



## Alien ALN 9613 UHF WRW-T RFID TAG

### Model: ALN-9613

#### > Applications

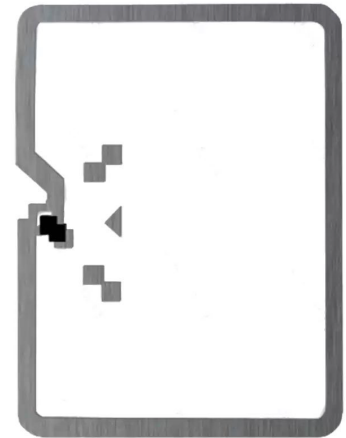
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- 1 Food product packaging
- 2 Software/video DVD's
- 3 ISO Access Control or loyalty cards
- 4 Pharmaceutical vials
- 5 Bottles, Syringes, Blister packs
- 6 Fashion Apparel
- 7 Jewelry Tags

#### > Features

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- 1 EPC Gen 2 (v1.2.0) compliant
- 2 ISO/IEC 18000-6C compliant
- 3 HiggsTM-3 IC with 800-bits of Nonvolatile Memory
  - 32-bit TID
  - 64-bit Unique TID
  - 96-bit EPC Memory, extensible to 480-bits
  - 512-bit User Memory
  - 32-bit Access password
  - 32-bit Kill password
- 4 Ultra Compact size, Near-field coupling
- 5 Capable of converting to far field by coupling to conductive packaging
- 6 Exceptional performance
- 7 Custom commands for high speed programming
- 8 User Memory can be Read Password protected in 64-bit blocks, prohibiting unintended Reads without an access password
- 9 Worldwide RFID UHF operation
- 10 Supports all Mandatory and Optional Gen 2 commands including item level



## > Descriptions

Powered by Alien ®s break-through Higgs " 3 UHF RFID IC, the "SIT" is a near-field (aka magnetic or inductive) coupled an- tenna design, the ALN-9613 delivers industry leading EPC Gen 2 performance and reliability in an ultra compact form factor.

The "SIT" is especially well-suited for very small item-level applications where geometries are critical. The near-field coupling properties make this tag ideal where read range requirements are short or for applications on aqueous materials.

## > ALN-9613 Specifications

### Dry Inlay

Antenna Width	0.472 [ 12.0 mm ]
Antenna Length	0.354 [ 9.0 mm ]
Web Width	2.36 [ 60.0 mm ]
Web Pitch	0.787 [ 20.0 mm ]
Core Width	2.36 [ 60.0 mm ]
Core ID	6 [ 152.4 mm ]*
Core Material	Fiberboard
Interleaf Material	Paper
Interleaf Width	0.59 [ 15.0 mm ]
Inlays per Roll	15,000 Nominal
Maximum Roll OD	< 12 [ 304.8 mm ]
Roll Labeling Data	Roll #, Quantity

\* The products and specifications described in this document are subject to change without notice.

## Wet Inlay

Inlay Width	0.748 [ 19.0 mm ]
Inlay Length	0.512 [ 13.0 mm ]
Web Width	2.36 [ 60.0 mm ]
Web Pitch	0.787 [ 20.0 mm ]
Core Width	2.36 [ 60.0 mm]
Core ID	6 [ 152.4 mm ]*
Core Material	Fiberboard
Inlays per Roll	15,000 Nominal
Maximum Roll OD	< 16 [ 406.4 mm ]
Roll Labeling Data	Roll #, Quantity
White	TT Printable White Film Overlay
Overlay Adhesive	General Purpose Permanent
Inlay Adhesive	General Purpose Permanent
Adhesive Application Temperature	>+25°F [ -4°C ]
Adhesive Service Temperature	40°F to +200°F [ -40°C to +93.3°C ]
Release Liner	40# SCK

## RFID

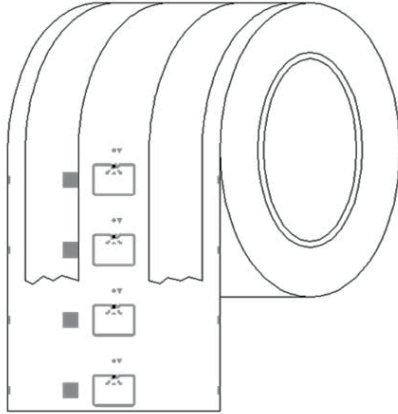
Protocols Supported	ISO/IEC 18000-6C EPCglobal Class 1 Gen 2
Integrated Circuit	Alien Higgs-3
EPCglobal Certificate	950110126000001084
Operating Frequency	840 - 960 MHz
EPC Size	96 - 480 Bits
User Memory	512 Bits
TID	32 Bits
Unique TID	64 Bits
Access Password	32 Bits
Kill Password	32 Bits

