Container RFID Shipment Tag System

Transparency & Security

What is the role for technology and innovation in global logistics?

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1 Introduction
简介

- In 2011, the throughput of Port of Shanghai was 720 million tons, and container throughput of 31.739 million TEU, which are both the first of the world. 上海港去年货物吞吐量达7.2亿吨，集装箱吞吐量为3173.9万TEU，双双位居世界第一。
- While expanding port capacity, Port of Shanghai lays much emphasis on the quality of information service. SIPG has introduced the container RFID research since 2001. We opened several international and domestic trials using container RFID, and extended to other Logistics field. 上海港在不断扩大港口吞吐能力的同时，十分关注港口信息化服务水平。从2001年起就开展了集装箱电子标签系统的研究，我们开展了多条集装箱电子标签国际和国内航线，并在物流领域得到应用

Problems in the current container logistics
目前集装箱物流存在的问题

High Logistics Costs
物流成本
居高不下

Increase Transparency
提高透明度

Know about the real-time status of the cargos, optimize the marketing cycle, reduce the logistics cost
实时掌控物流各节点的状态，缩短整个生产和销售周期，减少成本

Cargo Stealing is becoming drastically
走私失窃
愈演愈烈

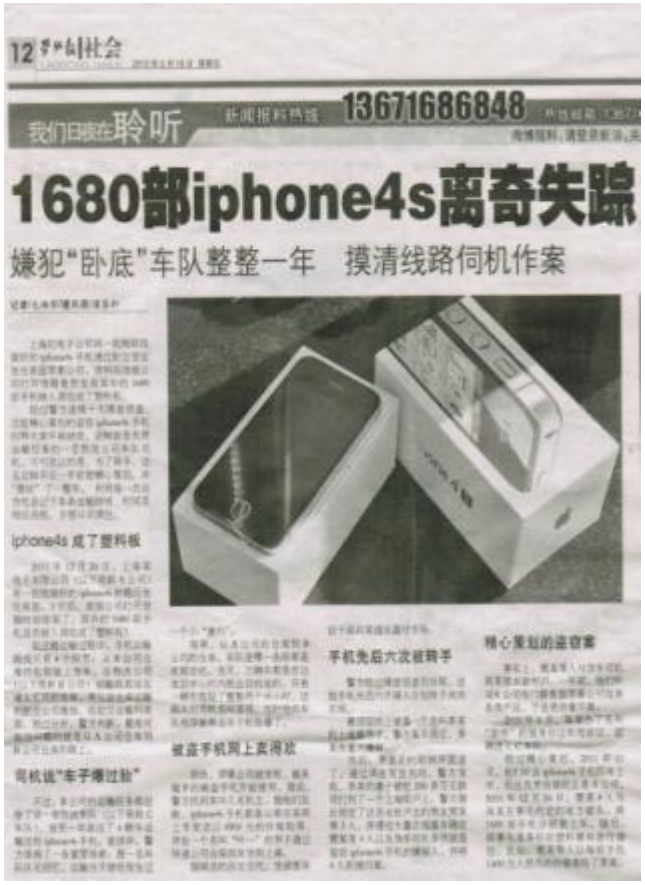
Increase Security
提高安全性

Trace the cargo in the whole transportation and prevent the insecure incident
追溯在整个物流过程中的不安全事件

Case: Cargo Loss
案例：货物失窃

According to *Labor Daily China* on Feb. 2, 2012, 1680 iPhone 4s in the way of Apple Corporation in US from Shanghai assembly plant shipped to adjust the package! Loading the iPhone 4s, unloading a pile of plastic sheeting.据2012年2月10日《劳动报》报道，1680部组装好的iphone4s手机在从上海组装厂发往美国苹果公司的途中被掉包成塑料板。

In fact, the lack of supervision in the logistics process gives the truck driver an opportunity to imply this well-planned theft. Police cracked the case trough the password of iPhone, and unable to trace in the logistics chain.其实这起精心策划的盗窃，是卡车司机利用物流过程中监管缺失来实施的。警察通过追溯苹果手机密码来侦破，而在物流环节中无法追溯。


12 社会

我们旧旧在聆听 13671686848

1680部iphone4s离奇失踪

嫌犯"卧底"车队整整一年 摸清线路伺机作案

Related information shows global cargo loss 30～50 billion Dollar every year because of thief. 相关资料显示，全球每年在集装箱货物失窃方面的损失高达300~500亿美元。

