



# ALN-9862 Short Inlay (Higgs™-EC)

The Alien Technology® ALN-9862 “Short” RFID inlay is a narrow, high-performance, Higgs™-EC based member of the Squiggle® family and brings all the Higgs™-EC advantages to highly-effective “Short” Inlay.



## Applications

- Volume Retail/Apparel
- Enterprise Wide Asset Management
- Warehouse Management
- Tracking Challenging Materials and Objects

| FEATURE  | DESCRIPTION  | BENEFIT   |
|--|--|---|
| Next generation Higgs™-EC read/write performance in the highly-efficient “Short” Squiggle family tag | One of Aliens best performing general-purpose tags boosted by Higgs™-EC performance and features.  | Highly efficient smaller form-factor tag, still robust, proven and reliable.  |
| Optimized 512 bit memory footprint   | Optimized for both high-performance and high-volume applications   | Designed to drive down the cost-of-ownership while increasing efficiencies of RFID solutions in large enterprises                               |
| New error correcting Sentinel™ Memory and best-In-class reliability.                                 | A unique and robust error correcting memory architecture fixes single bit errors and flags dual bit errors. 200,000 write cycles, two times that of competitors. | Provides customers reassurance the stored data is protected and data loss/corruption minimized. More robust memory for high-write applications. |

## Features:

- › Designed to meet EPCglobal Gen2 (V1.2.0) and ISO/IEC 18000-6C
- › Worldwide operation in the RFID UHF bands (860-960 MHz)
- › 512-Bits of NVRAM Memory
  - 128-EPC Bits
  - 128 User Bits
  - 48 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
- › Low power operation for both read and program
- › Dynamic Authentication™ - anti-cloning/anti-counterfeit technology
- › Exceptional operating range, up to 13m with appropriate antenna.
- › Available in high-yield, high capacity dry/wet inlay rolls

## Product Overview:

Powered by Alien®’s volume focused **Higgs™-EC UHF RFID IC** and **innovative Short antenna design**, the ALN-9862 delivers industry leading EPC Gen 2 read and write performance in a narrower width than it’s bigger brother, the Squiggle®.

ALN-9862 inlays are *World Tag* compliant, enabling consistent operation across the diverse frequencies of the Americas, Europe, Middle East, Asia, and Africa.

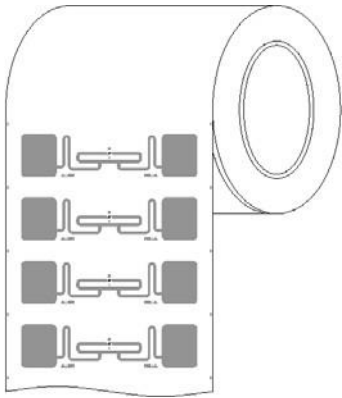
With its Higgs™-EC core, the Short delivers next generation performance and a rich feature set, yet is completely **optimized for the highest volume enterprise, retail, and apparel applications.**

An optimized memory footprint includes a 32-bit TID, a **48-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.

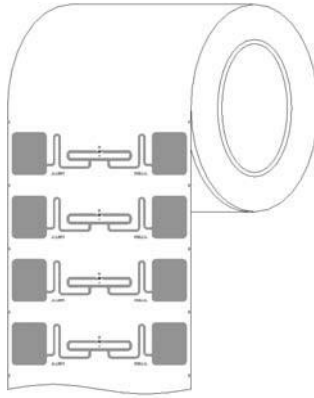
Typical applications for the Short include, but are not limited to, corrugate cases, pallet placard labels, apparel hang tags, shipping labels, asset management, file folder labels, and application on plastics.



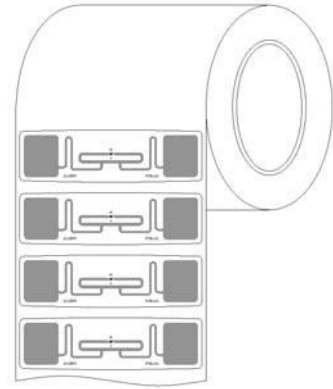
### ALN-9862 Inlay Orientation



**ALN-9862-R**  
(Dry Unslit Roll)



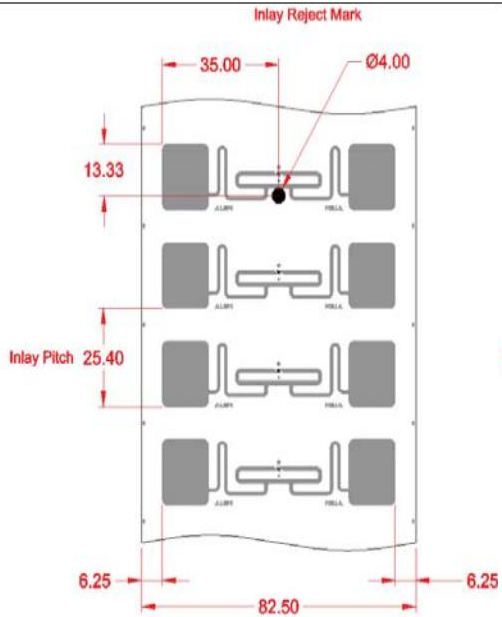
**ALN-9862-SR**  
(Dry Slit Roll)



