



**Press Release**

(Hong Kong, 3 April 2012)

**LSCM's R&D increases Hong Kong's competency  
E-Lock and Airport RFID Baggage Handling System**

Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies (LSCM R&D Centre) co-organised a media tour with the Innovation and Technology Commission, also with the support of Hong Kong Customs and Excise Department (C&ED), Airport Authority Hong Kong (AAHK), Hong Kong Air Cargo Terminals Limited (HACTL) and UPS Parcel Delivery Service Ltd. (UPS), to Chek Lap Kok Superterminal 1 and Hong Kong International Airport on 27 March to demonstrate the application of E-Lock-Based Enabling Technology and technical support of Radio-Frequency Identification (RFID) Baggage Handling System. These new devices not only increased the operational efficiency of Hong Kong Customs and Excise Department (C&ED) and the Hong Kong International Airport (HKIA) significantly, but they also benefit the logistics industry.

**E-Lock achieving the goal of "Clearance Facilitation"**

In mid-November 2011, Hong Kong Customs and Excise Department (C&ED) and the logistics industry began to use the E-Lock. They all think E-Lock significantly improves the visibility, security, and convenience for customs clearance. **LSCM's CEO Simon K.Y. Wong** said that "with our technology research and development, this project of E-Lock, cooperated by LSCM and C&ED, supports C&ED in innovating customs clearance's technology, thus improving Hong Kong logistics industry's clearance convenience and raising Hong Kong's competency. This is exactly why the Innovation and Technology Commission established LSCM."

**Dr Frank Tong, LSCM Director of Research and Technology Development**, said that "E-Lock ensures transshipping goods enter and leave Hong Kong under strict monitoring. It further simplifies clearance procedures, saves clearance time, fulfils the technical requirements of C&ED's Intermodal Transshipment Facilitation Scheme (ITFS), thus achieving the goal of clearance facilitation".

**Increases monitoring visibility, security, and convenience**

E-Lock to a container is like a traceable safe with a smart identity card. When the container passes through C&ED's control points, the vehicle does not have to stop, the E-Lock readers will read its smart identity card, lock it (security), and let it pass through. It is fast and convenient, just like using the "e-Channels" (convenience). Within Hong Kong, the container can be traced by the Global Positioning System (GPS), and can be monitored all the way (monitoring visibility).



“By using Electronic Advanced Cargo Information (e-ACI), E-Lock, and Global Positioning System (GPS), C&ED makes the clearance of air- land and sea- land transhipments more convenient. After a container is locked by an E-Lock, C&ED can track it all the way through GPS. If the truck deviates from its original route, or the container is opened illegally on the way, the E-Lock system will set off the alarm, notifying C&ED at once, so that we could take immediate action.” said **CHAN Wai-chiu, C&ED Staff Officer (Special Duties)**.

Avoiding multiple examination of the same container when it enters and leaves Hong Kong, E-Lock simplifies the customs clearance procedures and saves much time. For example, there is a container going to the airport cargo terminal from Lok Ma Chau control point. When the truck passes through Lok Ma Chau control point, the E-Lock will automatically be locked. No one can open the lock except C&ED officials. If C&ED thinks they do not have to examine the container, the E-Lock will be unlocked automatically after it arrives at the airport cargo terminal, and the goods can be loaded onto the aircraft. Even if C&ED needs to examine the container, they will unlock the E-Lock with a handheld device and a set of random and one-time password supplied by C&ED right at the unloading area, so that they can examine the cargoes selected while the remaining ones are loaded onto the aircraft as usual. It largely reduces the examination time by 2-3 hours. **Air Hub Operations Manager CHAN Wing-chung of UPS, one of the operators at the airport cargo terminal**, said that “for trucks that do not use the E-Lock pass through Lok Ma Chau control point, the entire clearance procedure usually needs 2-3 hours. The container may even be examined once more at the airport cargo terminal.” As the examination time is reduced, C&ED can meet the actual needs flexibly, thus increasing their efficiency.

“Regarding C&ED ITFS’s requirement of monitoring, security, convenience, and openness on the system operation, LSCM incorporated the following 8 technologies when designing the system: E-Lock, GPS, specialized password, data encryption, automatic remote control, streamlined interface, operation compatibility, and data interoperability. Only by this we could satisfy the strict requirements of C&ED”. Dr Frank Tong said.

