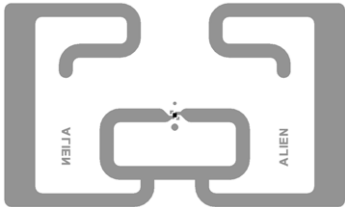




# ALN-9726 SPIDER<sup>TM</sup> 360 INLAY

The Alien Technology® ALN-9726 “Spider-360” is an (in-plane) omni-directional 30x50mm tag for use in general, retail and airline baggage applications. Unlike conventional single dipole tags this inlay does not have a null in the same plane as the tag. It is therefore useful to attach to products and merchandise where end-on tag reads are likely.



## Applications

- Retail/Apparel
- Hang-tags
- Airline baggage
- Shipping
- Joker tags
- Labels
- Document tracking

FEATURE	DESCRIPTION	BENEFIT
Orientation Agnostic	Has an unusual angular sensitivity pattern that enables tag access edge-on through a full 360°.	Can be used in applications where the tag may be completely end-on to the reader antenna i.e. the tag is laid flat and the reader is “looking” at the edge of the tag.
Worldwide frequency.	Designed to have a low turn-on-threshold and high backscatter in all UHF frequencies worldwide.	An excellent tag for use in Europe, China or the US.
Next generation Higgs <sup>TM</sup> 4 features and performance	A mass-market optimized tag with class leading read and write performance. Supports pre-encoded MCS serialization and Alien’s <i>BlastWrite<sup>TM</sup></i>	Rapid programming of serialized tags and excellent read/write performance

## Features:

- › Designed to meet EPCglobal Gen2 (V1.2.0) and ISO/IEC 18000-6C
- › Worldwide operation in the RFID UHF bands (840-960 MHz)
- › 448-Bits of NVRAM Memory
  - 128-EPC Bits
  - 128 User Bits
  - 64 Bit Unique TID
  - 32 Bit Access and 32 bit Kill Passwords
- › Pre-Programmed with a unique, unalterable 64-bit serial number
- › User Memory can be Block Perma-Locked as well as read password protected in 32 Bit Blocks
- › Class leading read and write performance
- › Pre-encoded Multivendor Chip Serialization (MCS)
- › *BlastWrite<sup>TM</sup>* and *QuickWrite<sup>TM</sup>* mass-encoding
- › Dynamic Authentication<sup>TM</sup> - anti-cloning/anti-counterfeit technology
- › Exceptional operating range, up to 11m with appropriate antenna.
- › Available in high-yield, high capacity dry/wet inlay rolls

## Product Overview:

Powered by Alien®’s break-through **Higgs<sup>TM</sup> 4 UHF RFID IC** and **innovative “Spider<sup>TM</sup> 360” antenna design**, the ALN-9726 delivers industry leading EPC Gen 2 performance and reliability for retail and apparel applications where items are tightly packed on shelves and may be read “end-on” (e.g. by a handheld reader). The orientation insensitive behavior of this tag also lends itself to baggage tracking, shipping and document tracking.

With its Higgs-4 core, the “Spider-360” delivers next generation read and write performance, yet is completely **optimized for the highest volume enterprise, retail, and general purpose applications.**

An optimized memory footprint includes a 32-bit TID, a **64-bit Unique TID for authentication** and **next generation serialization** applications, a 128-bit EPC memory bank, 128-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.

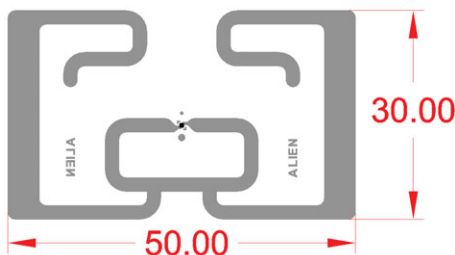
ALN-9726 inlays are World Tag compliant, enabling consistent operation across the diverse frequencies of the Americas, Europe, Middle East, Asia, and Africa.