Case: Security – Stowaways
案例:安全问题-偷渡

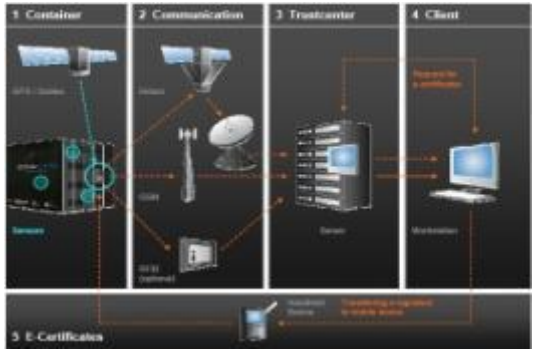
The *Seattle Times* reported (published April 5, 2007) that 22 stowaways were spotted by U.S. Washington Customs hiding in a container. It's a 40-foot container on the vessel 'Rotterdam'.

据《西雅图时报》2007年4月5日报道，美国华盛顿海关当天凌晨在西雅图一个集装箱码头抓获了22名偷渡客，这批偷渡客躲藏在一个40英尺集装箱内。

2 Container RFID Shipment Tag System
集装箱电子标签监控系统

The Container RFID Shipment Tag System can record the real-time information of cargos, the security information, and realize the online real-time monitoring of the whole process of container logistics chain through Global Network, which improve the transparency and safety level of container transportation. 集装箱电子标签监控系统实时记录集装箱运输中的箱、货、流信息，以及相关的安全信息，结合全球网络环境实现集装箱物流全程实时在线监控，以提高集装箱物流全程的透明度和安全。

The system, which takes containers as its tracking object, is one type of the Internet of Things. Based on Internet, it uses technologies such as RFID, wireless data communications to make the users learn about the right information of tagged container at any time, and at any places, so that to change all customers' information access from passive form to initiative one. 系统是以集装箱为跟踪目标的物联网，是在互联网的基础上，利用RFID、无线数据通信等技术，实现客户能够在任何时间、任何地点实时获得集装箱的准确信息，实现从“被动告知信息”到“主动感知的信息”的变革。



Being informed 告知

Stuffing 装箱 | Logistics Company 物流公司 | Import Port 起始港 | Shipping lines 船公司 | Destination Port 目的港 | Logistics Company 物流公司 | Unstuffing 拆箱

Is the information real and in time?
信息是否真实及时?

Shippers 货主

Consignees 收货人

Perception 感知

Stuffing 装箱 | Logistics Company 物流公司 | Import Port 起始港 | Shipping lines 船公司 | Destination Port 目的港 | Logistics Company 物流公司 | Unstuffing 拆箱

Collect container information automatically 自动收集集装箱信息

Website
网站

Shippers
货主

Consignees
收货人

What can the system bring to our customers?
系统能为客户带来什么

1. Make whole process of container logistics more transparent. Help shippers and related people know about the transport status of their cargos and than adjust the plan in time , so as to reduce the logistics cost and bring obvious commercial benefits for enterprises 使集装箱物流全程更透明，可帮助货主及物流相关人士掌控运输动向并及时挑整供应链计划，从而降低物流成本，提高经济效益

2. Make whole process of container logistics more controllable. It can define the responsibilities by tracing each node the time, place and unsafe events of logistics, so as to prevent the loss of goods and improve the level of transportation of the cargo.
使集装箱物流各环节的安全更可控。通过追溯物流全过程各节点的时间、地点和不安全事件来界定责任，从而防止货物失窃，提高货物的运输质量

3. Effectively enhance the level of Government supervision of cargos and raise the level of national security and protection
有效增强政府对物流全过程的监管，防止走私和人员偷渡，提高国家安全水平

