

# The newwave wave® Antenna

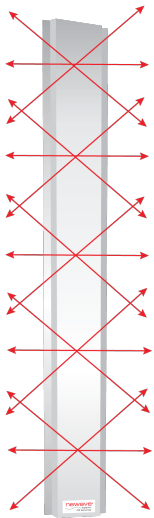
The wave is uniquely Accurate, Versatile, and Efficient



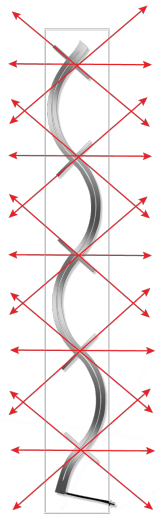
## Product Overview

The patented wave® Antenna 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 newwave'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 embodies a radically new concept in UHF RFID antenna design. Unlike a patch antenna that radiates a single beam in a given direction, the newwave antenna is designed to uniformly illuminate a volume of space. When installed in pairs the antennas 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 in it's rugged ABS container.



The wave radiating element.

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

## Key Features and Benefits of the wave Antenna

### 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.
- newwave 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.*



# Specifications



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



**NSS wave-N3**  
**NSS wave-N3-E**

**Product Codes to Order**  
**NSS wave-N5**  
**NSS wave-N5-E**

**NSS wave-N7**  
**NSS wave-N7-E**

Dimensions	N3 N3-E	36 x 9 x 1.5 inches (915 x 229 x 38mm) 1.0m x 229 x 38mm (39.5 x 9 x 1.5 inches)	61 x 9 x 1.5 inches (1.55m x 229 x 38mm) 1.67m x 229 x 38mm (65% <sup>3</sup> x 9 x 1.5 inches)	87 x 9 x 1.5 inches (2.2m x 229 x 38mm) 2.20m x 229 x38mm (86% <sup>3</sup> x 9 x 1.5 inches)
Weight		1.7 lbs. (0.8 kg)	3 lbs. (1.4 kg)	4 lbs. (1.8 kg)
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

Protection Certified: IEC 60529 IP5X Dust Test ( IP x5 with IP 65 reader)  
 IEC 60529 IPX5 Water Jets Test

## 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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