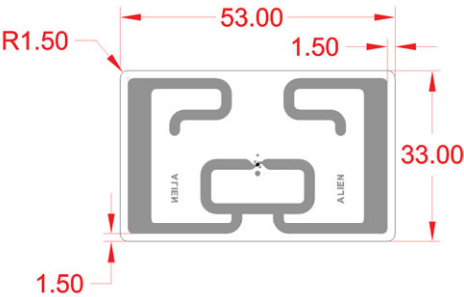
# ALN-9726 Spider™ 360 Inlay

All dimensions in millimeters unless specified otherwise

## ALN-9726 Basic Dimensions



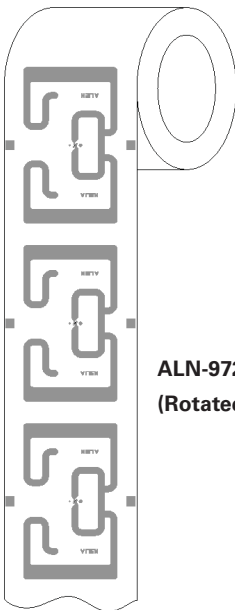
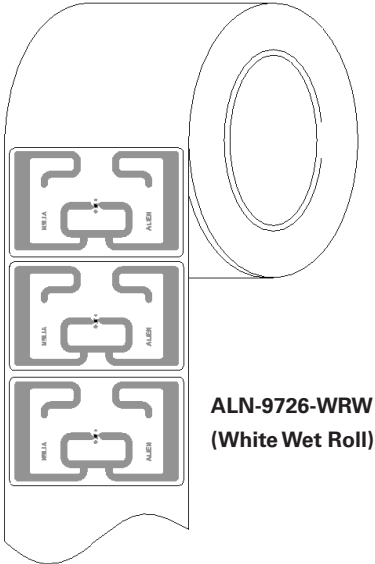
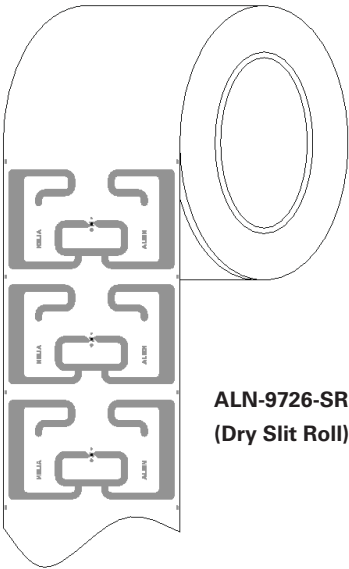
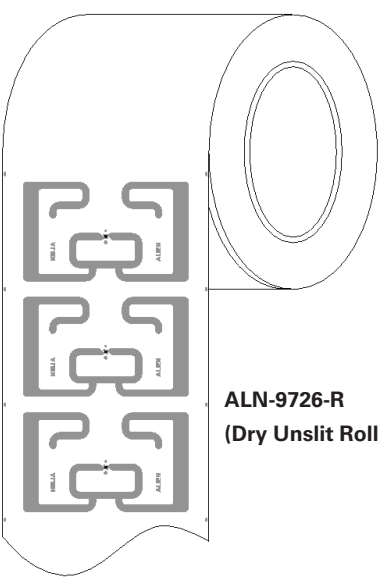
ALN-9726 Dry