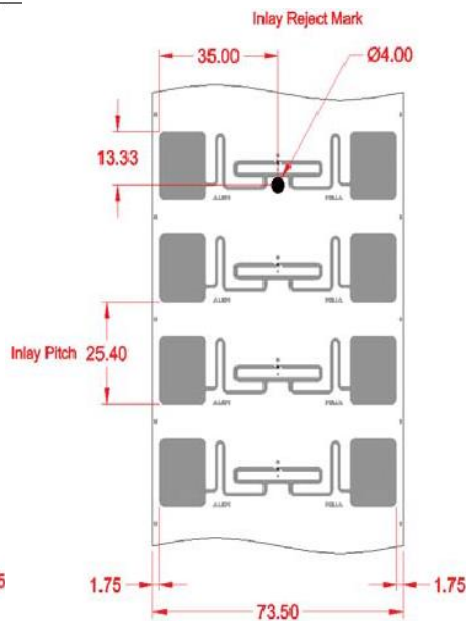
**ALN-9862-WRW / WRC**  
(White / Clear Wet Inlay)

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

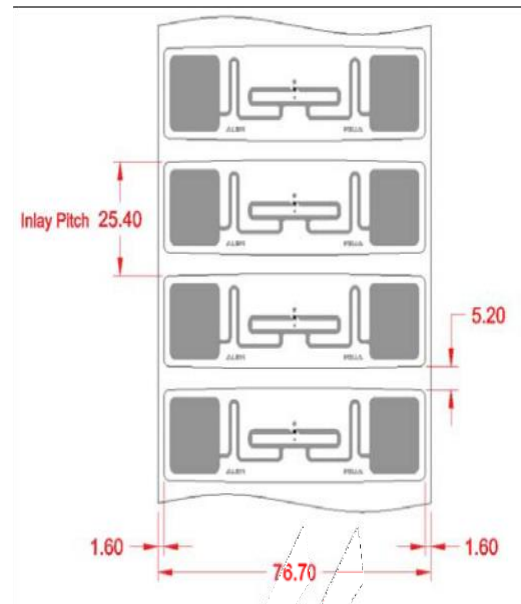
### ALN-9862 Inlay Specification



**ALN-9862-R**  
(Dry Unslit Roll)



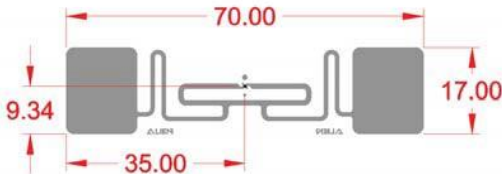
**ALN-9862-SR**  
(Dry Slit Roll)



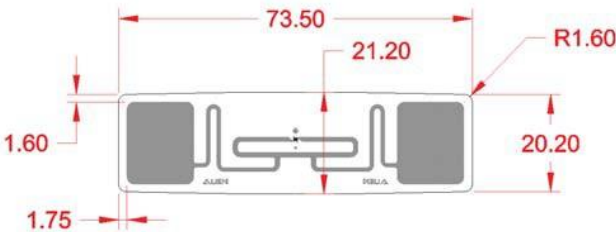
**ALN-9862-WRW / WRC**  
(White / Clear Wet Inlay)



**ALN-9862 Inlay General Dimensions**



**ALN-9862-R / SR**  
(Dry Unslit / Slit Inlay)



**ALN-9862-WRW / WRC**  
(White / Clear Wet Inlay)

**ALN-9862 Inlay Stackup**

| DRY INLAY THICKNESS ±10% |        |
|--------------------------|--------|
| Over Antenna             | 0.06mm |
| Over Chip                | 0.24mm |

| CLEAR WET INLAY THICKNESS ±10% |        |
|--------------------------------|--------|
| Over Antenna                   | 0.08mm |
| Over Chip                      | 0.24mm |

| WHITE WET INLAY THICKNESS ±10% |        |
|--------------------------------|--------|
| Over Antenna                   | 0.16mm |
| Over Chip                      | 0.32mm |

