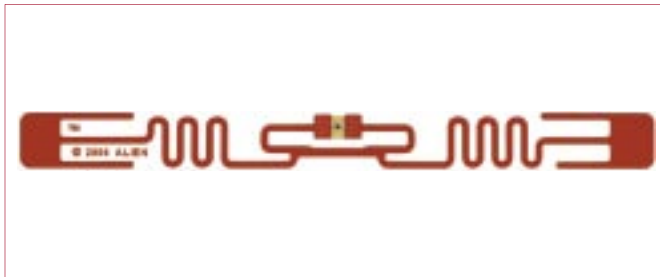




# ALN-9540 Squiggle® Inlay

The Alien Technology® ALN-9540 Squiggle® Inlays are general purpose RFID inlays optimized for use in pallet and case tagging applications.

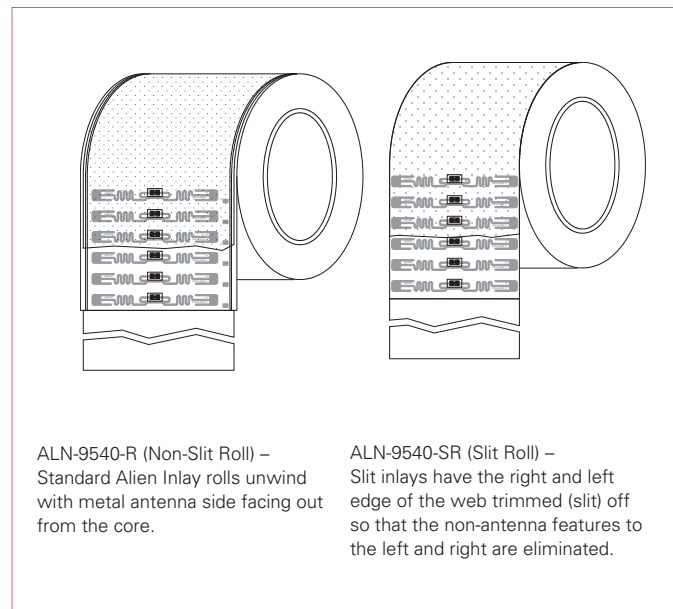


## Features

- › EPC Class 1 Gen 2 / ISO 18000-6C
- › Exceptional range
- › High-speed programming for seamless manufacturing integration
- › World Tag operates at global frequencies 860-960 MHz
- › Available in high-yield, high-capacity rolls for high-volume converting processes
- › Alien H2 IC

Based on Alien®'s break-through Alien H2 UHF RFID IC and innovative Squiggle antenna design, the ALN-9540 delivers industry leading EPC Gen 2 range and reliability at competitive prices. ALN-9450 inlays are also World Tag compliant, enabling inlays that operate consistently across the diverse frequencies of the Americas, Europe, Middle East, Asia, and Africa.

The ALN-9540 is the most versatile member of Alien's family of Alien H2 powered UHF RFID inlays. Other members include: the 2 x 2 (ALN-9534), an omni-directional inlay for baggage and apparel; the M (ALN-9554) for high-performance on plastics; and the Squiggle-SQ (ALN-9529) for small item inlays. All members of the family are manufactured using Alien's patented Fluidic Self Assembly (FSA™) process, which delivers high inlay volumes at low unit costs.



ALN-9540-R (Non-Slit Roll) – Standard Alien Inlay rolls unwind with metal antenna side facing out from the core.

ALN-9540-SR (Slit Roll) – Slit inlays have the right and left edge of the web trimmed (slit) off so that the non-antenna features to the left and right are eliminated.