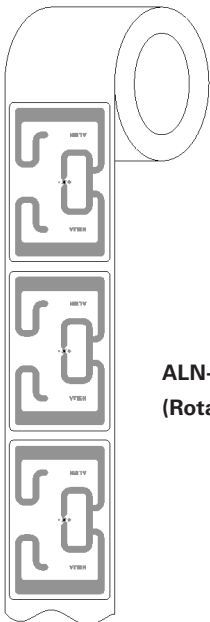
ALN-9726 Wet

## ALN-9726 Inlay Orientation

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



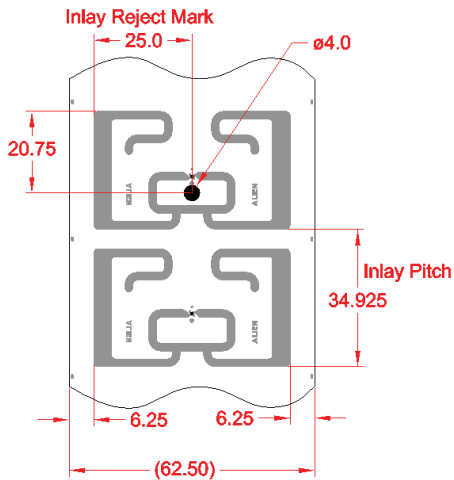
ALN-9726-90R  
(Rotated 90° Dry Unslit Roll)



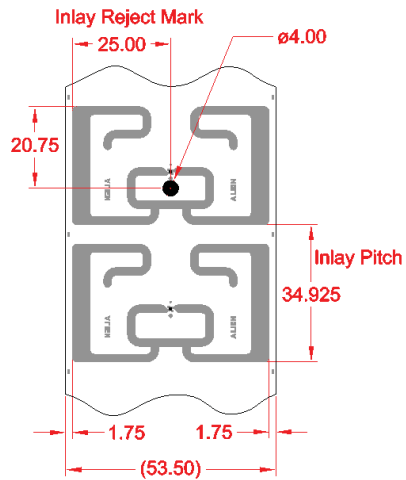
ALN-9726-90WRW  
(Rotated 90° Wet White Roll)



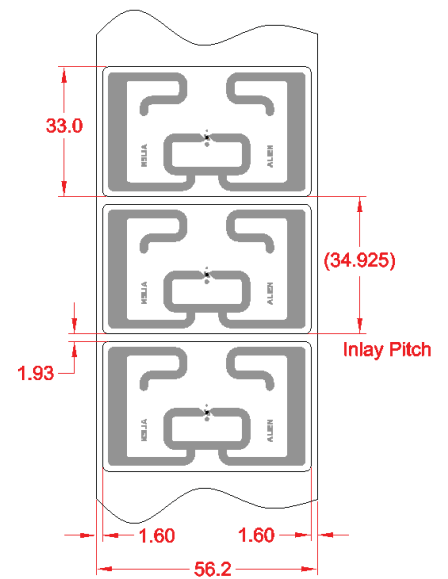
## ALN-9726 Inlay Specification



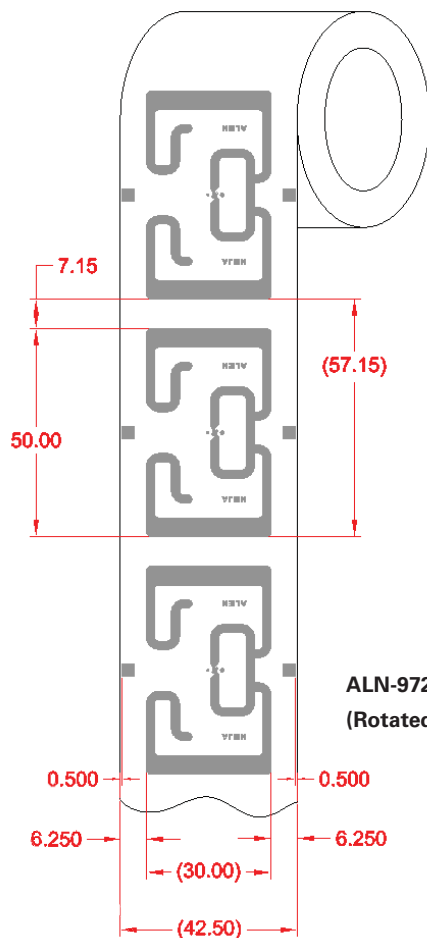
**ALN-9726-R**  
(Dry Unslit Roll)



