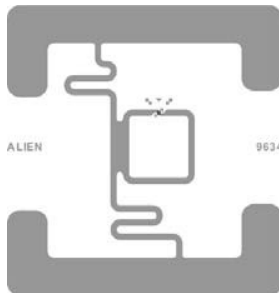




# ALN-9634 2x2 Inlay

The Alien Technology® ALN-9634 “2x2” is a general-purpose RFID inlay, designed for use in baggage tags and larger items, including apparel and pharmaceutical bottles



## Applications

- Apparel hang tags
- Larger pharmaceuticals
- Baggage

FEATURE	DESCRIPTION	BENEFIT
Large form-factor tag	A large square form-factor tag	Performance optimized for tracking larger items
Multiple frequency optimized sensitivity	Optimized for high performance in all world regions	A worldwide performance tag

## Features:

- › Suitable for larger item-level applications
- › 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

## Product Overview:

Powered by Alien®'s break-through **Higgs™3 UHF RFID IC** and **innovative 2x2 antenna design**, the ALN-9634 delivers industry leading EPC Gen 2 performance and reliability in a 2” x 2” form factor.

ALN-9634 inlays are World Tag compliant, enabling consistent operation across the diverse frequencies of the Americas, Europe, Middle East, Asia, and Africa.

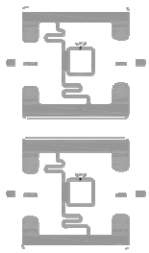
With its Higgs-3 core, the “2x2” delivers exceptional performance and is especially well-suited for larger item level applications where geometries are limited, but where high performance is required.

The “2x2” inlay comprises a rich feature set including a 32-bit TID, a **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.

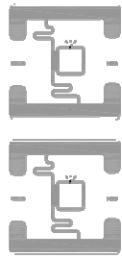


## ALN 9634 2x2 Inlay

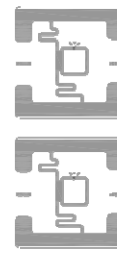
### ALN-9634 Inlay Orientation



ALN-9634-FR  
(Dry Unslit Roll)



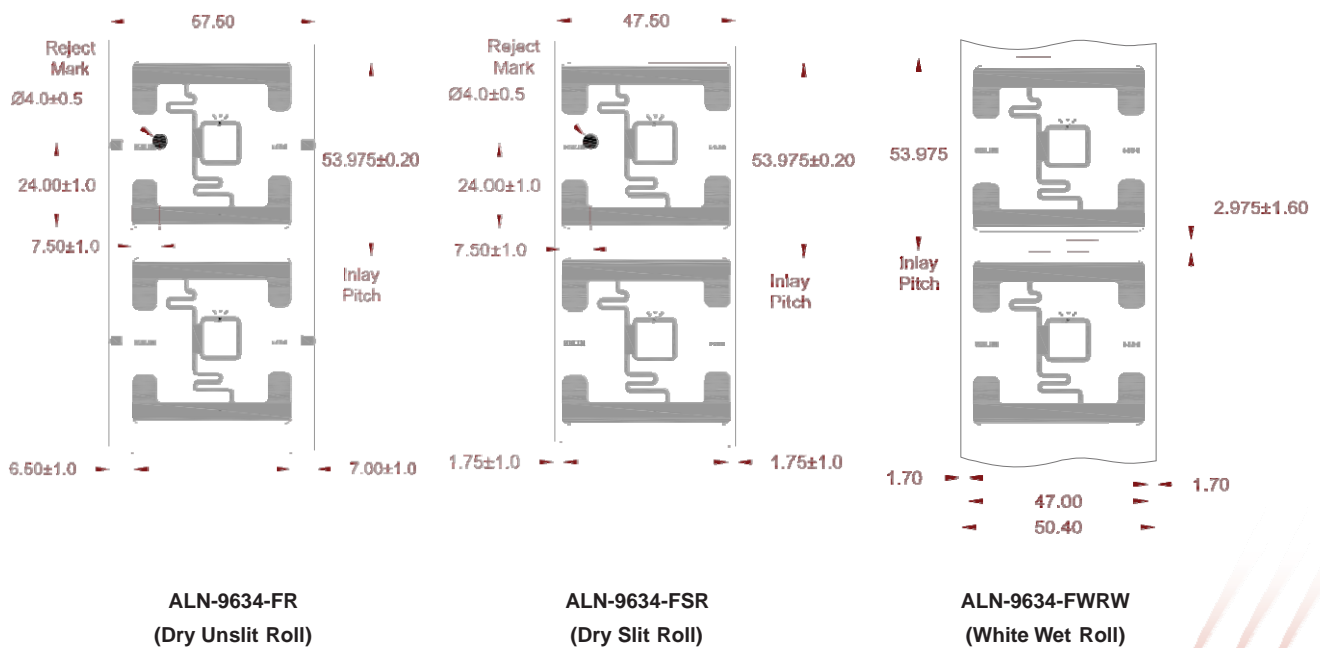
ALN-9634-FSR  
(Dry Slit Roll)