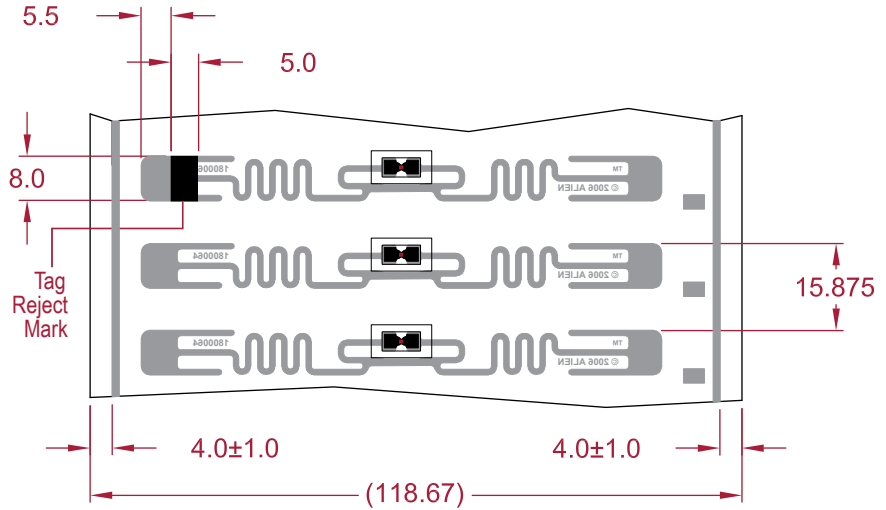


## ALN-9540 Squiggle® Inlay

### ALN-9540 Dry Inlay Specifications

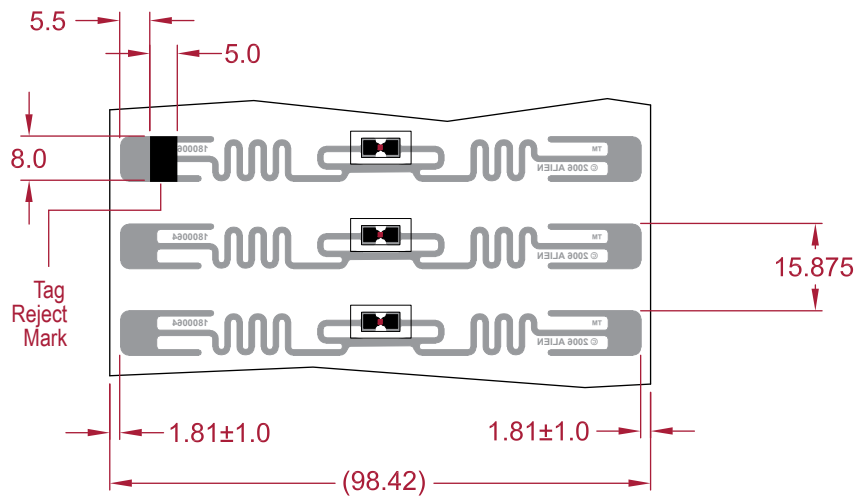
#### ALN-9540-R (Non-Slit Roll)

- › Inlay Pitch  
15.875 mm (0.625")
- › Web Width  
118.7 mm (4.672")
- › Inlay Reject Mark Size  
5.0 x 8.0 mm



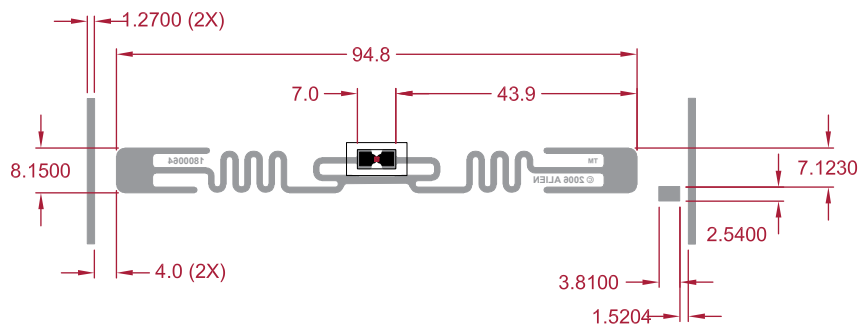
#### ALN-9540-SR (Slit Roll)

