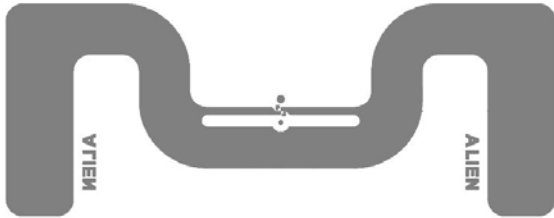


## “BAT” BATTERY INLAY

The Alien Technology® ALN-9770 “Bat” RFID inlay is a specialized tag designed for high-performance when applied to automotive batteries and other challenging metal/plastic/fluid containers.



### Applications

- Automotive batteries
- Plastic containers
- Fluid filled objects
- Metal filled objects

FEATURE	DESCRIPTION	BENEFIT
Performance tuned for operating on large fluid/metal filled plastic containers	Highest performance for automotive batteries and other similar challenging containers	Tags plastic objects containing fluid and metal
Next generation Higgs™ 4 features and performance	A mass-market optimized tag with class leading read and write performance. Supports pre-encoded MCS serialization and Aliens <i>BlastWrite</i> ™	Rapid programming of serialized tags and excellent read/write performance

### Features:

- › Designed to meet EPCglobal Gen2 (V 1.2.0) 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*™ and *QuickWrite*™ mass-encoding
- › Dynamic Authentication™ - 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™ 4 UHF RFID IC** and **innovative “Bat” antenna design**, the ALN-9770 delivers industry leading EPC Gen 2 performance and reliability in a specialty tag uniquely focused on effectively tagging automotive batteries.

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

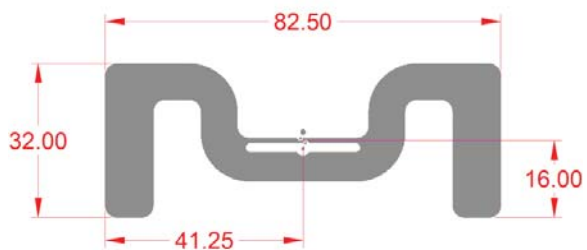
An optimized memory footprint includes a 32-bit TID, a **64-bit Unique TID for authentication** and **next generation serialization** applications, a 128-bit EPC memory bank, 128-bits of user memory for distributed data applications, and **password protected read and write** support capabilities to prevent unauthorized viewing and modification of the tag’s data.

ALN-9770 inlays are World Tag compliant, enabling consistent operation across the diverse frequencies of the Americas, Europe, Middle East, Asia, and Africa.

