



ALN-9640 SQUIGGLE INLAY

The Alien Technology® ALN-9640 Squiggle® is a high-performance general-purpose RFID inlay for use in a wide variety of applications

Applications

- Corrugate cases
- Pallet cards
- Apparel hang tags
- Baggage tags
- Asset management
- File folder labels
- Shipping labels



| FEATURE | DESCRIPTION | BENEFIT |
|---|---|--------------------------------------|
| One of the most widely-used general purpose tags | Well-proven design for a broad range of world-wide applications | Robust, proven, and reliable |
| One of the best performing general-purpose tags on the market | Optimized for high performance in all world regions | Trusted performance |
| Designed to work well in challenging di-electric environments | A very robust general-purpose tag | Reliable in challenging environments |

Features:

- › Designed to meet EPCglobal Gen2 (V1.2.0) and ISO/IEC 18000-6C
- › 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:

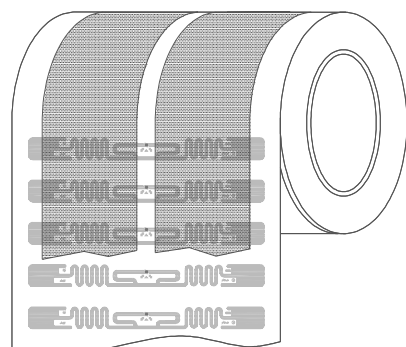
Powered by Alien®'s break-through **Higgs™3 UHF RFID IC** and innovative **Squiggle** antenna design, the ALN-9640 delivers industry leading EPC Gen 2 performance and reliability at competitive prices.

ALN-9640 inlays are *World Tag* compliant, enabling consistent operation across the diverse frequencies of the Americas, Europe, Middle East, Asia, and Africa.

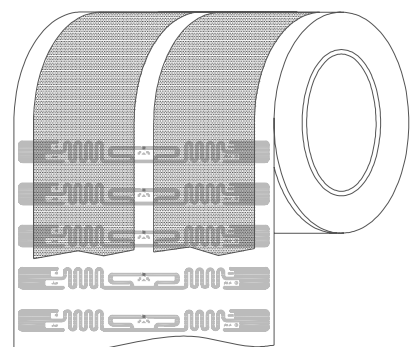
With its Higgs-3 core, the Squiggle delivers unprecedented performance and a rich feature set including a 32-bit TID, a **64-bit Unique TID for authentication and serialization applications**, an **extensible EPC memory bank, 512-bits of user memory** for distributed data applications, and **password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

Typical applications for the Squiggle include, but are not limited to, corrugate cases, pallet placards, apparel hang tags, baggage tags, shipping labels, asset management, and file folder labels.

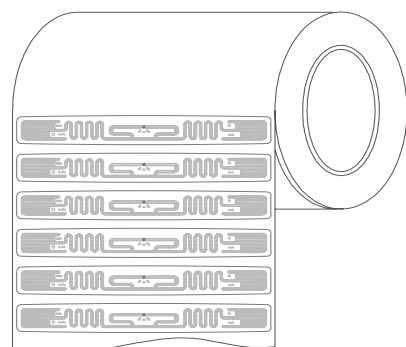
ALN-9640 Inlay Orientation



ALN-9640-FRA
(Dry Unslit Roll)



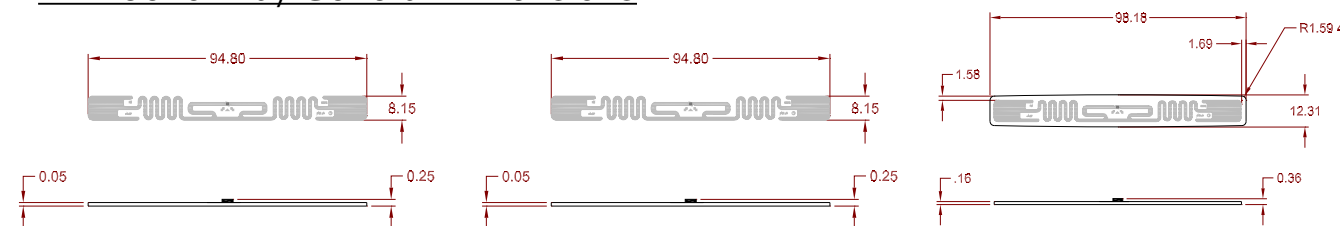
ALN-9640-FSRA
(Dry Slit Roll)