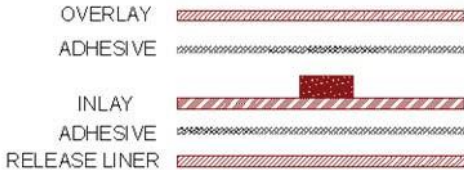
INLAY



**ALN-9862-R / SR**  
(Dry Unslit / Slit Inlay)

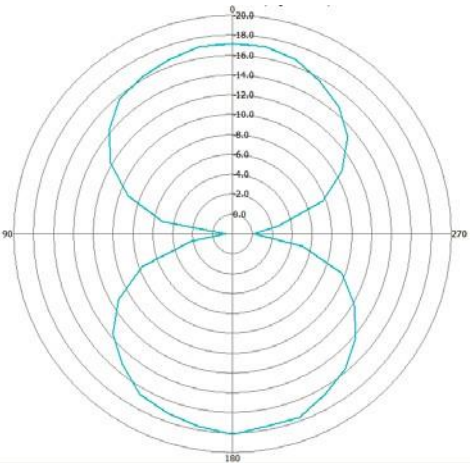


**ALN-9862-WRC**  
(Clear Wet Inlay)



**ALN-9862-WRW**  
(White Wet Inlay)

**ALN-9862 Inlay Angular Sensitivity**



**Angular Sensitivity**  
(Relative Read Range vs. Orientation)

Antenna



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



## ALN-9862 Specifications

### Dry Inlay

|                       |                   |
|-----------------------|-------------------|
| Antenna Width         | 2.756" [70mm]     |
| Antenna Length        | 0.669" [17mm]     |
| Web Width (-R)        | 3.25" [82.5mm]    |
| Web Width (-SR)       | 2.89" [73.5mm]    |
| Web Pitch             | 1.0" [25.4mm]     |
| 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)  | 12,500 Nominal    |
| Inlays per Roll (-SR) | 30,000 Nominal    |
| Maximum Roll OD (-R)  | < 12" [304.8mm]   |
| Maximum Roll OD (-SR) | < 16" [406.4.8mm] |
| Roll Labeling Data    | Roll #, Quantity  |

### Wet Inlay

|                                  |                                    |
|----------------------------------|------------------------------------|
| Inlay Width                      | 2.89" [73.5mm]                     |
| Inlay Length                     | 0.795" [21.2mm]                    |
| Web Width                        | 3.02" [76.7mm]                     |
| Web Pitch                        | 1.0" [25.4mm]                      |
| Core Width                       | 2.874" [73.0mm]                    |
| Core ID                          | 6" [152.4mm]*                      |
| Core Material                    | Fiberboard                         |
| Inlays per Roll                  | 12,500 Nominal                     |
| Maximum Roll OD                  | < 16" [406.4mm]                    |
| Roll Labeling Data               | Roll #, Quantity                   |
| Overlay                          | TT Printable White Film            |
| 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           | Dry Inlays: 5 years at +77°F [+25°C] @ 40% RH<br>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]<br>20% to 90% RH<br>Non-condensing                             |
| Operating Limits     | -40°F to +158°F [-40°C to +70°C]<br>20% to 90% RH<br>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),<br>2011/65/EU (RoHS 2),<br>2015/863 (RoHS 10)                             |
| REACH                | EU 143/2011, EU 125/2012,<br>Annex XIV of EC no.<br>1907/2006                                  |
| ESD Limit- HBM / CDM | 5.0kV / 1.5kV  |

### RFID

|                     |   |
|---------------------|---|
| Protocols Supported | ISO/IEC 18000-6C<br>EPCglobal Class 1 Gen 2 |
| Integrated Circuit  | Alien Higgs™-EC                             |
| Operating Frequency | 860–960 MHz                                 |
| EPC Size            | 128 Bits                                    |
| User Memory         | 128 Bits                                    |
| TID                 | 32 Bits                                     |
| Unique TID          | 48 Bits                                     |
| Access Password     | 32 Bits                                     |
| Kill Password       | 32 Bits                                     |

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

November 17, 2017

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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, 7868766, 7737825, 7716208, 7716160, 7688206, 7659822, 7619531, 7615479, 7598867, 7580378, 7576656, 7562083, 7561221, 7559486, 7559131, 7554451, 7551141, 7542301, 7542008, 7512118, 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, 7172528, 7172510, 7172049, 7141176, 7113250, 7101502, 7080444, 7070851, 7068224, 7046328, 6999644, 6988667, 6985361, 6980184, 6970219, 6952157, 6942155, 6933848, 6927085, 6816380, 6780696, 6731355, 6693384, 6683663, 6665044, 6657289, 6623539, 6606247, 6606079, 6590346, 6586338, 6567444, 655408, 6527964, 6479395, 6468638, 6420266, 6316278, 6291896, 6281038. Other patents pending.

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For more information, visit:  
[www.rfidcanada.com](http://www.rfidcanada.com) Email:

[info@rfidcanada.com](mailto:info@rfidcanada.com)

+1 905-513-8919