



**Asia-Pacific  
Economic Cooperation**

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**2009/SOM1/SCCP/027**

Agenda Item: 6 (i)

## **Using RFID for Customs Control on Transit Containers**

Purpose: Information  
Submitted by: Chinese Taipei



**First Sub-Committee on Customs Procedures  
Meeting  
Singapore  
24-26 February 2009**



## Asia-Pacific Economic Cooperation

### Asia-Pacific Economic Cooperation (APEC) Using RFID for Customs Control on Transit Containers Chinese Taipei



Ministry of Finance  
Chinese Taipei

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### Asia-Pacific Economic Cooperation (APEC) Using RFID for Customs Control on Transit Containers Chinese Taipei

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## Background

Ninety Percent Taiwan's Foreign Trade has to be relied on container shipment.

Port of Kaohsiung, located at southern part of Taiwan, played as an Asia Hub of transshipment for Asia, Australia, Europe and America.

Port of Kaohsiung had been ranking in top 6 among ports all over the world.



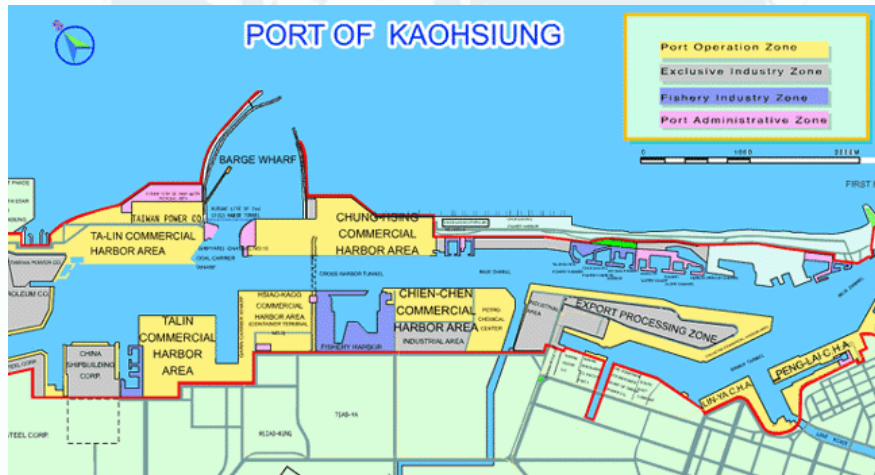
## Background

### 2008 Containers Operated in PoK

1. Import: 1,211,894 TEU  
(empty: 714,032 TEU)
2. Export: 1,209,795 TEU  
(empty: 498,253 TEU)
3. **Transit: 1,205,216 TEU**  
Total: 4,839,190 TEU
4. World Ranking: #8 ~ #10



**Background:** 40~50K/1.2M TEU need to be escorted



## Challenges to Customs

- 12 cases seized in last two years  
Mushroom, Cigarette (6), Wine (2), Firecrackers, Shoes(2), **Total USD 4 million of seizure.**
- Transit Cargo, 40~50K/1.2M TEU, need to be escorted;  
at least **15K escort needed** yearly

## Cost to Shipping Companies

- Escort Fee (USD17/TEU, USD78,000/year )
- Transportation Fee



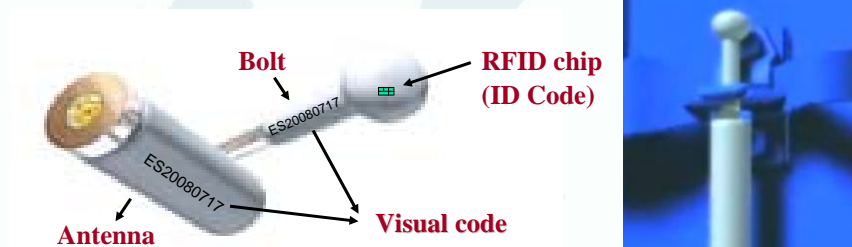
## Objectives

- Anti-Smuggling
- Improve Cargo Movement Security
- Improve Efficiency of Customs Clearance
- Save Cost and Time



## Descriptions of Passive RFID E-Seal

- Unique Chip Code Cannot Be Falsified
- Non-Reusable
- Once Broken, Damaged, Couldn't be Identified