The procedures and service objects of the system
系统的工艺流程和服务对象

发货人
装箱
Shipper

铁路、陆
路运输
By rail or
truck

港口
Port

远洋运输
Ocean

港口
Port

铁路、陆
路运输
By rail or
truck

收货人
拆箱
Consignee

装船
loading

卸船
Discharging

进道口
Gate

出道口
Gate

网站
Website

挂上
电子标签
Put on
e-tags

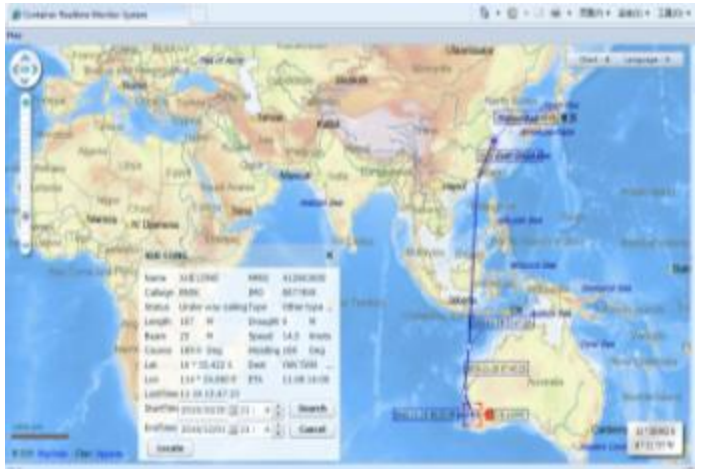
摘下
电子标签
Take off
e-tags

Service Objects 服务对象

Cargo owner	Port	Ship lines	Logistics company	Forwarder	Customs	Inspection
货主	港口	船公司	物流公司	货代、船代	海关	商检、边检

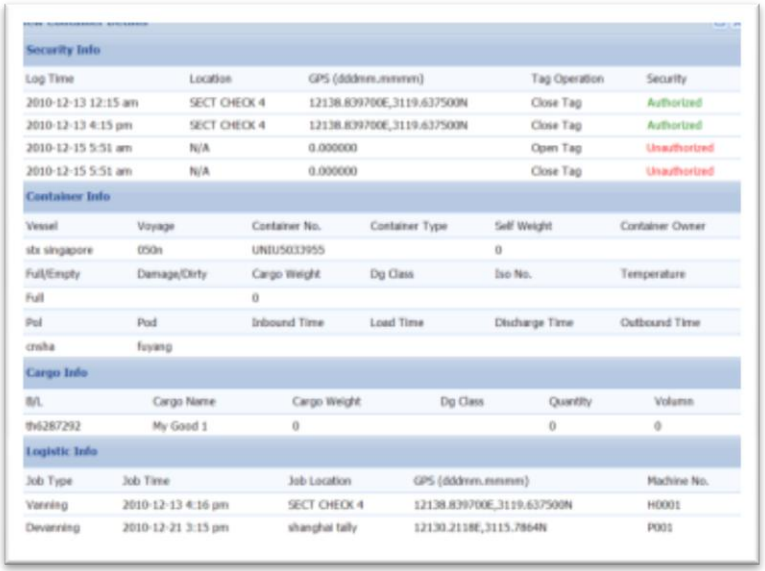
The platform 系统平台

The website for the system (Chinese/ English/ Japanese/ Russian version) has been established, providing the services of real-time information exchange, online inquiry and alarm during container transportation. The system platform connected with the information platforms for ships and truck tracking information platform, to find the location and related information of tagged containers when shipping on the sea and during land transport. , so as to track the whole transportation procedure. 系统服务平台，具有中文、英文、日文和俄文界面，可进行基于电子标签的集装箱运输信息的实时交换、网上查询服务、及时报警等功能。 系统平台与海上船舶信息平台和陆上车辆跟踪信息平台实现对接，通过追踪安装标签的集装箱所在的船舶和卡车，实现在海上和陆上的实时跟踪。



In addition, when the tagged container was opened illegally, there will be 3 ways to alarm the cargo owner and related in time, which are web page alarm, email alarm and mobile message alarm.