ALN-9634-FWRW  
(White Wet Roll)

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

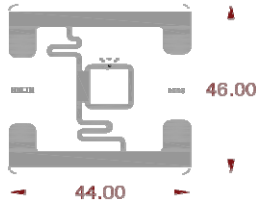
### ALN-9634 Inlay Specification



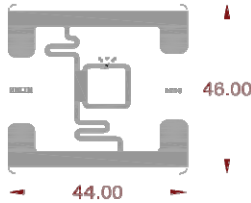


## ALN 9634 2x2 Inlay

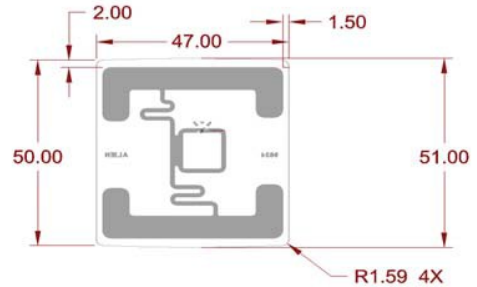
### ALN-9634 Inlay General Dimensions



ALN-9634-FR  
(Dry Unslit Inlay)



ALN-9634-FSR  
(Dry Slit Inlay)



ALN-9634-FWRW  
(White Wet Inlay)

### ALN-9634 Inlay Stackup

DRY INLAY THICKNESS, ±10%	
OVER ANTENNA	0.05 mm
OVER CHIP	0.25 mm



ALN-9634-FR  
(Dry Unslit Inlay)

DRY INLAY THICKNESS, ±10%	
OVER ANTENNA	0.05 mm
OVER CHIP	0.25 mm



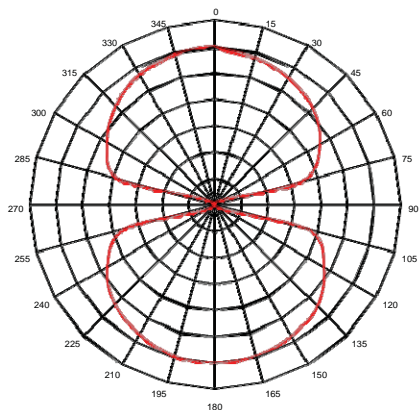
ALN-9634-FSR  
(Dry Slit Inlay)

WHITE WET INLAY THICKNESS, ±10%	
OVER ANTENNA	0.16 mm
OVER CHIP	0.36 mm

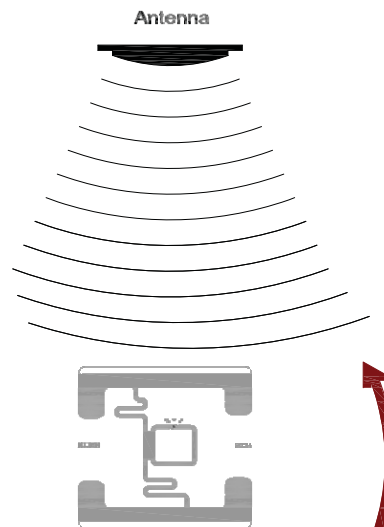


ALN-9634-FWRW  
(White Wet Inlay)

