



# ALN-9930

## “SQUIGLETTE” INLAY (HIGGS™-9)

Merging world class design performance of the Squiggle® inlay family in a more narrow package, The Alien Technology® ALN-9930 “Squiglette” offers superb range and sensitivity, suitable for a variety of smaller form factor applications.



### Applications

- Volume Retail/Apparel
- Long Read Range
- General Asset Management
- Asset / Shipping Labeling

FEATURE	DESCRIPTION	BENEFIT
Narrow antenna design	9.5x70mm size, compatible with variety of standard label formats and smaller assets, optimized with the new Higgs-9 1024 bit memory footprint	Removes size constraint of smaller assets and labels while maintaining excellent performance
Reliable read / write performance with Sentinel™ memory	Bit error correction, improved read/write sensitivity, robust memory retention and 200,000 write cycles (2X that of competition)	Robust reliability of stored data, added protection against data loss/corruption

### Features:

- › Worldwide operation in all RFID UHF bands (860-960 MHz)
- › Global GS1 Class 1 Gen 2 (V1.2.0) and ISO/IEC 18000-6C compliance
- › Class leading read and write performance
- › 1024 bits of NVRAM Memory
  - Up to 496 EPC bits (96-bits nominal)
  - Up to 688 User Bits
  - 48 bit Unique TID
  - 32 bit Access and 32 bit Kill passwords
- › User Memory may be Block Perma-Locked as well as read password protected in 32 bit blocks
- › Low power operation for both read and write
- › *BlastWrite™* and *QuickWrite™* mass-encoding
- › Dynamic Authentication™ - anti-cloning/anti-counterfeit technology
- › Available in high-yield, high capacity dry/wet inlay rolls

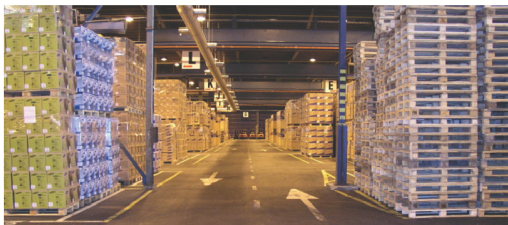
### Product Overview:

Combining proven design from the Squiggle® tag family in a more narrow package, the **Higgs™-9 UHF RFID IC** based “**Squiglette**” antenna design offers compelling performance for narrower high volume general purpose applications.

Applications include (but not limited to):

- Enterprise / warehouse asset management
- Apparel / Retail hand tags
- Shipping labels
- File folders
- Plastic and non-metallic materials

Enhanced memory footprint includes a **48-bit Unique TID for authentication** and **password protected read and write** support capabilities to prevent unauthorized viewing and modification of the tag's data.

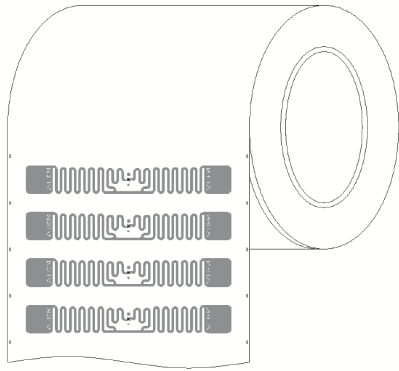


ALN-9930 inlays are **World Tag** compliant, enabling consistent operation across the diverse frequencies of the Americas, Europe, Middle East, Asia, and Africa.

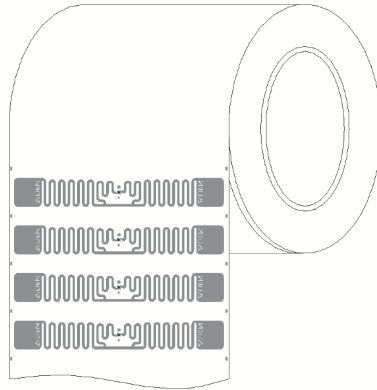


# ALN-9930 Squiglette Inlay

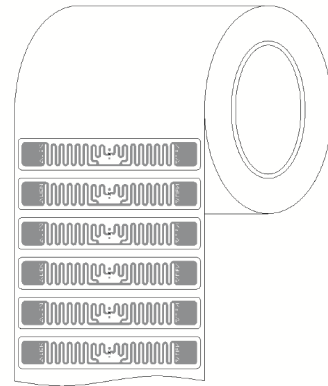
## ALN-9930 Inlay Orientation



**ALN-9930-R**  
(Dry Unslit Roll)



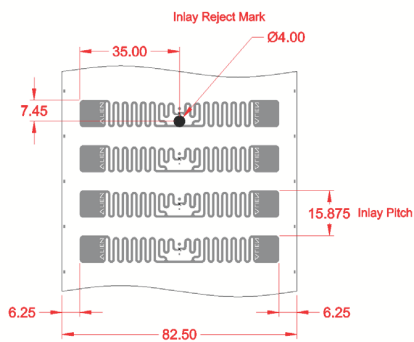
**ALN-9930-SR**  
(Dry Slit Roll)



