Avery Dennison RFID Solutions

The world's largest UHF RFID Partner

Quick Guide.

AVERY DENNISON

Change
The Game.

With RFID Smart Solutions

Application areas

▸ Item-level retail: cosmetics, jewelry, accessories
▸ Fresh food
▸ Healthcare: Medical and pharmaceutical
▸ Transportation: Automotive and aviation
▸ Industrial logistics and manufacturing
▸ Brand protection and product authentication
▸ Supply chain, inventory and logistics
▸ Contactless cards and tickets

Why choose Avery Dennison RFID?

As the world's largest UHF RFID partner, we provide solutions for multiple industries, from retail apparel and food to healthcare and aviation. Our integrated global RFID approach is proven to increase inventory accuracy, improve supply chain agility and enhance visibility across all channels.

Sustainability is at the core of everything we do, from innovation and product design to development and production. Our inlays now feature our patented SmartFace™ Technology, which is one of the most sustainable solutions on the market, reducing your brand's environmental impact.

Dedicated customer support and service

Avery Dennison RFID solutions bring you all of the benefits that come with our best-in-class customer support, technical advice and service levels.

Key features

▸ Field-proven inlay products
▸ Advanced research and testing capabilities
▸ Excellent technical support
▸ Partnership with a deep understanding on what makes your application successful

RFID Offering

For converters

Avery Dennison and RFID

Unlike traditional track-and-trace technologies, RFID assigns a unique identifier for each individually tagged item and requires no direct line of sight.

RFID revolutionizes the retail environment by bringing inventory accuracy up to 99%, increasing the speed of everyday processes and reducing problems with inventory, stock shortages and waste.

Avery Dennison is the world's largest UHF RFID partner, with more than 800 patents and applications worldwide and more than 10 years of experience in the industry. Avery Dennison's base of experience ensures its RFID solutions are well-thought and executed.

We offer a range of solutions for converters that is tailored to meet end-user demands, and deliver our knowledge and expertise on our own or in partnerships, to provide the best possible results and returns.

Value Generating Benefits

Manufacturing Excellence
▸ Global manufacturing capabilities
▸ Experience with RFID solutions for multiple industries
▸ Strong commercial and technical relationships

Innovation & Quality Assurance
▸ Flexibility with customization and new product development
▸ Strong focus on innovation, with over 800 patents in the industry
▸ Field tested quality with partners

Customer Service
▸ Free sampling support also for machine run trials

Support Excellence
▸ Team of RFID experts to support you in any challenge from A to Z
▸ Technology, Conversion and Application workshops

With reliable read rates from all directions, and global performance, AD-550m5 is making the tracking and locating of baggage far easier and more efficient than traditional barcode technology. Bags can be scanned with no line of sight, even while moving.

AD-550m5

Aviation

The true benefits of RFID for baggage tracking

‣ Through a higher accuracy rate on first read, better transfer bag performance
‣ When applied to a BHS, through-put improves, which leverages existing infrastructure
‣ Shorter aircraft load times (up to half the time compared to barcode), a **MAJOR IMPACT TO "ON-TIME" PERFORMANCE**
‣ The RFID chip holds ID data that can allow processing to continue if messaging (BSM/BPM) is disrupted or lost
‣ Bag Tags are read more efficiently...**UP TO 8% MORE ACCURATE** on first read than current methods
‣ Lower installation and maintenance costs
‣ RFID Readers are easier to use and less expensive to procure and deploy

Improved customer service is also a major competitive benefit

Highest sensitivity across a broad range of fresh food applications in chilled environments

AD-229r6

Food

The benefits of RFID for food

‣ Increased food traceability and supply chain visibility
  (e.g. US Food Safety Modernisation Act (FSMA) and UK Food Safety Act)
‣ Improve control throughout the global supply chain and ensure food recalls can be handled swiftly and efficiently
‣ Increased transparency and information on sourcing and the need to build customer trust in the food industry
‣ The need to improve retail productivity and reduce food waste (shrink) and improve fresh foods margins

20%
Food waste
reduction*

50%
Labor cost
reduction*

* Based on internal pilots and retailer feedback

Optimized for maximum performance on glass and windshields, friendly near metal and liquid;
The optimal solution for your automobile tracking needs, wich require ultra-high memory requirements

New for 2018 - High memory option available
AD-663u7XM and AD-662uDNA

AD-661r6/-P | AD-662uDNA | AD-663u7XM

Automotive

RFID in automotive

This heavily regulated industry is using RFID tagging to increase supply chain visibility and track components more effectively. Sustainable inlay production processes can also help automakers improve compliance, and tagging can help automakers reduce freight costs and improve Work-In-Progress (WIP) efficiencies.