当挂有标签的集装箱被非法打开后，系统具有3种报警方式：网页实时报警，发送邮件报警和手机短信报警，及时通知货主及相关人员。



Web page alarm

网页报警

Email alarm

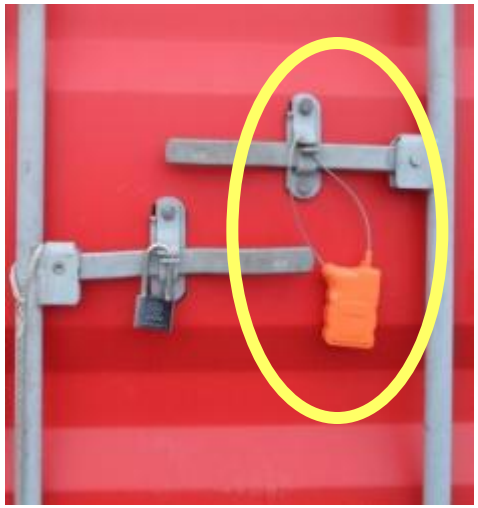
邮件报警

Message alarm

手机短信报警

Hardware 硬件

E-tag 电子标签

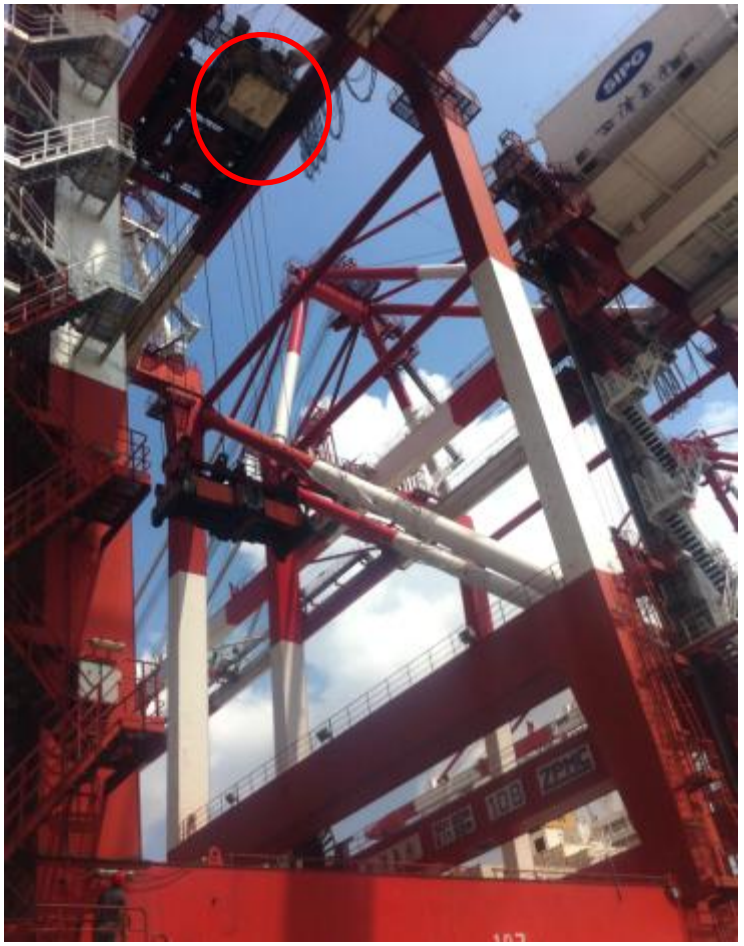


Integrative Handset 手持机

The handsets, integrated RFID, GPS, GPRS/CDMA/3G technologies, etc. are designed to facilitate the E-tags information input, read, check and exchange in the process of stuffing, stripping and inspection.一体机整合了RFID读写、GPS和通讯功能，用于集装箱装/拆箱点和查验箱区，进行信息录入、识读、核对或交换。

Fixed Auto-upload Reader 自动上网的固定式读写设备

The fixed reader can read the information in tag and automatically upload at any point by WiFi or 3G communication network. 自动上网的新一代读写器，通过WiFi或3G网络两种自适应方式，将读到的信息直接上传至网站。



3 The applications of the system
系统应用案例

SIPG 上港集团

➢ 国际航线 International Lines

1. Shanghai, China-Savannah, US Pilot 中国–美国航线
2. Sino – Canada trial 中加航线
3. Sino – Japan trial 中国–日本航线
4. Shanghai - Hakata ro-ro ship line中国上海–日本博多滚装航线
5. Russian intelligent container monitoring 俄罗斯集装箱智能监控应用
6. Sino - Malaysia trial 中国–马来西亚航线
7. Application in European lines with GlobeTracker 欧洲航线应用
8. Monitoring for Chinese Antarctic Expedition 南极考察站应用

Logistics Applications
物流应用

1. China-Canada pilot for food defense 中国–加拿大食品监控专线
2. Door to door container trial for Home Depot 家得宝门到门集装箱运输监控
3. TRANCY LOGISTICS application 德蓝仕国际货代应用
4. Monitoring for Yangtze River line in China 长江流域的集装箱监控
5. Monitoring for the overland transportation 集装箱陆路运输监控
6. Monitoring for P&G 宝洁车辆安全监控项目
7. Monitoring of dangerous goods containers 中国危险品集装箱监控
8. Monitoring for the tanks of Sinopec 中石化北京石油分公司电子铅封项目
9. Application of domestic trade container lines company 中国内贸集装箱船公司应用
10. Monitoring for Dahua Group (Dalian) Co,. Ltd. 大连大化监控应用


