Novel Electronic Article Surveillance System based on conventional UHF RFID Readers and Transponders

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Motivation – UHF RFID available by many retailers

Apparel retailers proved the efficiency of the UHF RFID deployment

**Store processes:** „UHF RFID makes the inventory in shops – more accurate, faster and more efficient“

**Logistic:** „All shipments are 100% proved by RFID“
„Out of stock situations are early recognised“

**Customer satisfaction:** „Smaller waiting time at cashiers“

**EAS:** Improved security
Motivation – Kathrein RFID focused products

Kathrein RFID focused products on fashion shops/industry

**Store processes**: ACD/Kathrein handheld reader for efficient inventory

**Logistic**: Lead ©KRAI Wide Range and gate antennas with switchable polarisation for 100% reading rates

**Customer satisfaction**: ©KRAI Smart shelf antenna for shelf and point of sale applications

**EAS**: ©KRAI Circular switch beam (CSB) antenna for direction detection

With the ©KRAI CSB antenna

Kathrein RFID completes its UHF RFID portfolio for the fashion shop
Operating mode with Wide Range Antennas

Both signals distributed via the standard coax antenna cable
Cascade Function
Polarization switch LHCP/RHCP/Ver/Hor and read rate improvement
Beam Forming +/- 35° for direction detection and use as EAS system
Kathrein RFID EAS Solution

Main benefits

Invisible overhead EAS solution
Open entrance area
Replace existing EAS systems
No false alarm
Functional description

Antenna with 3 dynamic switchable read zones
Zone 1: Transponder in outside area
Zone 2: Transponder in entrance area
Zone 3: Transponder in inside area

Continuous analysis of tag movement
Decision on the tag direction
Filtering of static tags
Kathrein RFID CSB as gate solution

- **Zone 1**: Two antennae with 3 dynamic switchable read zones
- **Zone 2**: Automatic capturing the items between back and front office
- **Zone 3**:
Antenna characteristics

Antenna design – phased array

Gain 6dBiC
HPBW 80°/35°

Circular polarization – to read transponder in almost any position in the shop entrance

Extremely low side lobes – to ensure no false readings by scanning the entrance space
Antenna design – phased array

Left and right beams

Well decoupled beams for secure direction detection
Kathrein RFID EAS read zones

Dynamic switch of the 3 read zones
High selectivity between the 3 different read zones
High quality directional detection
No false alarms
Kathrein RFID EAS read zones

Antenna position 3m above ground

High selectivity between the two different read zones
Kathrein RFID EAS read zones with person in the gate

- Antenne Position 3m über Boden

- Low influence of human body
Advanced configuration software is available with the © KRAI readers
Electronic article surveillance system based on conventional UHF RFID readers and transponders

The system is based on circular switch beam antenna powered by © KRAI reader

The antenna has three read zones and can switch between them dynamically

By recording the transponder behavior the system detects their direction and can trigger an alarm, if an item is stolen

The system can be realized as an invisible overhead EAS solution, which ensures an open entrance area

It is able to replace completely the existing EAS systems
Thank you for your attention!

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