### **Clearance procedure shortened from 2 hours to 5 minutes**

Using E-Lock for transhipment can largely shorten the clearance time from 2-3 hours to within 5 minutes at the border control points. “Nowadays, ITFS channel has been implemented at Lok Ma Chau control point. The facility installation at Shenzhen Bay control point is also in the final stages, and hopefully the ITFS channels will be opened shortly”, said Staff Officer CHAN Wai-chiu.



### **Increasing number of registered trucks**

Up till February 2012, a total of 109 trucks have registered as project participant. The participating companies mainly deal with Hong Kong-China trading and couriering. The number of registered trucks is also increasing.

Project participants must register as users of “Road Cargo System (ROCARS)” and “Intermodal Transshipment Facilitation Scheme (ITFS)”. HK C&ED will examine the registered vehicle to ensure whether it is appropriate for the project. Then, to join the project, the participant has to get the E-Lock and GPS equipment from certain accredited equipment suppliers and install them on the vehicle. HK C&ED does not charge any fees for this project. They also will not interfere with the commercial decisions between the participant and the accredited equipment suppliers.

The supplier of E-Lock charges a monthly fee, which is a few hundred dollars.



### **HKIA's RFID Baggage Handling System winning numerous awards**

The RFID Baggage Handling System is now used in the Hong Kong International Airport (HKIA). Since 2008, the system has won many awards in the industry of information and communication technology. The successful read-rate of the system is 97% or above, outperforming the 80% read-rate of using barcode.

HKIA is the pioneer in the world to adopt and fully apply this technology. Each day, around 70,000 baggages from more than 60 airlines use the RFID tag. HKIA uses more than 26 million RFID tags each year, making it the airport that applies the RFID baggage handling system with the largest scale. As a result, relevant foreign bodies regularly approach HKIA for specialist advice on similar baggage handling systems.

### **RFID read-rate: 97% or above**

“RFID” is the short-form of “Radio-Frequency Identification”. Compared with traditional barcode, mini-size RFID chips can store much more information. Also, with radio waves, RFID readers can read the chip in a distance and from different angles. The RFID technology has been widely applied in our everyday lives. It is used in Octopus Card and Autotoll etc.

As it is widely used and the technology has improved, the cost of each RFID tag has decreased by 40% from its initial cost. Ricky Leung, **General Manager, Technical Services, Airport Authority** said “although the investment of the entire system is not cheap, it can shorten the baggage waiting time, avoid baggage missing or miscarriage, allow us to process more baggage, and increase passenger’s satisfaction. So, all in all, this RFID system’s value is definitely beyond its cost.”

The International Air Transport Association (IATA) also regards using RFID technology to process baggage as one of the ways to simplify the airport’s operational procedure. IATA estimates that if all the airports in the world adopt this baggage handling technology, the industry could save a few hundred million US dollars each year.

**LSCM’s CEO Simon K.Y. Wong** felt very encouraged about the support of HK C&ED to E-Lock and Airport Authority to the RFID Baggage Handling System. “In this age of globalization, competition is very stiff. Both the E-Lock and RFID Baggage Handling System can help increase the competitiveness of the logistics industry and the airport service respectively. They are only possible with the devotion and dedication of every scientific research personnel and investor. I hope the systems will become more popular soon, benefiting Hong Kong and hopefully the world.



## Overview of the Integrated RFID Baggage Tag in HKIA

### What is RFID?

RFID (Radio-Frequency Identification) is an automatic identification technology. It makes use of radio waves to write information into the electronic tag's RFID chip. RFID chips can store much more information than barcode, and the information in the chip can be read in a distance.

The manufacturing, retailing, and logistics industries, together with the governments of different countries have been using RFID technology to manage, store, and track their goods. Locally in Hong Kong, there are also a number of RFID implementations, such as Octopus Card and Autotoll etc.

