

Hawkeye System for tracing contraband tobacco

A group of scientists based in Lausanne Switzerland and Springfield Virginia USA developed a covert system for tracking and tracing diverted, stolen and smuggled products.

The brief was to develop a total system, not just a clever bit of technology. The result is a fully integrated total management control system.

Originally conceived and targeted to provide a solution to several issues involved with the USA tobacco settlement the system is not just a concept, it has been in operation for three years in the luxury goods market.

The system

Manufacturing

- An invisible two dimensional data matrix code is applied to each pack of cigarettes at the point of manufacture. This code is generated through an ink jet head by a computer and the code stored in a database.
- When 20 packs are put in a carton another invisible code is applied to the outside of the carton by the same principle and this code is stored in the database and cross referenced to the codes on the individual packs.
- 60 cartons are then sealed in a case and once again a code is applied and cross-referenced in the database to the carton and pack codes.
- The cases are then stored in the tobacco company warehouse – distribution centre.

At this stage the product has no distribution designation, it is simply stock. And may be for domestic (federal and local taxed) consumption or for export, or for tax-exempt distribution.

Once the tobacco company receives an order from:

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| 1. Government licensed wholesale warehouse | taxable |
| 2. Export (see export documentation) | untaxed |
| 3. Armed forces | federal tax |
| 4. Native American Indian reservation | federal tax |
| 5. Duty Free (e.g. Cruise ships) | untaxed |

The product is issued against that order.

Distribution

- Once the case is issued from the tobacco company warehouse, the case code is scanned, its destination determined by the order, and the database updated to show the new destination.

This activity is part of the tobacco company's current activity and requires no additional effort from them. At the same time that they enter the current stock control information they will automatically update the Hawkeye system.

- When the product leaves the manufacturers warehouse, any federal taxes are calculated and paid. The Hawkeye database would be accessible to Federal Tax authorities and a report issued (daily, weekly) to confirm the taxes due.
- On receipt at the designated destination, the code is scanned into the receiving warehouse and again the database automatically updated.

- In the USA there are 100 Government authorised “Public Warehouses”. These warehouses only deal in multiple case stock quantities, either direct to major retailers, e.g. Wal-Mart or they will receive orders from sub contract warehouses who service the corner shop business.
- Once the cases leave their warehouse the codes would again be scanned and the database updated with the new destination as part of their stock control procedure. At this stage the local “state” taxes are due and a regional server would produce a report to the tax authorities informing them of the tax due and paid.
- Cases received by one of the 1,800 sub contract warehouses would be scanned into their stock control system and the database updated. The role of these distributors is to break the cases down to carton size orders; example “Joe’s Corner Store” orders 4 cartons of Camel, 8 cartons of Marlboro and 6 cartons of Lucky Strike.
- The sub contract warehouse would scan the carton code against the order and the database would be updated again.

We now know in the database where every case, carton and pack has been delivered and when. What taxes were due and when they were paid. We know exactly which retailers in what state have had what cigarettes.

Documentation

A major source of diverted product is export, tax-free or tax-exempt products.

The “Techmark” system can be incorporated into Customs export/import documents and integrated into the Hawkeye system database to directly link the product to the documentation.

A Read/Write thread is incorporated into the Customs/Control document. This thread has a fixed code already embedded into it through a method known as watermark magnetic. Once the document is issued and a quantity and value of the shipment is known the thread is then programmed with this information and the combined details entered into the database and cross-referenced with the Hawkeye codes on the packs/cartons/cases.

If the document is subsequently altered and the shipment details altered, by scanning the document and or one of the cigarette packs will tell the customs official what the correct details should be.

If the programmed details in the thread are erased or changed through some illicit means, the watermark code will still exist and the database will still be able to identify the true value and identity of the shipment

Benefits

If a shipment is stolen in transit or if a warehouse is raided and a consignment stolen, the individual pack codes can be notified to law enforcement.

At any stage of distribution, the authorised agents, (Investigation, Law Enforcement, Customs, Tax auditors) can scan any case, carton or pack, interrogate the database by remote modem access and tell when and how that product was distributed and who the legitimate wholesaler or retailer should be.

- Speeds up customs clearance by electronically reconciling documentation, product, transporters, supplier and destination.
- Identifies where and when federal and state taxes are due, the amount, when they are paid and any outstanding balance.
- Identifies plant, machine, shift, producing conforming or non-conforming product.

- Identifies genuine from counterfeit.
- Identifies retail outlets selling to underage smokers by law enforcement interrogating an individual pack at street level
- Identifies last legitimate delivery point (diverter)
- Identifies tax-free or tax exempt products.
- Reduces legal preparation and court time
- Paid for by very small increase in price per pack

Implementation

All the equipment is provided: encoders, scanners, audit units, interrogation units, all hardware, software, systems integration, application engineering

The system has unique invisible ink chemistry combined with a secure database. The code is extremely difficult to detect, even more difficult to decode and damn near impossible to duplicate. The code has no meaning or value without the database access. The system is easily integrated into a manufacturing line and is ideally suited to tobacco cartons.

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