



ALN-9613 "SIT" Inlay

The Alien Technology® ALN-9613 "SIT" (Small Item Tag) is a small near-field inlay, perfect for ultra compact item level tagging applications where size is of outmost concern or where range must be limited.



Powered by Alien®'s break-through **Higgs™3** UHF RFID IC the "SIT" is a near-field (aka magnetic or inductive) coupled antenna 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.

With its Higgs-3 core, the **SIT** delivers excellent performance and a rich feature set expanding the standard 32-bit TID with an **additional 64-bit Unique TID for authentication** and serialization applications, an **extensible EPC memory bank, 512-bits of user memory** for distributed data applications and **password protected read and write support capabilities** to prevent unauthorized viewing and modification of the tag's data.

ALN-9613 inlays are *World Tag* compliant, enabling consistent operation across the diverse frequencies of the Americas, Europe, Middle East, Asia, and Africa.

Typical applications for the "SIT" include, but are not limited to:

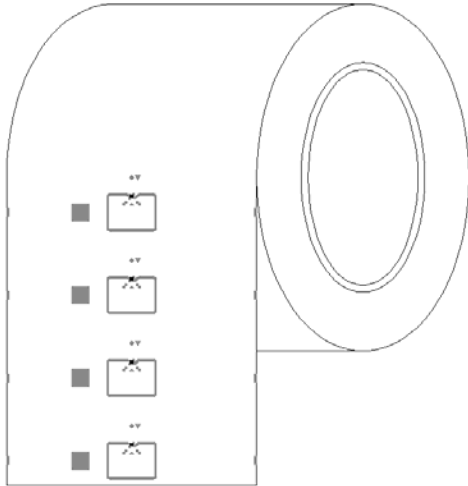
- Jewelry tags
- Pharmaceutical vials
- Bottles
- Syringes
- Blister packs
- Liquids
- Food product packaging
- Software/video DVD's
- ISO Access Control or loyalty cards
- Fashion apparel
- Numerous counterfeiting applications where the tag can be easily concealed.

FEATURES

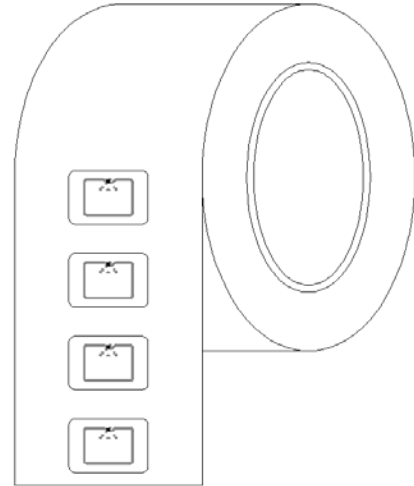
- Ultra compact size
- Near-field coupling
- Capable of converting to far field by coupling to conductive packaging
- Exceptional performance
- EPC Gen 2 (v1.2.0) compliant
- ISO/IEC 18000-6C compliant
- Worldwide RFID UHF operation (840-960MHz)
- Higgs™-3 IC with 800-bits of Nonvolatile Memory
 - 32-bit 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
- Pre-programmed with a unique, unalterable 64-bit serial number (ideal for authentication)
- User Memory can be Block Perma-Locked
- User Memory can be Read Password protected in 64-bit blocks, prohibiting unintended Reads without an access password
- Supports all Mandatory and Optional Gen 2 commands including item level commands
- Custom commands for high speed programming
- Available in high-yield, high-capacity dry/wet inlay rolls for high volume converting processes

ALN-9613 "SIT" Inlay

ALN-9613 Inlay Orientation



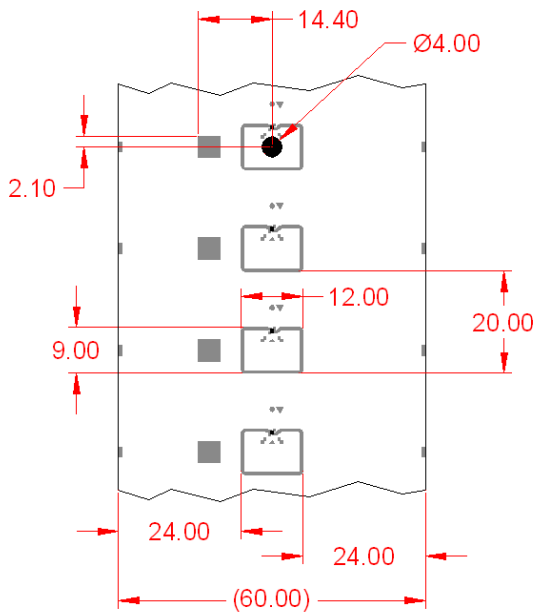
ALN-9613-FR
(Dry Unslit Roll)