ALN-9640-FWRCA / -FWRWA
(Clear / White Wet Roll)

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

ALN-9640 Inlay General Dimensions



ALN-9640-FRA
(Dry Unslit Inlay)

ALN-9640-FSRA
(Dry Slit Inlay)

ALN-9640-FWRCA / -FWRWA
(Clear / White Wet Inlay)

ALN-9640 Inlay Stackup

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

| CLEAR WET INLAY THICKNESS, ±10% | |
|---------------------------------|---------|
| OVER ANTENNA | 0.08 mm |
| OVER CHIP | 0.28 mm |

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

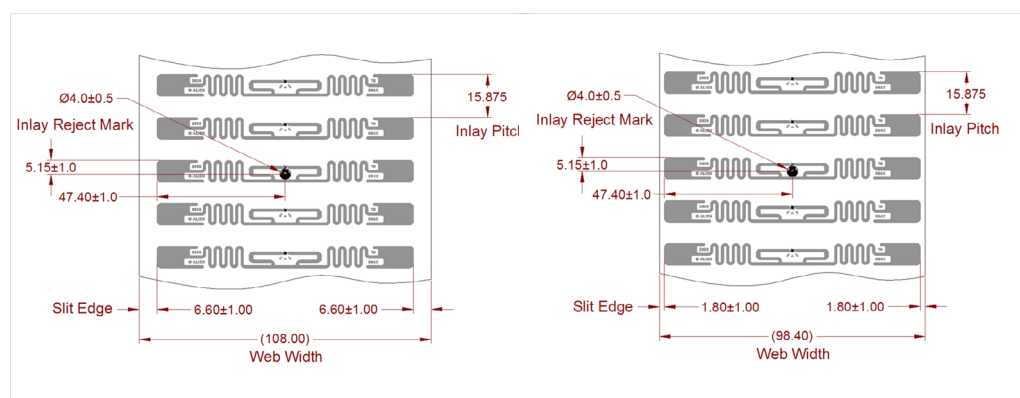


ALN-9640-FRA / -FSRA
(Dry Unslit / Slit Inlay)

ALN-9640-FWRCA
(Clear Wet Inlay)

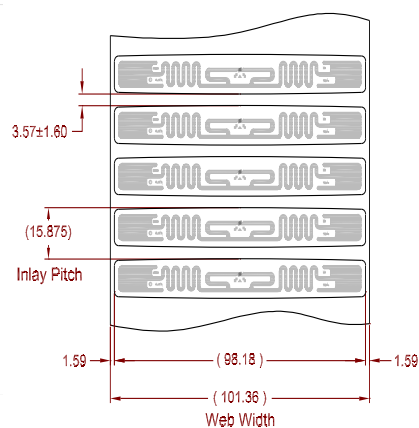
ALN-9640-FWRWA
(White Wet Inlay)

ALN-9640 Inlay Specification



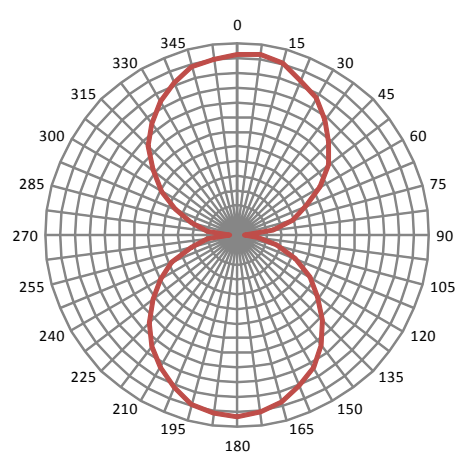
ALN-9640-FRA
(Dry Unslit Roll)