### ALN-9627 Inlay Angular Sensitivity



Angular Sensitivity  
(Relative Read Range vs. Orientation)



Angular Sensitivity  
Inlay is rotated in the x, y, plane about the z axis  
(tag shown at 0° with respect to face of antenna)



## ALN-9634 Specifications

Dry Inlay	
Antenna Width	1.73" [44.0mm]
Antenna Length	1.81" [46.0mm]
Web Width (-FR)	2.26" [57.5mm]
Web Width (-FSR)	1.87" [47.5mm]
Web Pitch	2.125" [53.975mm]
Core Width (-FR)	2.26" [57.5mm]
Core Width (-FSR)	1.87" [47.5mm]
Core ID	6.0" [152.4mm]*
Core Material	Fiberboard
Inlays per Roll	7,500 Nominal
Maximum Roll OD	< 16.0" [406.4mm]
Roll Labeling Data	Roll #, Quantity

Wet Inlay	
Inlay Width	1.85" [47.0mm]
Inlay Length	2.01" [51.0mm]
Web Width	1.98" [50.4mm]
Web Pitch	2.125" [53.975mm]
Core Width	1.98" [50.4mm]
Core ID	6" [152.4mm]*
Core Material	Fiberboard Inlays
per Roll	7,500 Nominal
Maximum Roll OD	< 16.0" [406.4mm]
Roll Labeling Data	Roll #, Quantity
White	TT Printable White Film Only
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

\* Shipped with 6" to 3" plastic core adapter

Environmental	
Shelf Life	2 years at +77°F [+25°C] @ 40%RH
Recommended Storage	+77°F [+25°C] @ 40% RH
Storage Limits	-13°F to 122°F [-25°C to +50°C] 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 <sup>2</sup>
Drop Resistance	Per ASTM D5276
Write Cycles	100,000 @ 25°C

RoHs	2002/95/EC, 2005/618/EC, 2011/65/EU Compliant
REACH	1907/2006/EC Compliant (SVHC and ECHA)
ESD Limit— HBM / CDM	5.0kV / 1.5kV

RFID	
Protocols Supported	EPCglobal Class 1 Gen 2 ISO/IEC 18000-6C
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

Copyright © 2013 Alien Technology Corporation. All rights reserved.

Alien, Alien Technology, the Alien Technology logo, FSA, Higgs, Dynamic Authentication, Quick-Write, Squiggle, and the Squiggle logo are trademarks or registered trademarks of Alien Technology Corporation in the U.S. and other countries.

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.

This product is covered by one or more of the following U.S. patents: 7967204, 7931063, 7868766, 7737825, 7716208, 7716160, 7688206, 7659822, 7619531, 7615479, 7598867, 7580378, 7576656, 7562083, 7561221, 7559486, 7559131, 7554451, 7551141, 7542301, 7542008, 7531218, 7522055, 7500610, 7489248, 7453705, 7425467, 7417306, 7411503, 7385284, 7377445, 7364084, 7353598, 7342490, 7324061, 7321159, 7301458, 7295114, 7288432, 7265675, 7262686, 7260882, 7253735, 7244326, 7218527, 7214569, 7199527, 7193504, 7173528, 7172789, 7141176, 7113250, 7101502, 7080444, 7070851, 7068224, 7046328, 6998644, 6988667, 6985361, 6980184, 6970219, 6952157, 6942155, 6933848, 6927085, 6816380, 6780696, 6731353, 6693384, 6685663, 6665044, 6657289, 6623579, 6606247, 6606079, 6590346, 6586338, 6566744, 6555408, 6527964, 6479395, 6468638, 6420266, 6316278, 6291896, 6281038. Other patents pending.

27 June 2013



Alien Technology  
18220 Butterfield Blvd.  
Morgan Hill, CA 95037  
866-RFID NOW  
www.alientechnology.com