by copying/pasting the HTML script into the webpage. The unique API-key placed in the script ensures authentication/authorisation for the post or e-retailer allowing them to receive tracking information of their items.

The end user/customer enters an S10 item identifier and obtains the tracking details. The widget automatically adapts in size, depending on which device it is viewed on (computer screen, mobile phone or tablet). It is possible for posts or e-retailers to personalise the colours, font, language etc. The GoogleMaps feature may be switched on or off. This is an online option for tracking one item, meaning that the Post must have a connection with the Central System for this to function.