- **A competitive edge** - to meet global market demands for continuous cost reductions and performance improvements
- **Sustainability** - to reduce production-related waste and improve efficiency
- **Transparency** - 99% Inventory Accuracy
- **Chip capacity** - Extended User and EPC Memory Size
- **Security** - Advanced Encryption and Authentication Features
- **Performance** - Excellent performance on glass and near liquids

Fits on existing packaging without compromising aesthetics

Our range of smaller and versatile RFID inlays have the capability of being applied at a micro-level. These field-tested solutions are proven to increase inventory accuracy, reduce shrinkage, and aid in loss prevention.

AD-160u7

Beauty

Increasing efficiency with RFID in beauty

Avery Dennison RFID is committed to delivering tagging solutions for beauty to increase item level inventory accuracy, improve loss prevention and provide greater opportunities for customer engagement and brand loyalty.

▸ Achieve 99%+ inventory accuracy with RFID compared to 65% without *
▸ RFID efficiently and accurately manages complex SKU and color variations and minimizes losses
▸ Increase in omnichannel sales enabled by "pick to the last unit"
▸ Exposes all product for sale through
▸ Identifies areas, products of high loss for greater observance
▸ A wide selection of inlays that fit packaging aesthetics

*Auburn University

Healthcare

AD-172u7's small size is ideal for prescription bottles, glass vials, and other small to medium sized medical packages

AD-172u7

Increasing efficiency and safety in healthcare

Asset tracking and management

- ‣ Asset management
- ‣ Loss prevention
- ‣ Patient file tracking
- ‣ RTLS
- ‣ IT asset management

Healthcare supply chain management

- ‣ Track and trace/UDI
- ‣ Distribution management
- ‣ Consigned inventory management
- ‣ Anti-counterfeiting
- ‣ Drug supply chain security

Track and reduce/ eliminate drug expiration issues

RFID helps locate the drugs for efficient replacement.

Fierce Health Finance - Cardinal Health - 2015

Provide real time visibility for the right drug at the right time

40% of drugs are purchased off contract or rushed, resulting in higher cost for the hospital

