

# The wave<sup>®</sup> Antenna Radiator

*The wave is uniquely Accurate, Versatile, and Efficient  
Very thin at .01 inches and lightweight at a maximum of  
3 ounces; the most flexible RFID antenna available!*



## Product Overview

The patented wave<sup>®</sup> Antenna Radiator is the first and only antenna specifically designed to be used for item-level RFID. This unique design was developed by the World-Class Ohio State University Electro Science Laboratory under the direction of newave's Chief Technology Officer. This one-of-a-kind design reads all RFID tags in the targeted zone while not reading extraneous tags outside the zone.

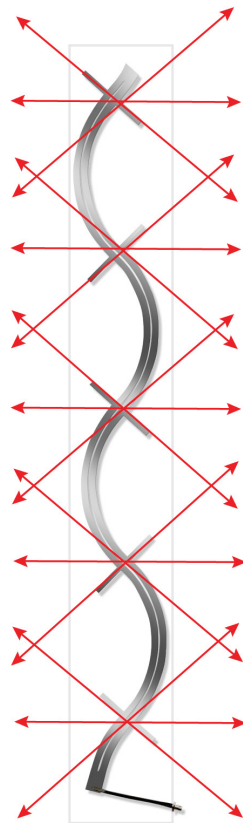
The wave Antenna Radiator provides the highest amount of flexibility in designing an RFID system. The radiator is very thin at .01 inches which allows incorporating into RFID storage units, cabinets, portals, walls, and many other applications.

Patch antennas radiate a single beam in a given direction, the newave antenna is designed to uniformly illuminate a volume of space. When installed in pairs the antenna radiators complement each other and provide spatial, direction-of-arrival, and polarization diversities throughout the volume.

Our wave Antennas are unique in covering all three tag orientations within a user defined zone size from 3 to 10 cubic feet. Lightweight, these antennas come in 3, 5, and 7 foot lengths in FCC or ETSI frequencies.

The wave Antenna offers unparalleled RFID application versatility for a variety of applications including but not limited to:

- Item level shelves and displays
- Softgoods and Hardlines Retail applications
- Warehouse and Transportation
- RFID applications
- Embedded antennas
- Kiosks



*The wave radiating element.*

## Key Features and Benefits of the wave Antenna Radiator

### Superior Accuracy

- RFID implementations can achieve 99%+ read rates for stationary tags, e.g., shelf inventory or RTLS applications.
- Polarization diversity. Our antennas are designed to cover all polarizations in the covered zone. We cover all three polarizations at once.

### Highly Versatile:

- Low profile-easy to integrate and install, e.g., walls, portals, ceilings, etc.
- newave antennas can be used on retail and warehouse shelves, open areas and/or warehouse doorways (portals), and integrated into lift trucks and transporting vehicles.

### Optimal Efficiency:

- As many as sixteen antennas can run off a single reader for cost optimization.
- The wave Antenna works well with all Gen 2 UHF readers in an open architecture design. Users are free to choose any Gen2 reader.
- Specifically designed to work in high fading and multipath environments to provide superior UHF zone coverage.

*Patch antennas perform similar to a flashlight. A conical pattern that is far reaching.*



*The wave Antenna, like a fluorescent light, creates a cylindrical pattern that illuminates the entire antenna length and a volume of the surrounding space as defined by the user. The wave antennas can be adjusted to a user defined zone size from 3 to 10 cubic feet through the reader's power setting.*



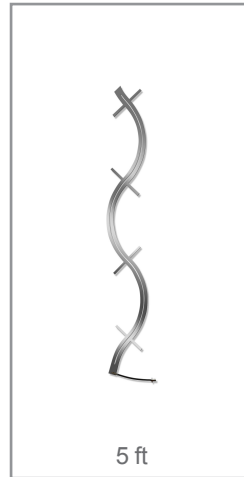
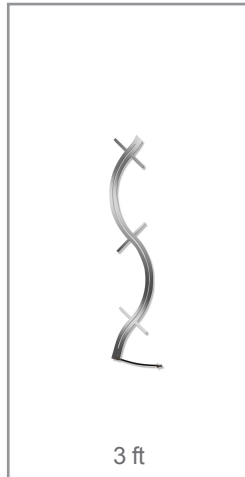
**The first and only antenna designed specifically for item-level RFID**