Royal Malaysian Customs Department

马来西亚皇家海关应用

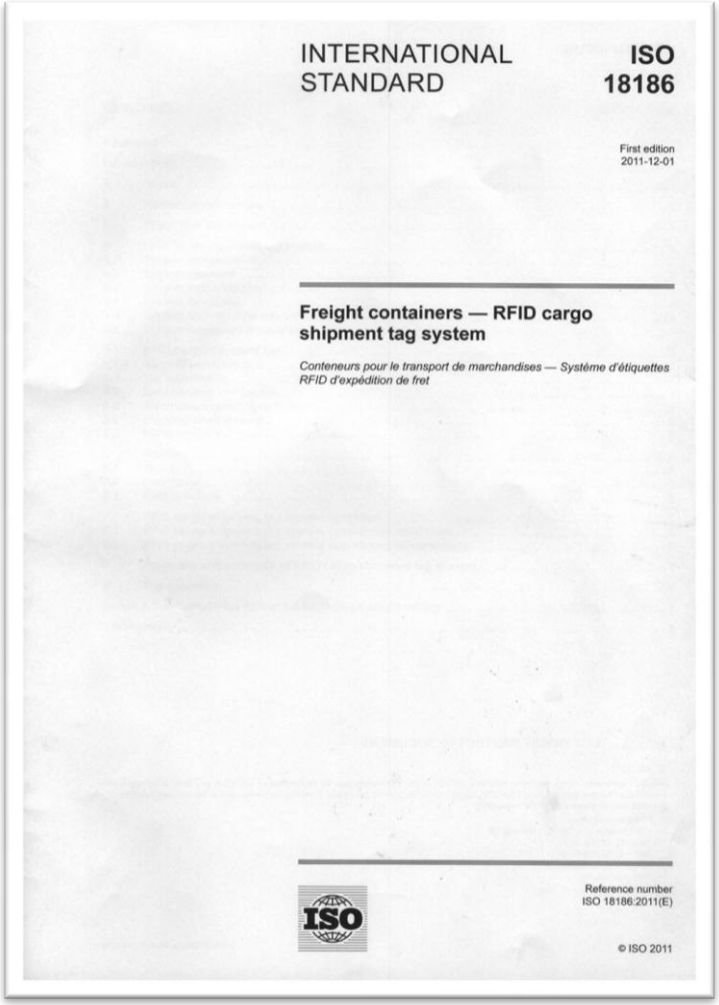
Royal Malaysian Customs Department has fixed readers at 144 station and used the e-tags to track containers security moving across borders of Thailand, Malaysia and Singapore. They planed to add 190 monitored station with RFID device in 2012. 马来西亚海关已在144个海关检查站安装读写器和标签，来追踪进出新马泰边境的集装箱安全，并计划2012年度增加大约190个监控站。

经过6个月的试运行马来西亚皇家海关认为：平均每个集装箱在清关时能节约47分钟，效率是人工作业的9倍。

After 6 months Trial, Royal Malaysian Customs Department came to a conclusion : Time saving average of **47 minutes** per container with auto-clearance which is about **9 times** more efficient than manual process.

4 Publishment of ISO 18186
ISO 18186正式发布

- Based on vast practice, ISO 18186 :2011 Freight Containers – RFID cargo shipment tag system has undergone six significant meetings in Hamburg, Paris, Shanghai, Washington, and San Diego and being continuous upgraded and improved from NP to IS. And finally it was published by ISO on 1st Dec.,2011. 基于上述实践《ISO 18186 集装箱-RFID货运电子标签系统》从提案到正式发布，经过了在汉堡、巴黎、上海、华盛顿、圣地亚哥等6次国际会议的讨论和修订。 最终于2011年12月1日由ISO中央秘书处正式发布。


INTERNATIONAL STANDARD

ISO 18186

First edition 2011-12-01

Freight containers — RFID cargo shipment tag system

Conteneurs pour le transport de marchandises — Système d'étiquettes RFID d'expédition de fret

Reference number ISO 18186:2011(E)

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5 Prospect
展望

China and many other countries are actively promoting the application of container RFID. It will be a great reform of the development of Container that all customers' information access changes from passive form to initiative one in the container logistics. We will continue to working hard on it.

目前中国和世界上很多国家都在积极推动集装箱RFID的应用，集装箱物流从“告知”到“感知”的转变必将成为集装箱发展的一场重大变革，我们将为此继续付出努力。

Thank You!

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