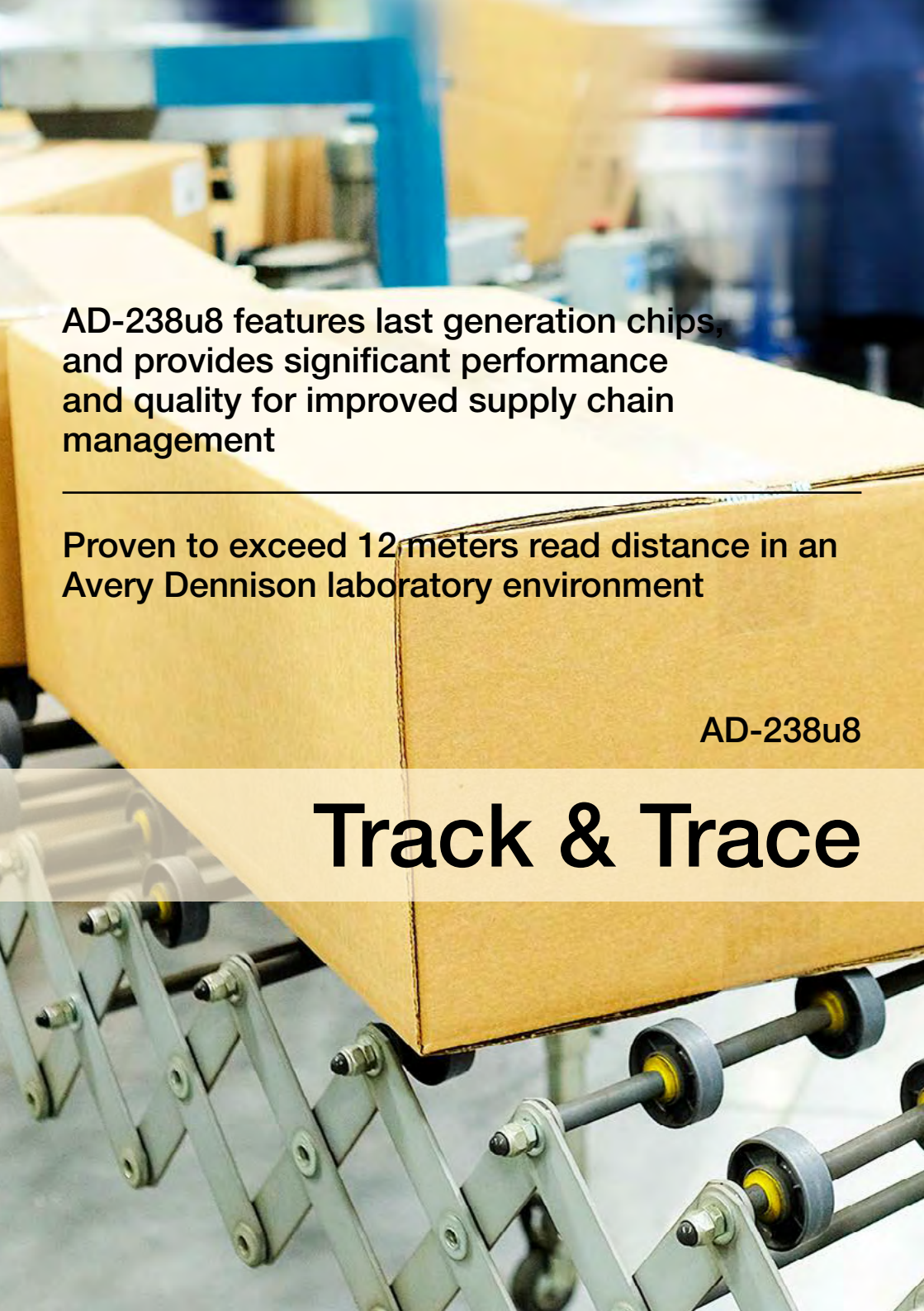Wrong medication assigned to the patient/procedure ~$$$$$

Hospital and healthcare management - 2015

RFID saves time and time is money

Pharmacy time setting up the drugs for procedures and manual counting can save up to $4/ per unit - spend more time with their patients ~$1.2B

Healthcare finance - 2014

AD-238u8 features last generation chips, and provides significant performance and quality for improved supply chain management

Proven to exceed 12 meters read distance in an Avery Dennison laboratory environment

AD-238u8

Track & Trace

The benefits of RFID for track & trace

Tracking inventory throughout the global supply chain is a struggle many companies are experiencing today. More frequently it is influencing their decision to adopt RFID-based solutions for improved efficiencies and end-to-end visibility of valuable assets.

These results can be achieved with Avery Dennison's AD-238u8 inlay. AD-238u8 features last generation chips, and provides significant performance and quality for improved supply chain management.

Proven to exceed 12 meters read distance in an Avery Dennison laboratory environment.