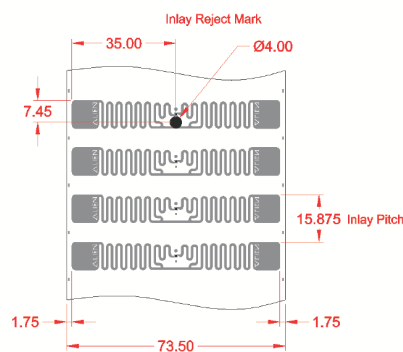
**ALN-9930-WRC / -WRW**  
(Clear / White Wet Inlay)

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

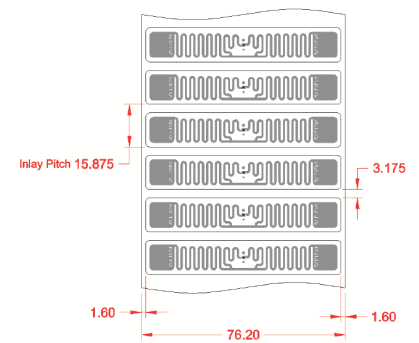
## ALN-9930 Inlay Specification



**ALN-9930-R**  
(Dry Unslit Roll)



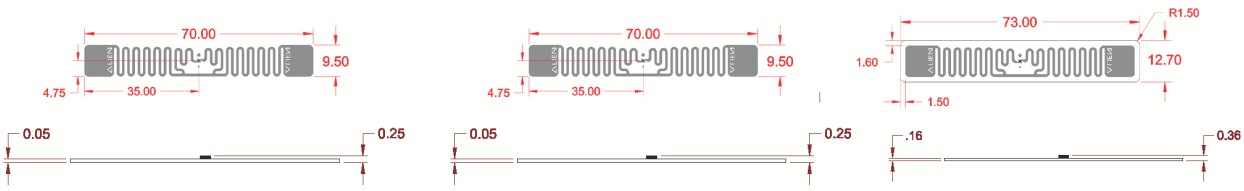
**ALN-9930-SR**  
(Dry Slit Roll)



**ALN-9930-WRC / -WRW**  
(Clear / White Wet Inlay)



### ALN-9930 Inlay General Dimensions



**ALN-9930-R**  
(Dry Unslit Inlay)

**ALN-9930-SR**  
(Dry Slit Inlay)

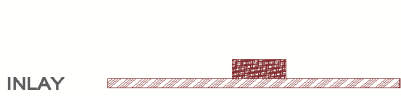
**ALN-9930-WRC / -WRW**  
(Clear / White Wet Inlay)