### Advantages of processing baggage with RFID technology

- Increases the read-rate of baggage tags
- Increases the capacity and operational efficiency of the baggage handling system

### Progress of the integrated RFID baggage tag project

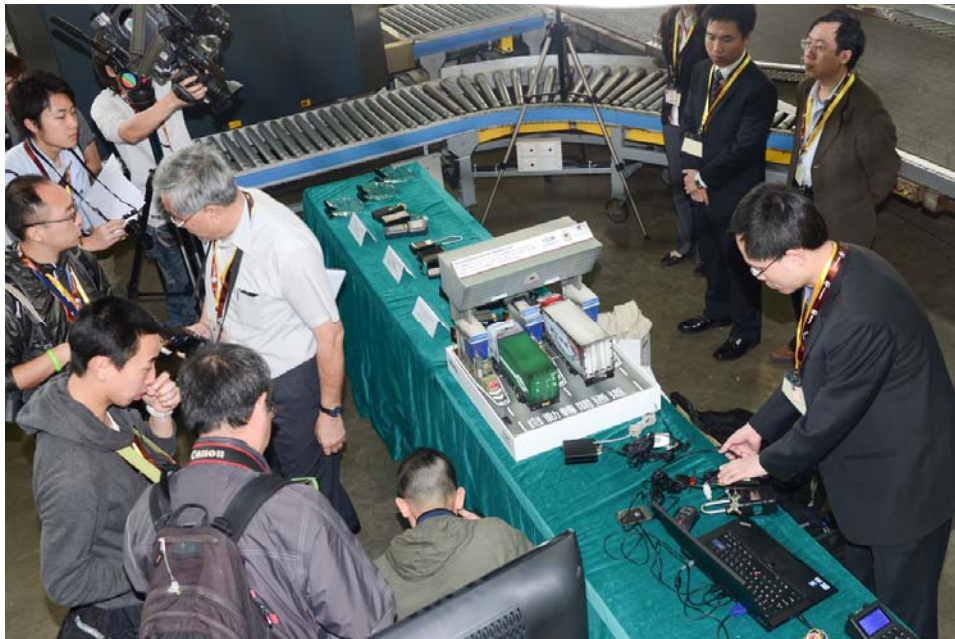
- Up till now, there are more than 60 airlines using the integrated RFID baggage tag. They include Cathay Pacific, Dragonair, Air China, China Airlines, China Eastern, China Southern, Hong Kong Airlines, Hong Kong Express Airways, Thai Airways, Northwest Airlines, and United Airlines etc.

### Comparison between the read-rate of Barcode Tag and Integrated RFID Tag

	Barcode tag	Integrated RFID tag
Read-rate	Average 80%	97% or above



**Photo Caption**



LSCM R&D Centre showcased the E-lock devices from three accredited suppliers, namely CelluWare Research Laboratory Limited, CIMC Intelligent Technology Company Limited and Long Sun Logistics Development Limited.



Representatives from UPS and C&ED demonstrated the process of cargo unloading and inspection.



Mr. Paul Wu, Senior Manager of Airport Authority Hong Kong, displayed the RFID tags of baggage handling system.



Featured in the photo are (from Left) Mr. Chan Wing Chung, George, Manager of UPS Parcel Delivery Service Ltd., Mr. Simon Wong, Chief Executive Officer of LSCM R&D Centre, Mr. Chan Wai Chiu, Steve, Special Duties Team Staff Officer from Hong Kong Customs and Excise Department, Ms. Swing Zee, Assistant Manager, Corporate Communications, Hong Kong Air Cargo Terminals Limited and Dr. Frank Tong, Director, Research and Technology Development of LSCM R&D Centre.



**Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies**  
香港物流及供應鏈管理應用技術研發中心

### **About LSCM R&D Centre**

Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies (LSCM R&D Centre) was founded in April 2006. It is established with funding support from the Innovation and Technology Commission of the HKSAR Government and is commissioned to provide a one-stop shop for applied research, technology transfer and commercialisation. It is hosted by three leading universities in Hong Kong: The University of Hong Kong, The Chinese University of Hong Kong, and Hong Kong University of Science and Technology.

Our team of technology-savvy researchers and engineers are well versed in the latest logistics and supply chain management and RFID technologies.

For more information, please visit: [www.lscm.hk](http://www.lscm.hk)

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