A unique, dual-dipole antenna design, which provides orientation insensitivity and outstanding edge read performance for a wide variety of UHF RFID tagging applications.
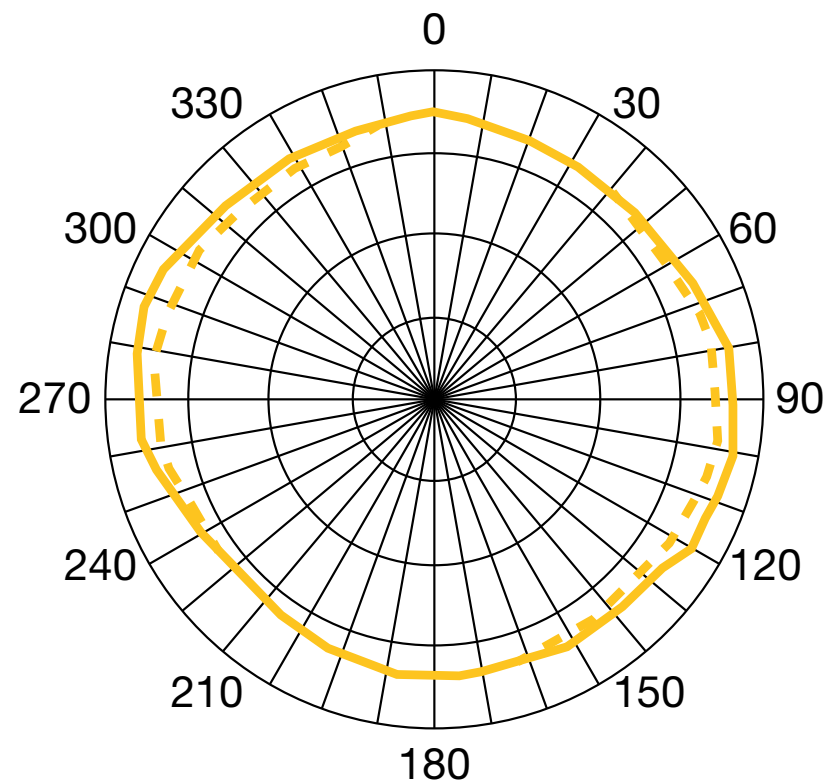
AD-681X

360° Readability

AD-681 features a unique, dual-dipole antenna design, which provides orientation insensitivity and outstanding edge read performance for a wide variety of UHF RFID tagging applications.

AD-681 features dual antenna technology. Optimized for case and pallet tracking, RFID tags equipped with AD-681 inlays can be successfully tracked through all processes of the supply chain to ensure the right goods are at the right place at the right time. The 50 x 50mm antenna provides high level performance in orientation-sensitive applications. With field-proven omnidirectional reads, AD-681 is the solution you have been looking for to achieve your supply chain management goals.

Read Distance by Angle

—— AD-681m4QT

- - - AD-681m4D

AD-721

NFC

NFC-Consumer engagement;
Brand differentiation

The adoption of NFC tagged merchandise in the retail environment is a 'smart' move for today's brand owner.

Within a matter of seconds, a consumer can easily 'tap' a tagged item on the store shelf with a smartphone or other NFC-enabled device, and quickly receive detailed information about the product.

As NFC technology continues to gain momentum amongst retailers, merchants, and consumers alike, the number of potential applications where it can be successfully employed is limitless.

NFC is ideal for multiple end uses including brand authentication, product reviews, loyalty programs and customer rewards.
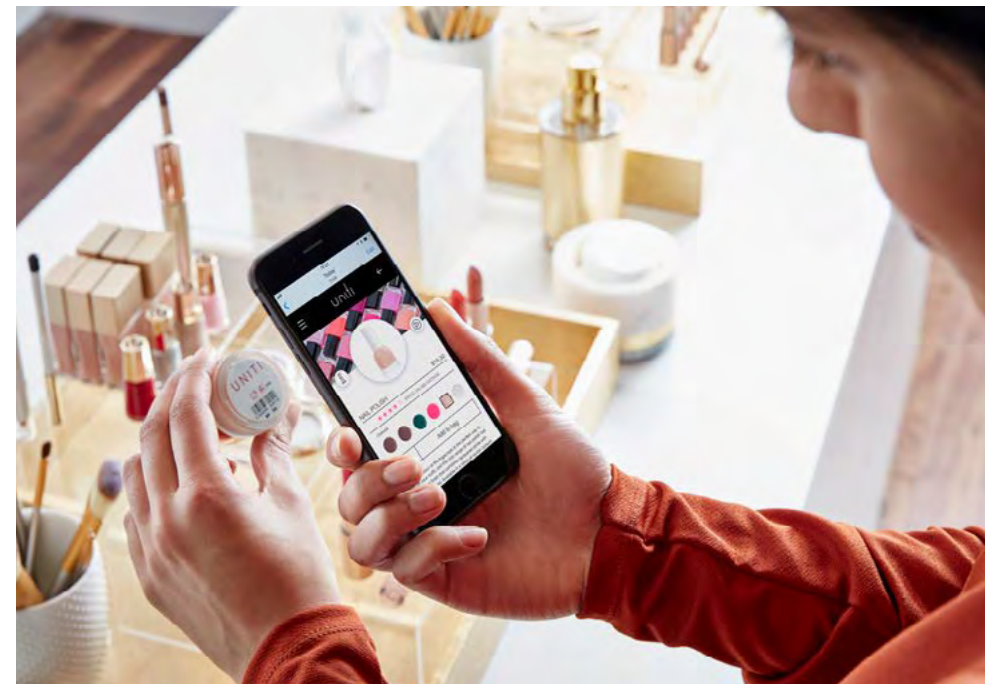
NFC use cases