### ALN-9930 Inlay Stackup

DRY INLAY THICKNESS, ±10%	
OVER ANTENNA	0.06 mm
OVER CHIP	0.24 mm

CLEAR WET INLAY THICKNESS, ±10%	
OVER ANTENNA	0.08 mm
OVER CHIP	0.24 mm

WHITE WET INLAY THICKNESS, ±10%	
OVER ANTENNA	0.16 mm
OVER CHIP	0.32 mm



**ALN-9930-R / -SR**  
(Dry Unslit / Slit Inlay)

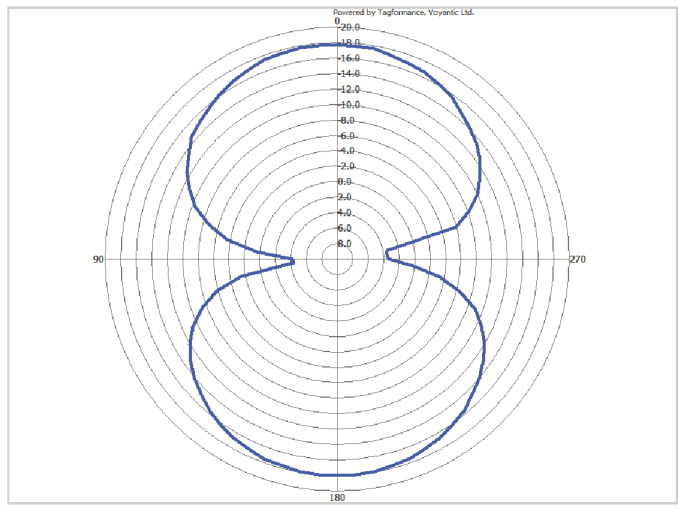


**ALN-9930-WRC**  
(Clear Wet Inlay)

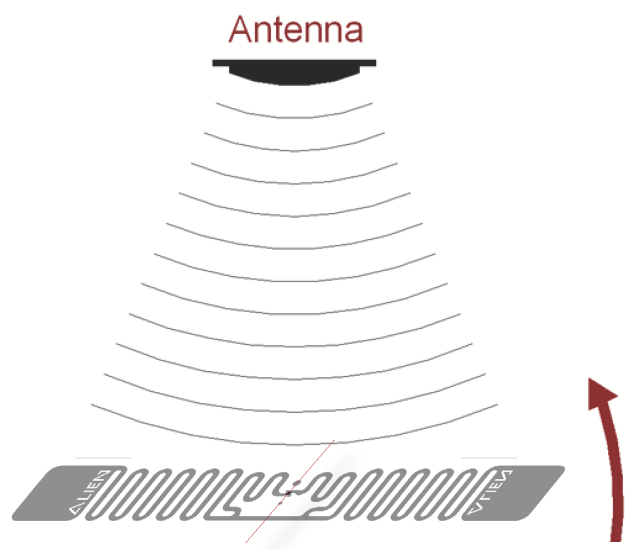


**ALN-9930-WRW**  
(White Wet Inlay)

### ALN-9930 Inlay Angular Sensitivity



Angular Sensitivity  
(Relative Read Range vs. Orientation)



Angular Sensitivity  
Inlay is rotated in the x, y, plane about the z axis

## ALN-9930 Specifications

Dry Inlay	
Antenna Width	2.756" [70mm]
Antenna Length	0.374" [9.5mm]
Web Width (-R)	3.25" [82.5mm]
Web Width (-SR)	2.89" [73.5mm]
Web Pitch	0.625" [15.875mm]
Core Width (-R)	3.25" [82.5mm]
Core Width (-SR)	2.89" [73.5mm]
Core ID	6" [152.4mm]*
Core Material	Fiberboard
Inlays per Roll (-R)	20,500 +/- 500
Inlays per Roll (-SR)	30,500 +/- 500
Maximum Roll OD	< 12" [304.8mm]
Roll Labeling Data	Roll #, Quantity

Wet Inlay	
Inlay Width	2.87" [73mm]
Inlay Length	0.5" [12.7mm]
Web Width	3.0" [76.2mm]
Web Pitch	0.625" [15.875mm]
Core Width	3.0" [76.2mm]
Core ID	6" [152.4mm]*
Core Material	Fiberboard
Inlays per Roll	20,500 Nominal
Maximum Roll OD	< 16" [406.4mm]
Roll Labeling Data	Roll #, Quantity
Clear (-WRC)	PET base without Overlay
White (-WRW)	TT Printable White Film Only
Overlay Adhesive (-WRW)	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

Environmental	
Shelf Life	Dry Inlays: 5 years at +77°F [+25°C] @ 40% RH Wet Inlays: 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	200,000 @ 25°C
RoHs	2002/95/EC (RoHS 1), 2011/65/EU (RoHS 2), 2015/863 (RoHS 10)
REACH	EU 143/2011, EU 125/2012, Annex XIV of EC no. 1907/2006
ESD Limit- HBM / CDM	5.0kV / 1.5kV

RFID	
Protocols Supported	ISO/IEC 18000-6C EPCglobal Class 1 Gen 2
Integrated Circuit	Alien Higgs™-9
Operating Frequency	860-960 MHz
EPC Size	96-496 Bits
User Memory	Up to 688 Bits
TID	32 Bits
Unique TID	48 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.

This product is covered by one or more of the following U.S. patents: 7967204, 7931063, 7866766, 7737825, 7716208, 7716160, 7688206, 7659822, 7619531, 7615479, 7598867, 7580378, 7576656, 7562083, 7561221, 7559486, 7559131, 7554451, 7551141, 7542301, 7542006, 7531218, 7522055, 7508610, 7489248, 7453705, 7425467, 7417306, 7411503, 7385294, 7377445, 7364096, 7353598, 7342490, 7340661, 7321159, 7301458, 7295114, 7289432, 7265675, 7262686, 7260882, 7253735, 7244326, 7218527, 7214569, 7195227, 7183594, 7173228, 7172210, 7170762, 7141175, 7113250, 7101502, 7094444, 7070851, 7065224, 7046328, 6999444, 6988667, 6965361, 6960184, 6950219, 6925157, 6942155, 6933446, 6927005, 6916380, 6786696, 6731553, 6693364, 6683663, 6665044, 6657285, 6623579, 6606247, 6606079, 6590340, 6586338, 6565744, 6555408, 6527904, 6479395, 6468638, 6420266, 6316278, 6291896, 6281038. Other patents pending.

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