- › Inlay Pitch  
15.875 mm (0.625")
- › Web Width  
118.7 mm (4.672")
- › Slit Edge  
1.81 ± 1.0 mm  
from antenna ends
- › Inlay Reject Mark Size  
5.0 x 8.0 mm



### ALN-9540 Inlay General Dimensions

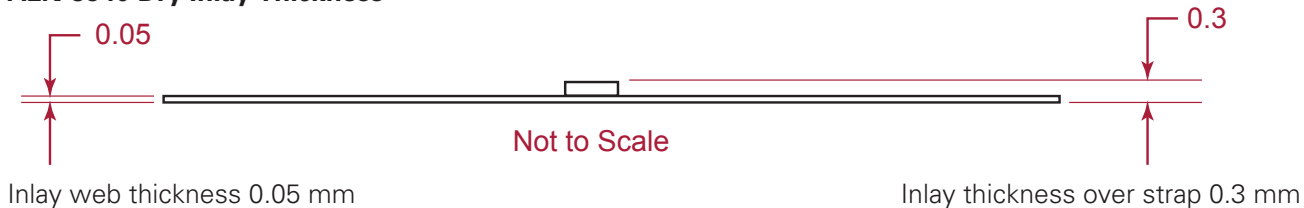
- › Antenna Dimensions  
94.8 x 8.15 mm  
(3.732 x 0.315")
- › Edge features not present in  
Slit Roll





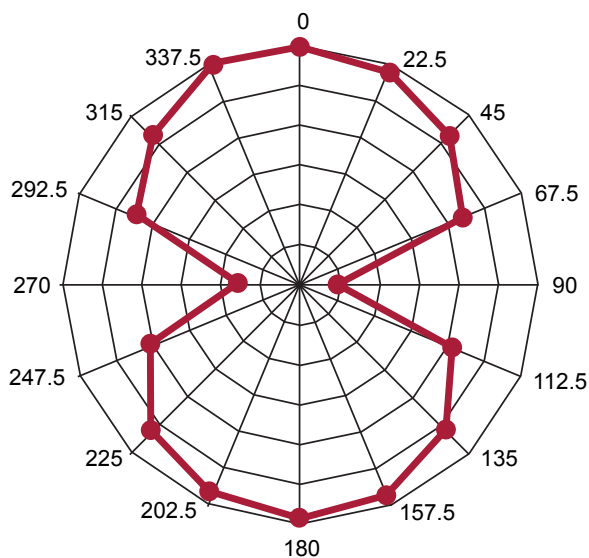
# ALN-9540 Squiggle® Inlay

## ALN-9540 Dry Inlay Thickness

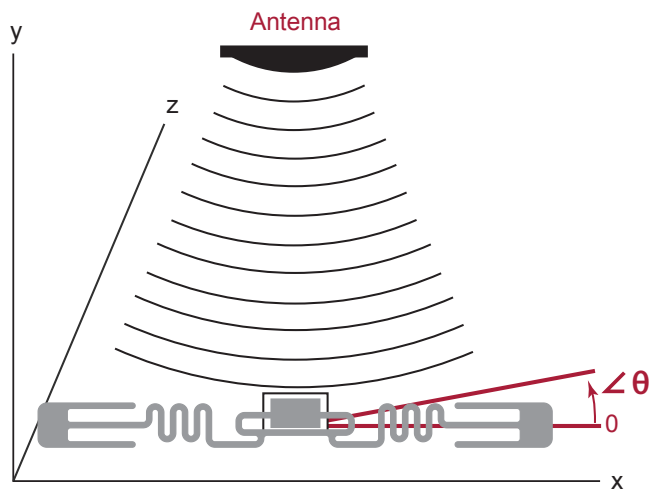


## ALN-9540 Inlay Sensitivity & Orientation

World Tag Angular Sensitivity (dB vs. Angle Position)

