



**NEWAVE**®  
Sensor Solutions

## Surround Portal for Hotel Linen/Laundry Applications

Traditional item level RFID tracking applications can be problematic for conventional patch antennas when materials include liquids and wet materials. Large numbers of compressed items in a carton can be extremely difficult as well. The typical method of addressing this problem with patch antennas is to "crank up the antenna power." Unfortunately this results in over reads, non uniform read performance and ultimately inaccurate inventory counts.

One of these "difficult to manage" RFID applications involves hotel linens and apparel goods. Hotels today are using RFID technology to monitor the whereabouts of bathrobes, bed sheets, duvet covers, bathmats, pool towels and banquet linens. By using small radio frequency chips embedded in these materials, hotels can get better visibility to their total inventories and more accurately determine shrinkage.

### Primary Drivers

- Reduction in inventory time and labor
- More efficient management of linen purchases
- Improved control and savings within the laundry process
- Increased life of linens and towels
- Improved control over check-in and check-out process
- Reduction in linen and towel theft and shrinkage
- Improved customer service

### How can NeWave help?

NeWave's unique Wave™ Surround Portal provides superior data accuracy over traditional patch antennas that radiate a beam in a single direction. Through our expertise in radar development, NeWave was able to achieve the maximum power level allowed by the FCC for positions and orientations using 30dBm to each of the 4 antennas in a surround enclosure. By capitalizing on an enclosed surround structure, the NeWave antennas are able to radiate beams and deliver uniform performance throughout the portal. For difficult to read items like wet towels or multiple items in a carton, the NeWave surround portal delivers unsurpassed results at a reduced total

systems cost as we can reduce the number of RFID readers required.

## Case Study

### Overview

One of the leading systems integrators in this new but emerging RFID linen tracking application has been using a patented tag inside towels and monitoring the flow to and from the laundry, in and out of linen closets, at various check in/out stations, down laundry chutes and even at pool and beach kiosks. Their goal is to enable hotel operators to efficiently control their otherwise difficult to manage assets, and establish customizable alerting functions that offer reduced linen and towel shrinkage.

### Their Problem

Towels moving from the various locations within the hotels utilize a large movable tub. These tubs can carry large numbers of used/soiled towels in various configurations. To add even more complexity to reading these towels, the towels coming from the pool and beach areas are wet, creating a significant barrier to an accurate inventory read.

The systems integrator began the process of reading the wet towels, in a framework of 8 RFID patch antennas and 2 readers. This configuration was expensive and required extensive install time to properly configure the patch antennas. The time to process inventory reads was also slow.

Unfortunately, their tracking efforts did not meet the customer's expectations as they were not able to read an acceptable % of the wet towels in the tubs coming from their pool area. They needed to arrive at a solution that would increase their tag read accuracy.

### The NeWave Solution

NeWave Sensor Solutions developed a 5x5x8 foot reflective metalized chamber that uniformly reads all items while allowing easy access and exit for the tubs carrying the wet laundry and pool towels. This surround portal/antenna solution delivers the following benefits:

- Uniform reading performance throughout the enclosed portal provides superior data accuracy. The NeWave surround portal reads on the laundry tubs were hitting 83 to 84 out of 84 towels.
- Easy to install and less install time with only four antennas
- Lower total systems cost as NeWave reduces the number of readers required
- Faster reading processing time
- Highest allowable power density, yet meets all FCC requirements.

## Conclusion

One of the initial properties installed, which introduced the RFID tag technology last summer, has reduced theft of its pool towels from 4,000 a month to just 750, saving more than \$16,000 a month, according to the systems integrator. The SI plans to significantly expand their hotel systems over the next year with the NeWave surround portal being an integral component of their total package.