



Lost Recovery Network, Inc.

Testing Profile

Version 1.1
April 23, 2013

Presented by:
Louis Thompson

TESTING PROFILE

LRNi has responded to a client's request to validate our read capabilities of UHF Gen 2 Passive RFID Tags in an environment where metal parts in plastic totes were stacked low and tight on a steel pallet. This configuration is commonplace in many manufacturing environments.

Administrative Data:

Site:	Manufacturing Facility in U.S.
Performed by:	Louis Thompson and Will Newman
Date Performed:	April 18, 2013

TEST PARAMETERS:

- Technology used: EPC Gen 2 UHF Tags and Readers
- Items to be tested: 60 Plastic totes with 12 metal components that weighed approximately 27 lbs each. Stacked on a steel pallet. (Photos of Pallet Layout #1, #2, and #3.)
- Tag configuration: Each tote had 2 different UHF Tags attached. Group **BA5EBA11** was placed in the middle of the long side of each tote and Group **E2009009** was placed in the middle of the short side. (See Test 1 and Test 2 Diagrams.)
- Tier configuration: Each tote was positioned on each tier with the UHF Tags facing towards the inside of the stack. No Tags were on the outside of any tote. See photos #1, #2, and #3.)
 - **Note: This would put the Tags in the most difficult read position.**
- Reader spacing: Forklift with pallet passed by Reader Antennae that were spaced 9.5 feet apart
- Test Summary: See attached Excel file

PALLET LAYOUT:

Photos of plastic totes, pallets, metal components and RFID tags.



Photo # 1



Photo # 2



Photo # 3

Test Summary:

Testing data is displayed in Excel Data Sheets attached:

Test #1, Trial run 9 Tags were Not read.

Test #2, 1 Tag was not read.

Test #3 thru Test #12, All Tags were read.

See Excel Spread Sheet Attached: Tags IDs are highlighted in yellow. Tag reads are posted once if tag was only seen by one reader. Tags that are in the list twice were seen by both readers. Missed tags are highlighted in red.

Layout Test 1 and Test 2 below illustrates the tag read penetration into each totes on the pallet. Missed tags are also shown in Pallet Layout. Highlighted B or E illustrates tag Not read and its position in the stack. See Test 1- Layer 3, Example 26B.

Test 1

Layer 1

1 E	B B 4 E	7 B
2 E	B B 5 E	8 B
3 E	B E 6 E	10 B

Layer 2

11 E	B E 15 E	B E 18 E
12 E	B E 16 E	B E 19 E
13 E	B E 17 E	B E 20 E

Layer 3

21 E	B B 24 E	27 B
22 E	B B 25 E	28 B
23 E	B E 26 E	30 B

Layer 4

31 E	B E 35 E	B E 38 E
32 E	B E 36 E	B E 39 E
33 E	B E 37 E	B E 40 E

Layer 5

41 E	B B 44 E	47 B
42 E	B E 45 E	48 B
43 E	B E 46 E	50 B

Layer 6

51 E	B E 55 E	B E 58 E
52 E	B E 56 E	B E 59 E
53 E	B E 57 E	B E 60 E

Test 2

Layer 1

1 E	B B E	4 E	7 B
2 E	B B E	5 E	8 B
3 E	B B E	6 E	10 B

Layer 2

11 E	B E	15 E	B E
12 E	B E	16 E	B E
13 E	B E	17 E	B E
14 E	B E	18 E	B E

Layer 3

21 E	B B E	24 E	27 B
22 E	B B E	25 E	28 B
23 E	B B E	26 E	30 B

Layer 4

31 E	B E	35 E	B E
32 E	B E	36 E	B E
33 E	B E	37 E	B E
34 E	B E	38 E	B E

Layer 5

41 E	B B E	44 E	47 B
42 E	B B E	45 E	48 B
43 E	B B E	46 E	50 B

Layer 6

51 E	B E	55 E	B E
52 E	B E	56 E	B E
53 E	B E	57 E	B E
54 E	B E	58 E	B E