## Enviromental

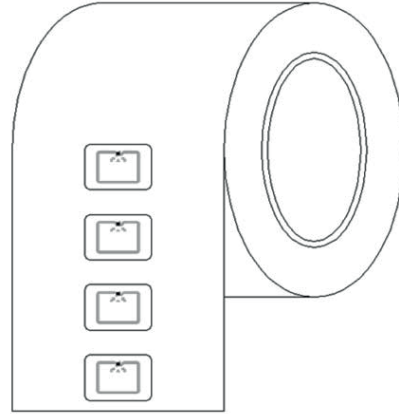
<b>Shelf Life</b>	2 years at +77°F [ +25°C ] @ 40% RH
<b>Recommended Storage</b>	+77°F [ +25°C ] @ 40% RH
<b>Storage Limits</b>	-13°F to 122°F [ -25°C to +50°C ] 20% to 90% RH Non-condensing
<b>Operating Limits</b>	-40°F to + 158°F [ -40°C to +70°C ] 20% to 90% RH Non-condensing
<b>Bend Diameter</b>	> 1.97 [ 50 mm ]
<b>Pressure</b>	< 5N/mm
<b>Drop Resistance</b>	Per ASTM D5276
<b>Write Cycles</b>	100,000 @ 25°C
<b>ROHs</b>	2002/95/EC, 2005/618/EC, 2011/65/EU Compliant
<b>REACH</b>	1907/2006/EC Compliant (SVHC and ECHA)
<b>ESD Limit HBM / CDM</b>	5.0kV / 1.5kV



## > ALN-9613 Inlay Orientation



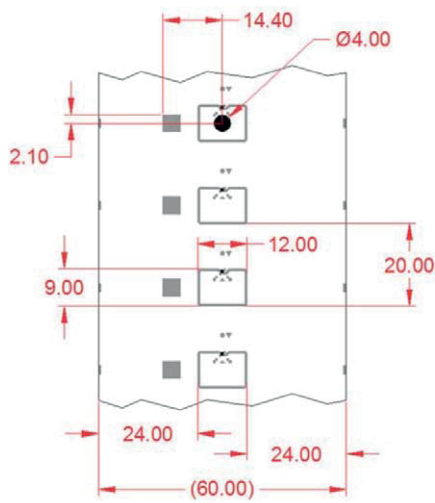
**ALN-9613-FR**  
( Dry Unslit Roll )



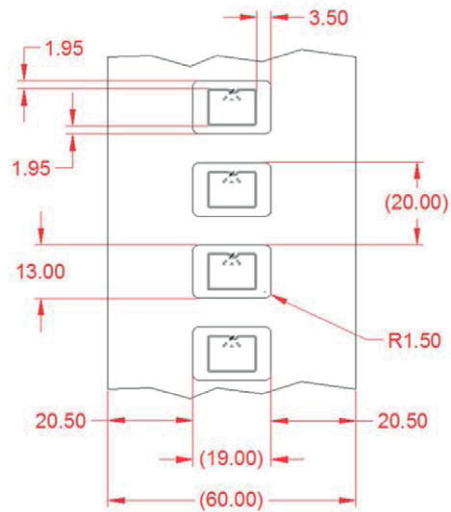
**ALN-9613-FWRW**  
( White Wet Roll )

Standard Alien Inlay rolls unwind with metal antenna side facing outward, with respect to the core.

## > ALN-9613 Inlay Specification



**ALN-9613-FR**  
( Dry Unslit Roll )



**ALN-9613-FWRW**  
( White Wet Roll )

## > ALN-9613 Inlay Stackup

DRY INLAY THICKNESS. +10%	
OVER ANTENNA	0.05 mm
OVER CHIP	0.25 mm

WHITE WET INLAY THICKNESS. +10%	
OVER ANTENNA	0.16 mm
OVER CHIP	0.36 mm

INLAY



**ALN-9613-FR**  
( Dry Unslit Roll )



**ALN-9613-FWRW**  
( White Wet Roll )

## > ALN-9613 Inlay Angular Sensitivity

The radiation pattern of the SIT is very dependent on the metallic objects that are in close proximity of the tag. By itself the SIT does not have a classical radiation pattern. Coupling to the SIT is extremely dependent on the near-field reader antenna used. Since the coupling is mostly magnetic or inductive one can think of the SIT as a classical coil with one turn. Thus it will couple very well to other coils of similar dimensions.



Fashion Apparel



Pharmaceutical vials



jewelry Tags



Food product packaging