### ❖ RFID E-Seal Handheld READER



### Fixed RFID Readers at Check Point

RFID Trigger & Robust Reader  
Data Fusion of RFID/Image  
Adaptive RFID Antenna





## Using Passive RFID – E-seal for Customs Control on Transit Containers

Formally Commenced on February 20, 2009

### Systemic Framework

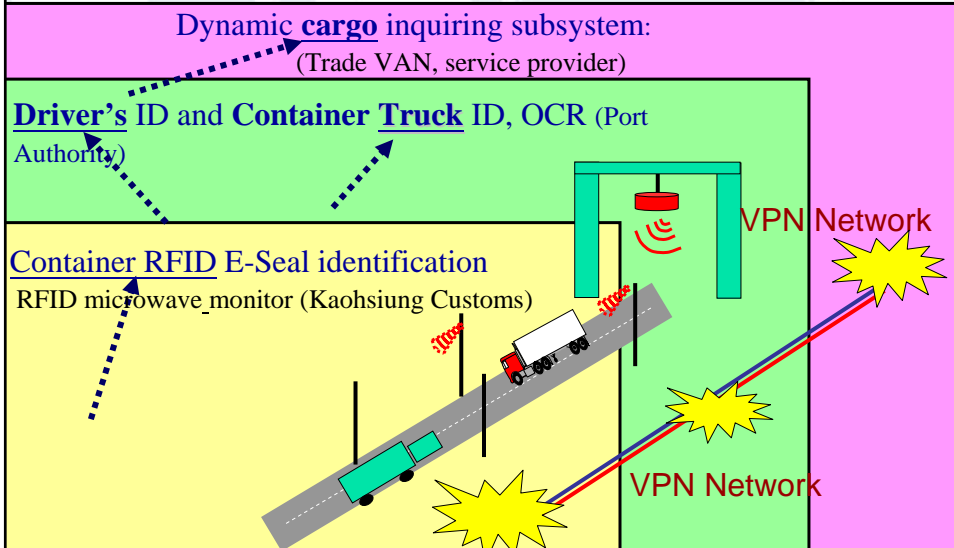


## Monitoring Cargo, Container, Truck and Driver

Dynamic **cargo** inquiring subsystem:  
(Trade VAN, service provider)

**Driver's ID and Container Truck ID, OCR** (Port Authority)

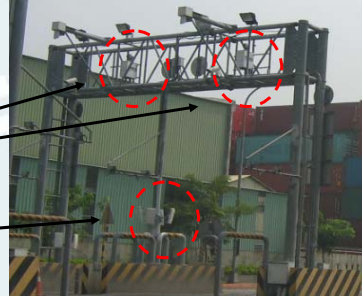
**Container RFID E-Seal identification**  
RFID microwave\_monitor (Kaohsiung Customs)



## 20 Automatic Lanes Equipped in Kaohsiung Port



RFID Robust Reader  
RFID Antenna



## Procedures of using RFID for Control of Transit Containers

(1)



E-seal locked at Dock or Container Yard

(2)



Using RFID E-Seal Hand-held Reader to Confirm when container exit from CY

(3)

RFID E-Seal Fixed Reader Identifies Automatically when truck goes thru Checkpoint



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(5)



Using RFID E-Seal Hand-held Reader to Reconfirm, when arriving at Container Yard

**Billboard**

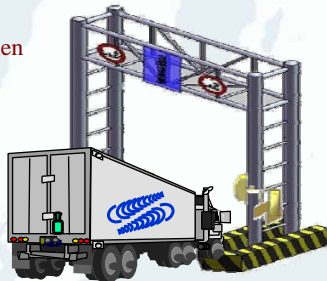
(4)

3U-427 (X)  
6H-683 (O)

Identifying Container Information both by RFID E-Seal and OCR at Port Entrance



inspection site





## Demo on Locking E-Seal and Confirming Information



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### ■ Challenges Overcame

- 7 Months & 4,200 Passive E-Seals Tested and Used
- 10 Shipping Companies Joined the Pilot Program
- Non-Stop Passing at 20-70 Km/hr Speed through 20 Gates
- Operation Tested under All Kind of Weather and Non Interruption Maintenance Provided
- System Performed High Reliability, and Durable under Critical Environment: High Temperature, Typhoon, Humid and Salty Air

### ■ Accuracy 97.42% of Reading Long Range E-Seal

### ■ Start Operating on Feb. 20, 2009



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## Objective and Achievements

- Anti-Smuggling ✓
- Improve Cargo Movement Security ✓
- Improve Efficiency of Customs Clearance ✓
- Save Cost and Time ✓

**One of the Best Solutions for Customs,  
Shipping Companies and Shippers**

**What's Next – Experience Sharing**



**Thank You for Your Attention!  
Comments and Q&A**