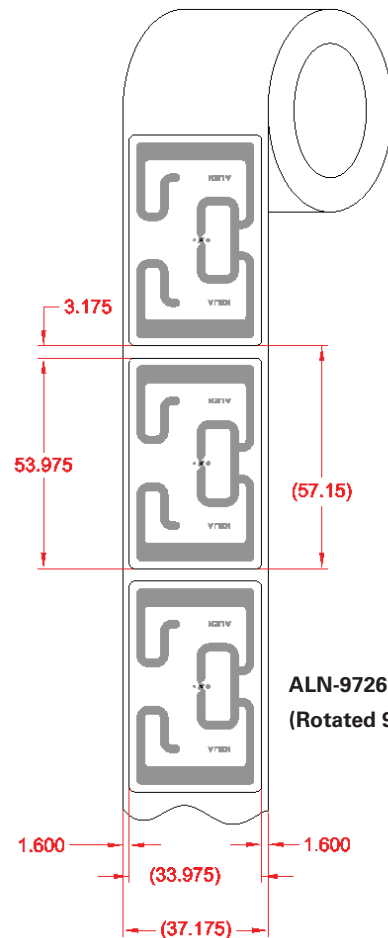
**ALN-9726-SR**  
(Dry Slit Roll)



**ALN-9726-WRW**  
(White Wet Roll)



**ALN-9726-90R**  
(Rotated 90° Dry Unslit Roll)



**ALN-9726-90WRW**  
(Rotated 90° Wet White Roll)



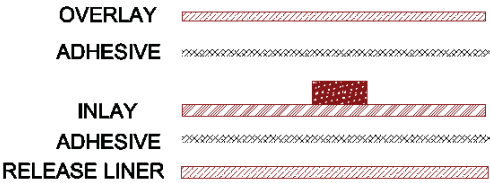
ALN-9726 Inlay Stackup

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

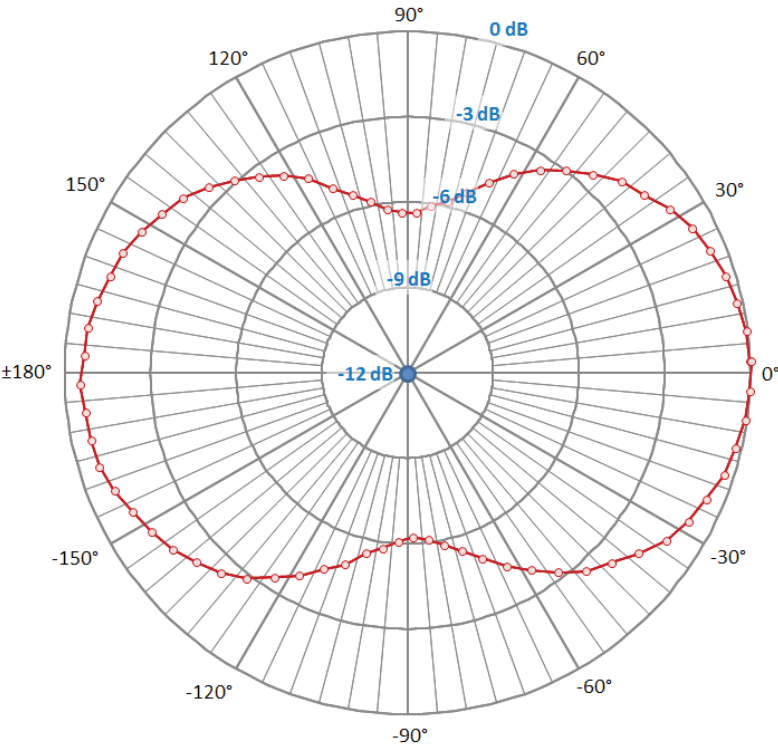


ALN-9726-R  
(Dry Unslit Roll)