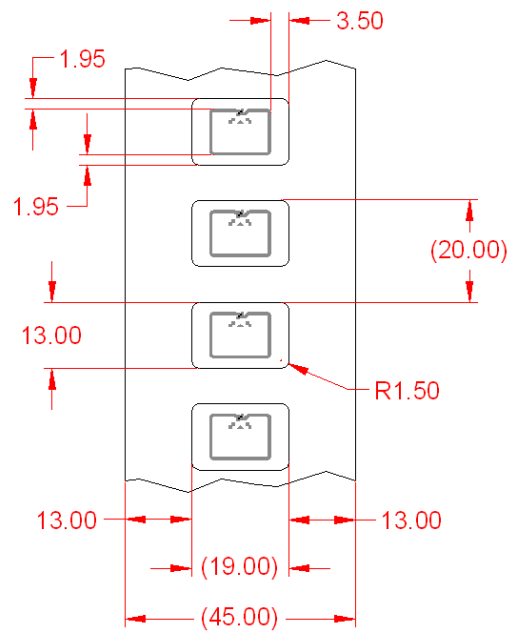
ALN-9613-FWRW
(White Wet Roll)

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 Inlay)



ALN-9613-FWRW
(White Wet Inlay)



ALN-9613 “SIT” Inlay

ALN-9613 Inlay Stackup

DRY INLAY THICKNESS, $\pm 10\%$	
OVER ANTENNA	0.05 mm
OVER CHIP	0.25 mm



ALN-9613-FR
(Dry Unslit Inlay)

WHITE WET INLAY THICKNESS, $\pm 10\%$	
OVER ANTENNA	0.16 mm
OVER CHIP	0.36 mm



ALN-9613-FWRW
(White Wet Inlay)

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.

ALN-9613 "SIT" Inlay

ALN-9613 Specifications

Dry Inlay

Antenna Width	0.472" [12.0mm]
Antenna Length	0.354" [9.0 mm]
Web Width (FR)	2.36" [60.0mm]
Web Pitch	0.787" [20.0mm]
Core Width (FR)	2.36" [60.0mm]
Core ID	6" [152.4mm]
Core Material	Fiberboard
Interleaf Material	N/A
Interleaf Width	N/A
Inlays per Roll	15,000 Nominal
Maximum Roll OD	< 12" [304.8mm]
Roll Labeling Data	Roll #, Quantity

Wet Inlay

Inlay Width	0.748" [19.0.mm]
Inlay Length	0.512" [13.0mm]
Web Width (FWRW)	1.77" [45.0 mm]
Web Pitch	0.787" [20.0]
Core Width	1.77" [45.0mm]
Core ID	6" [152.4mm]
Core Material	Fiberboard
Inlays per Roll	15,000 Nominal
Maximum Roll OD	< 16" [406.4mm]
Roll Labeling Data	Roll #, Quantity
White (-FWRW)	TT Printable White Film Overlay
Overlay Adhesive (-FWRW)	General Purpose Permanent
Inlay Adhesive	General Purpose Permanent
Adhesive Application Temperature	> +36.5°F [+2°C]
Adhesive Service Temperature	-4°F to +199.4°F [-20°C to +93°C]
Release Liner	40# SCK

Environmental

Shelf Life	2 Years at +77°F [+25°C] @ 40%RH
Recommended Storage	+77°F [+25°C] @ 40% RH -13°F to 122°F [-25°C to +50°C]
Storage Limits	20% to 90% RH Non-condensing
Operating Limits	-40°F to +158°F [-40°C to +70°C] 20% to 90% RH Non-condensing
Bend Diameter	> 1.97" [50mm]
Pressure	< 5N/mm ²
Drop Resistance	Per ASTM D5276
Write Cycles	100,000 at 25°C
RoHs	2002/95/EC Compliant
ESD – HBM / CDM	> 5.0kV / > 1.5kV

RFID

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



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HANDLING PRECAUTIONS Observe standard handling practices to minimize ESD.

DISCLAIMER Application recommendations are guidelines only - actual results may vary and should be confirmed. This is a general purpose product not designed or intended for any specific application.

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