**newave sensorSolutions Innovation Center**

Phone: 888.677.7343 | 9011 Heritage Drive | Plain City, Ohio 43064  
www.newaverfid.com | sales@newaverfid.com

**newave<sup>®</sup>**  
superior  
rfid accuracy

# Specifications



**Band**  
902~928 MHz  
ETSI 865~868 MHz



**NSS Wave-EL3**  
**NSS Wave-EL3-E**

**Product Codes to Order**  
**NSS Wave-EL5**  
**NSS Wave-EL5-E**

**NSS Wave-EL7**  
**NSS Wave-EL7-E**

Dimensions	33 x 6 x .01 inches (840 x 160 x .33 mm)	56 x 6 x .01 inches (1429 x 160 x .33 mm)	83 x 6 x .01 inches (2096 x 160 x .33 mm)
	Europe	914 x 160 x .33 mm (36 x 160 x .01 inches)	1542 x 160 x .33 mm (61 x 6 x .01 inches)
Weight	1.5 ounces/42.7 grams	2 ounces/59.3 grams	3 ounces/86.9 grams
Temp Range for Indoor Environment	-4°F ~ 140°F (-20°C ~ 65°C)	-4°F ~ 140°F (-20°C ~ 65°C)	-4°F ~ 140°F (-20°C ~ 65°C)
Frequency Range	865~868/902~928 MHz	865~868/902~928 MHz	865~868/902~928 MHz
User Defined Zone Coverage Range	2x2x2 feet to 10x10x10 feet	2x2x2 feet to 10x10x10 feet	2x2x2 feet to 10x10x10 feet
Gain	3.0 dBi	4.5 dBi	5.5 dBi
Impedance	50 Ohms	50 Ohms	50 Ohms
VSWR	Less than 1.7:1	Less than 1.7:1	Less than 1.7:1
Polarization	Multi-Linear	Multi-Linear	Multi-Linear
Maximum input power	10 Watts	10 Watts	10 Watts
H-Plane Beamwidth	360 degrees	360 degrees	360 degrees
E-Plane Beamwidth	360 degrees	360 degrees	360 degrees
Connector	TNC Reverse Polarity	TNC Reverse Polarity	TNC Reverse Polarity
Supplied Cable and Length	None	None	None
Optional Cables and Optional Adapters	As required	As required	As required

## About newave®\*sensorSolutions, llc:

The newave® sensorSolutions company is a leading provider of optimized solutions for today's most challenging item-level Radio Frequency Identification (RFID) needs. The company develops industry-standard RFID technology based on the patented wave® antenna that sets a new standard for accuracy, versatility and efficiency. The wave is the first and only antenna specifically designed to be used for item-level RFID solutions. newave's core technology was developed by the world-class Electro Science Laboratory (ESL) of The Ohio State University, a pioneer in RF research and development, under the direction of newave's Chief Technical Officer (CTO) and is produced in partnership with Wistron NeWeb (WNC), a Taiwan-based global leader in antenna manufacturing. The newave management team leverages a strong technical and international business heritage in a variety of industries for accomplishing its mission of providing optimized solutions to today's greatest RFID challenges. For more information, please visit us at [www.newaverfid.com](http://www.newaverfid.com).

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## newave sensorSolutions Innovation Center

Phone: 888.677.7343 | 9011 Heritage Drive | Plain City, Ohio 43064  
[www.newaverfid.com](http://www.newaverfid.com) | [sales@newaverfid.com](mailto:sales@newaverfid.com)

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