Social media campaigns

Provide key product information and purchase incentives
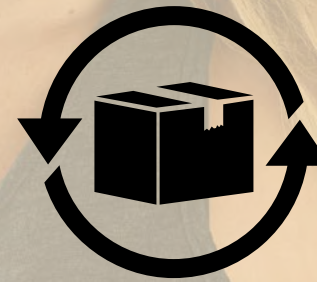
Product re-order capability

Brand protection

Product registration and loyalty programs

Product usage and interactive tracking

Gaming and interactive market

Product lifecycle and where to recycle

NFC vs Alternatives
Why NFC

NFC

QR Code

Image Recognition

Bar Code

NFC is the easiest way for consumers to engage with products…

Quick and easy-to-use; simply tap phone to product

No app to download

No unsolicited advertising or annoying pop-ups

1-to-1 communication

Doesn't take up branding "real estate" on label or package

Targeted use cases including mobile marketing and anti-counterfeit

Microwave safe

AD-25X

Microwave safe inlays

_____

Specially developed for item-level tagging and tracking of chilled or frozen packaged foods.

Designed to avoid arcing or excessive heating when used in accordance with AD recommendations.

Cook time range of 2 min, based on:
1200 watt microwave oven
136 gr. product content

▸ First microwave safe inlay (resists excessive heating and arcing)
▸ Roll-to-roll label compatible with current printing and encoding methods

TT Sensor Plus™2

The benefits of TT Sensor Plus™2

- ‣ Small (1/3 of a the size of a credit card)
- ‣ Can log up to 150.000 temperature events
- ‣ Battery shelf life of 3 years
- ‣ Temperature range from -20°C to +70°C
- ‣ Accuracy of +/- 0.3°C
- ‣ Complete system (Part 11 compliant) with:
  - ‣ TTScan™ - Reader and programming software for tablet PCs
  - ‣ TTApp™ - Smartphone App
  - ‣ TTNet™ - Internet Accessible Database
  - ‣ Application Programming Interface (API) & Software Development Kit (SDK)

TTNet

Cloud Database to administrate and visualize tag data

TTApp

Smartphone App (Android, IOS) to program / read the tag via NFC

TTScan

Software program on a Windows PC or tablet to program / read the the tag via NFC

Service & sampling

Product Name	Part Number	Antenna Dimension	Die-cut Dimension	MOQ	Design
AD172U7	RF600526	22 x 12.5mm	24 x 15.5mm	13,000	
AD229R6	RF600593	95 x 8.15 mm	98.7 x 11.2mm	20,000	
AD237R6	RF600598	70 x 14.5mm	73.2 x 17.7mm	10,000	
AD321R6	RF600600	41.4x16mm	44.6 x 19.2mm	20,000	
AD324U8	RF601064	41.4 x 16mm	44.6 x 19.2mm	20,000	
AD383U7	RF600465	50x30mm	54x34mm	10,000	
AD661R6-P	RF600727	90 x 19mm	93.2 x 22.2mm	10,000	
AD806U7	RF600560	16 x 16mm	19.2 x 19.2mm	15,000	
AD810R6	RF600968	16mm diameter	18mm diameter	20,000	
AD750	RF700073	18 x 8mm	24 x 12mm	15,000	

For more information on technical performance and printing recommendations, please refer to the respective datasheets. Please note that the Avery Dennison product range and service offering can be subject to changes. For an accurate overview, please check our website **label.averydennison.eu** or contact your local Avery Dennison sales representative.

AVERY DENNISON | Label and Packaging Materials   **label.averydennison.com/intelligent-labels**