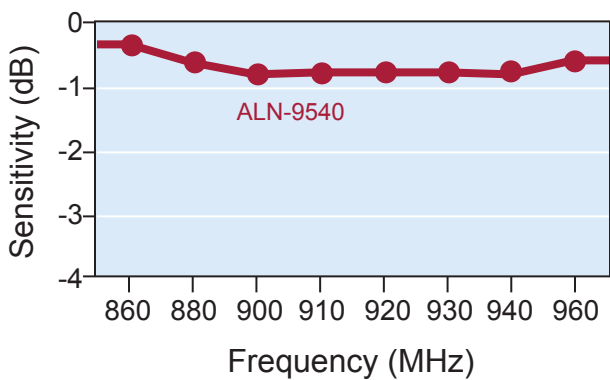


World Tag Relative Orientation  
Inlay is rotated in the x, y, plane about the z axis

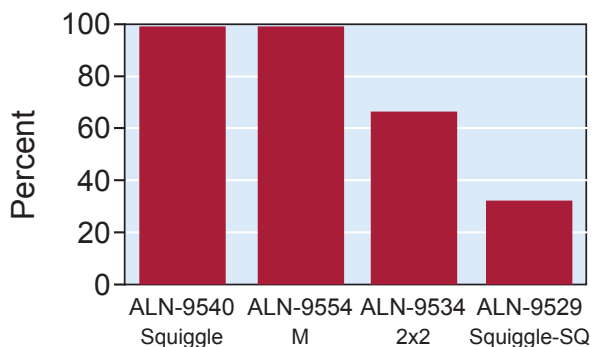


## On-Product Performance Information

Frequency Response in Air  
Suitable for Global Use



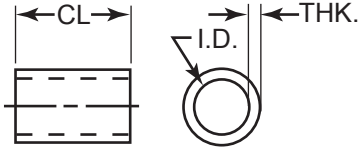
Relative Range Comparison





## ALN-9540 Squiggle® Inlay

### ALN-9540 Roll Format/Finishing



Slit Roll Core Dimensions	Non-Slit Roll Core Dimensions
CL = 98.42 (3.87") 6	CL = 127 (5.00") 6
THK = 6.35 ± .3 (.25 ± .01")	THK = 6.35 ± .3 (.25 ± .01")
I.D. = 152.4 <sup>+3.8</sup> <sub>-1.2</sub> (6.00 <sup>+.15</sup> <sub>-.05</sub> ")	I.D. = 152.4 <sup>+3.8</sup> <sub>-1.2</sub> (6.00 <sup>+.15</sup> <sub>-.05</sub> ")
Material: chipboard or Alien approved material	

### Roll Finishing

Leader Length	4,000 +/- 400mm
Interleaf Material	Parchment
Number of Inlay Units Per Roll	19,500 +/- 10%
Roll Labeling Data	Roll Number, Quantity
Roll Leader & Interleaf Width	114.3 +/- 1.5 mm

### Environmental Specifications

Shelf Life	2 Years
Recommended Storage Conditions	-25C to +50C 20% to 90% RH Non-condensing
Drop Resistance	Per ASTM D5276
RoHs	2002/95/EC Compliant

### RF Protocol

ISO/IEC 18000-6C	
EPC Class 1 Gen 2	
EPC Memory Size	96 Bits
Access Control	32 Bits
Kill Code	32 Bits
Programming Cycles	10,000 Write Cycles

### Product Specifications

Worldwide Operating Frequencies	860-960 MHz (US, Europe, Asia, & Japan)
Minimum Inlay Antenna Size	8.15 x 94.8 mm

### ESD & Inlay Handling

Human Body Model	1.5 kV minimum
Charged Device Mode	1.5 kV minimum

Note: Inlays are sensitive to ESD. Observe standard practices to keep environmental static charge to a minimum.