ALN-9640-FSRA
(Dry Slit Roll)

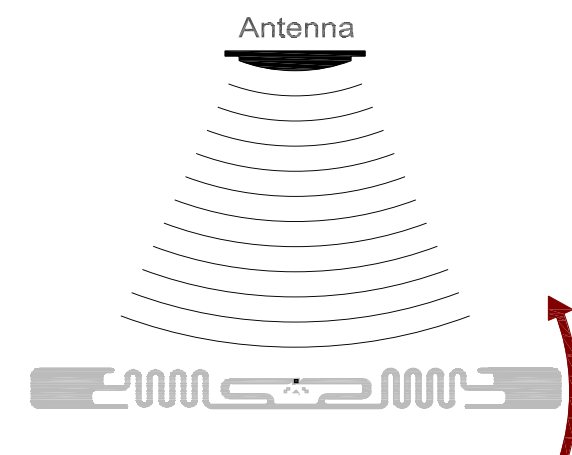


ALN-9640-FWRCA / -FWRWA
(Clear / White Wet Inlay)

ALN-9640 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-9640 Specifications

Dry Inlay

| | |
|--------------------|-------------------|
| Antenna Width | 3.732" [94.8mm] |
| Antenna Length | 0.319" [8.1mm] |
| Web Width (-FRA) | 4.252" [108.0mm] |
| Web Width (-FSRA) | 3.874" [98.4mm] |
| Web Pitch | 0.625" [15.875mm] |
| Core Width (-FRA) | 4.252" [108.0mm] |
| Core Width (-FSRA) | 3.874" [98.4mm] |
| Core ID | 6" [152.4mm]* |
| Core Material | Fiberboard |
| Interleaf Material | Paper |
| Interleaf Width | 1.5" [38.1mm] |
| Inlays per Roll | 20,000 Nominal |
| Maximum Roll OD | < 12" [304.8mm] |
| Roll Labeling Data | Roll #, Quantity |

Wet Inlay

| | |
|----------------------------------|------------------------------------|
| Inlay Width | 3.866" [98.2mm] |
| Inlay Length | 0.484" [12.3mm] |
| Web Width | 3.992" [101.4mm] |
| Web Pitch | 0.625" [15.875mm] |
| Core Width | 4.752" [120.7mm] |
| Core ID | 6" [152.4mm]* |
| Core Material | Fiberboard |
| Inlays per Roll | 20,000 Nominal |
| Maximum Roll OD | < 16" [406.4mm] |
| Roll Labeling Data | Roll #, Quantity |
| White (-FWRWA) | TT Printable White Film Overlay |
| Overlay Adhesive (-FWRWA) | 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 -13°F to 122°F [-25°C to +50°C] 20% to 90% RH Non-condensing |
| Storage Limits | -40°F to +158°F [-40°C to +70°C] 20% to 90% RH Non-condensing |
| Operating Limits | > 1.97" [50mm] |
| Bend Diameter | < 5N/mm ² |
| Pressure | Per ASTM D5276 |
| Drop Resistance | 100,000 @ 25°C |
| Write Cycles | 2002/95/EC, 2005/618/EC, 2011/65/EU Compliant |
| RoHs | 1907/2006/EC Compliant (SVHC and ECHA) |
| REACH | ESD Limit- HBM / CDM 5.0kV / 1.5kV |

RFID

| | |
|-----------------------|---|
| Protocols Supported | 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 |

* Shipped with 6" to 3" plastic core adapter

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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, 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, 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, 6623599, 6606247, 6606079, 6590346, 6586338, 6566744, 6555408, 6527964, 6479395, 6468638, 6420266, 6316278, 6291896, 6281038. Other patents pending.

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