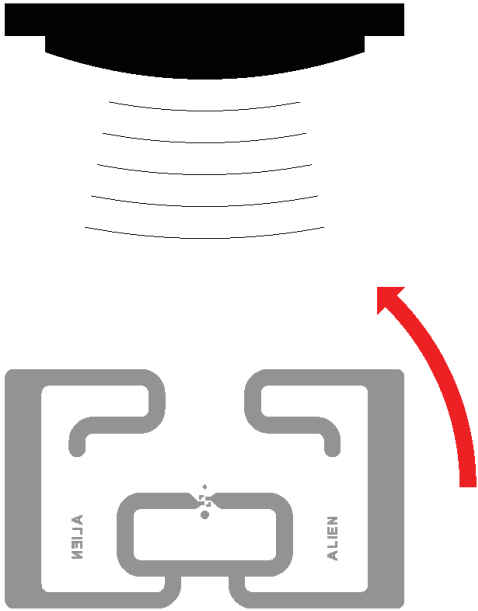


ALN-9726-WRW  
(White Wet Roll)

ALN-9726 Inlay Angular Sensitivity



Angular Sensitivity  
(Relative Read Range vs. Orientation)  
**NOTE: NO NULLS**



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



## ALN-9726 Spider™ 360 Inlay

### ALN-9726 Specifications

Dry Inlay	ALN-9726-R	ALN-9726-SR	ALN-9726-90R-
Antenna Width	1.97" [50mm]		1.18" [30mm]
Antenna Length	1.18" [30mm]		1.97" [50mm]
Web Width	2.46" [62.5mm]	2.11" [53.5mm]	1.67" [42.5mm]
Web Pitch	1.375" [34.925mm]		2.25" [57.15mm]
Core Width	2.46" [62.5mm]	2.11" [53.5mm]	1.67" [42.5mm]
Core ID	6" [152.4mm]*		
Core Material	Fiberboard		
Inlays per Roll	12,500 Nominal	14,000 Nominal	7,500 Nominal
Maximum Roll OD	< 12" [304.8mm]		
Roll Labeling Data	Roll #, Quantity		

Wet Inlay	ALN-9726-WRW	ALN-9726-90WRW
Inlay Width	2.09" [53mm]	1.34" [33.98mm]
Inlay Length	1.30" [33mm]	2.125" [53.98mm]
Web Width	2.21" [56.2mm]	1.46" [37.18mm]
Web Pitch	1.375" [34.925mm]	2.25" [57.15mm]
Core Width	2.21" [56.2mm]	1.46" [37.18mm]
Core ID	6" [152.4mm]*	
Core Material	Fiberboard	
Inlays per Roll	12,500 Nominal	7,500 Nominal
Maximum Roll OD	< 16" [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	

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	ISO/IEC 18000-6C EPCglobal Class 1 Gen 2
Integrated Circuit	Alien Higgs-4
Operating Frequency	840-960 MHz
EPC Size	128 Bits
User Memory	128 Bits
TID	32 Bits
Unique TID	64 Bits
Access Password	32 Bits
Kill Password	32 Bits

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

Copyright © 2014 Alien Technology Corporation. All rights reserved.

Alien, Alien Technology, the Alien Technology logo, Spider, Higgs, Dynamic Authentication, QuickWrite, BlockWrite, 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, 7457705, 7425467, 7417306, 7411503, 7385284, 7377445, 7364084, 7353598, 7342490, 7324061, 7321159, 7301458, 7295114, 7288432, 7265673, 7262886, 7260882, 7253735, 7244326, 7218527, 7214569, 7199527, 7193504, 7173528, 7172910, 7172789, 7141176, 7113250, 7101502, 7080444, 7070851, 7068224, 7046328, 6998644, 6988667, 6985361, 6980184, 6970219, 6952157, 6942155, 6933848, 6927085, 6816380, 6780696, 6731353, 6693384, 6683663, 6665044, 6657289, 6623579, 6606247, 6606079, 6590346, 6586338, 6566744, 6555408, 6527964, 6479395, 6468638, 6420266, 6316278, 6291896, 6281038. Other patents pending.

This product is licensed under patents of Round Rock Research, LLC, for use solely with UHF RFID Readers (such as Alien reader products) that are licensed under an agreement with Round Rock Research, LLC.

Sept 18, 2014



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