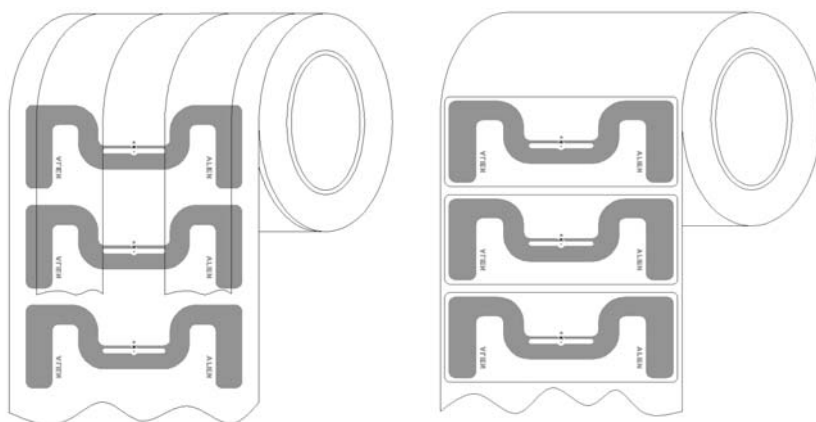


# ALN-9770 Bat Inlay

## ALN-9770 Antenna Size



## ALN-9770 Inlay Orientation

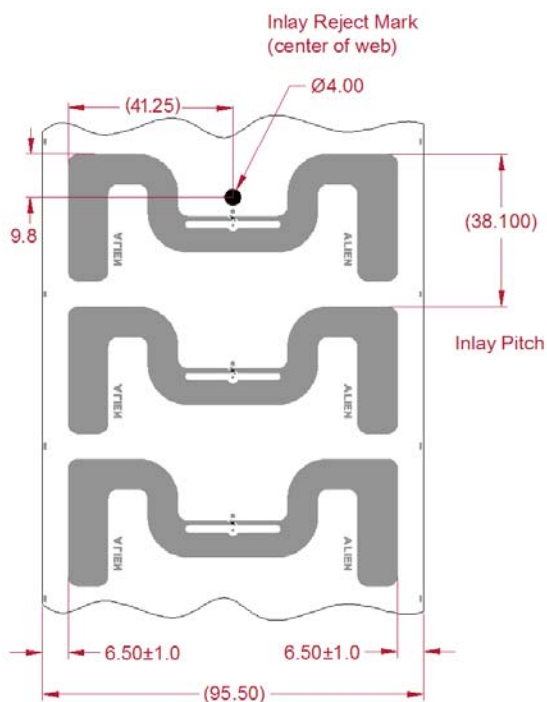


**ALN-9770-R**  
(Dry Unslit Roll)

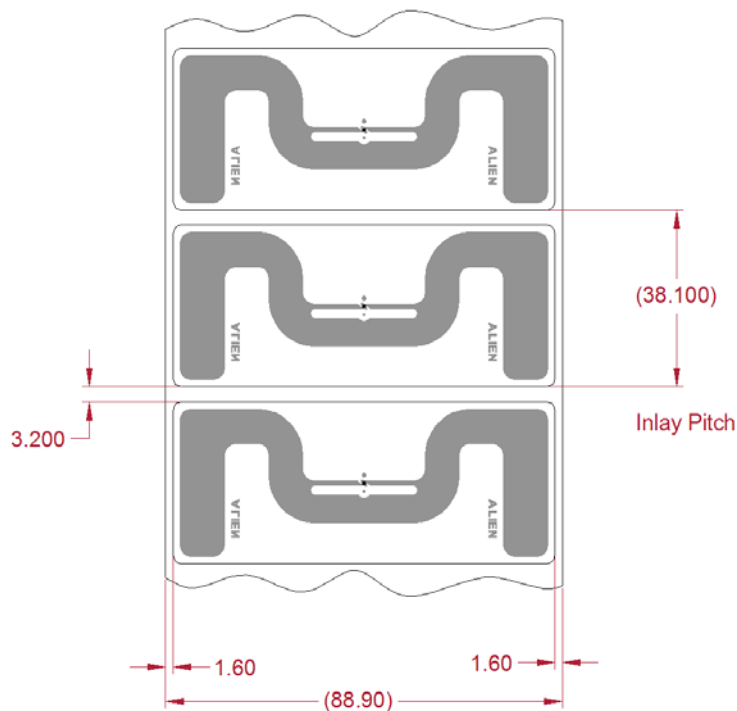
**ALN-9770-WRW**  
(White Wet Inlay)

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

## ALN-9770 Inlay Specification



**ALN-9770-R**  
(Dry Unslit Roll)



**ALN-9770-WRW**  
(White Wet Inlay)



# ALN-9770 Bat Inlay

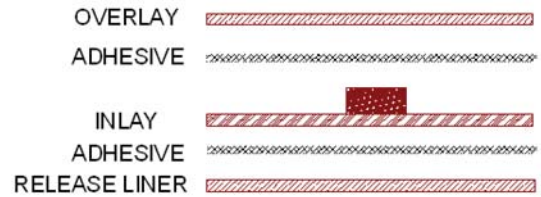
## ALN-9770 Inlay Stackup

DRY INLAY THICKNESS, $\pm 10\%$	
OVER ANTENNA	0.05 mm
OVER CHIP	0.25 mm



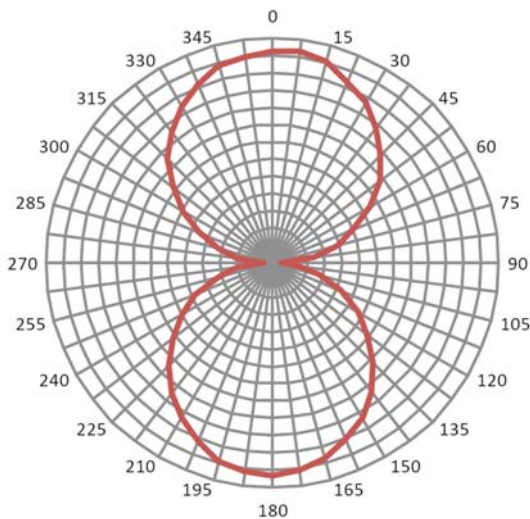
**ALN-9770-R**  
(Dry Unslit Inlay)

WHITE WET INLAY THICKNESS, $\pm 10\%$	
OVER ANTENNA	0.16 mm
OVER CHIP	0.36 mm

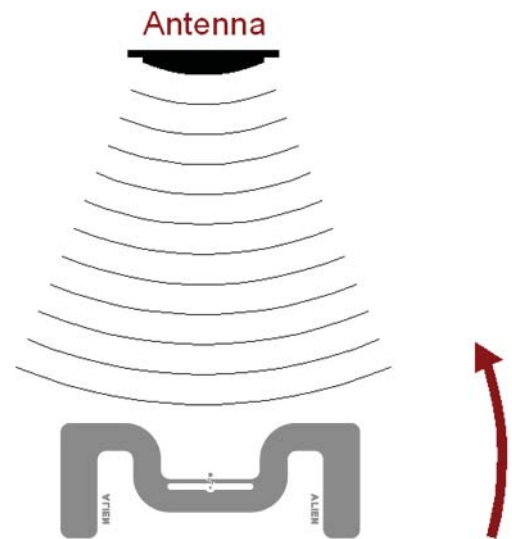


**ALN-9770-WRW**  
(White Wet Inlay)

## ALN-9770 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-9770 Bat Inlay

### ALN-9770 Specifications

#### Dry Inlay

Antenna Width	3.25" [82.5mm]
Antenna Length	1.25" [32.0mm]
Web Width	3.76" [95.5mm]
Web Pitch	1.5" [38.1mm]
Core Width	3.76" [95.5mm]
Core ID	6" [152.4mm]*
Core Material	Fiberboard
Inlays per Roll	7,500 Nominal
Maximum Roll OD	< 12" [304.8mm]
Roll Labeling Data	Roll #, Quantity

#### Wet Inlay

Inlay Width	3.37" [85.7mm]
Inlay Length	1.37" [34.9mm]
Web Width	3.5" [88.9mm]
Web Pitch	1.5" [38.1mm]
Core Width	3.5" [88.9mm]
Core ID	6" [152.4mm]*
Core Material	Fiberboard
Inlays per Roll	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	> +36.5°F [+2°C]
Adhesive Service Temperature	-4°F to +199.4°F [-20°C to +93°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 and 2005/618/EC Compliant
REACH	1907/2006/EC Compliant (SVHC and ECHA)
ESD – 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

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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, 6623579, 6606247, 6606079, 6590346, 6586338, 6566744, 6555408, 6527964, 6479395, 6468638, 6420266, 6316278, 6291896, 6281038. Other patents pending.

21st November 2012



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