A9044M Packing Station Antenna

The Times-7 Packing Station is designed for packing and shipment verification in e-commerce businesses across all industries.

Many organisations are creating agile, decentralised supply chains, utilising RAIN RFID systems for tracking and verification. This brings the required products closer to the end customer and allows same-day delivery or pick-up from a local store or other smaller space-constraint warehouses at a moderate cost.

RFID enabled distribution centres and retail back-offices often have traditional RFID tunnels to verify packed goods before they can be processed and shipped.

The Solution

Times-7 has designed the Packing Station Antenna by carefully analysing and understanding our customers' requirements. It offers mounting flexibility and can be set up flush on a horizontal surface or upright. Its form factor makes it ideal for RFID tunnel integration.

This antenna is engineered for reliable item-level reads in densely-packed product environments. Outperforming conventional multi-patch arrays in standard portal setups. It uses a high-gain, multi-patch design with varied orientations to deliver 100% read rates when integrated into tunnel systems.

Whether deployed as a standalone tabletop unit or built into a tunnel, the Packing Station Antenna enables efficient, adaptable workflows, allowing it to read over a thousand tags in seconds.

Its unique and powerful multilinear design offers functionality and reliability like no other antenna on the market.
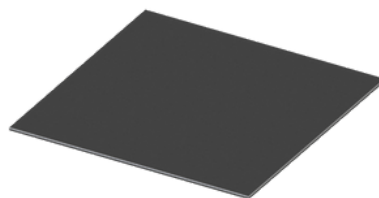

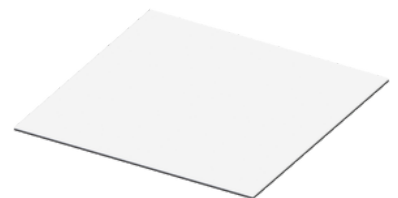Back of antenna (4 port multilinear polarised design)

Powerful, Compact and Lightweight

Able to read thousands of densely packed items in seconds!

Consistent near-zone power across full antenna surface

Front of antenna (Black radome version)

Front of antenna (White radome version)

What Makes the Packing Station Antenna Different?

1. A Unique Multi-Port, Multi-Linear Architecture

Unlike traditional circularly polarised antennas, which sacrifice 3 dB of gain, the Packing Station uses a multi-linearly polarised, multi-port design.

Each port operates a beam with its own tilt angle and polarisation state, electronically switching to create:
- Polarisation diversity
- Spatial diversity
- Tilted, non-static RF fields

This means operators no longer need to shake, rotate, or reposition boxes to get all of the tags to respond.

The antenna contains a regular array of radiating elements, separated into groups and fed with controlled phase delays. By cycling through ports, the system "scans" through different polarisations and beam tilts, ensuring strong coupling to tags in any orientation, even in dense, variable stacks.

2. High Performance in Dense, Mixed-Orientation Tag Environments

Ideal for high-volume pack-out workflows, this antenna can:
- Read thousands of densely packed tags in seconds
- Achieve near-100% read rates on mixed-orientation items
- Maintain consistent performance across materials including metal, liquids, plastics, wood, and paper

As supported by field testing and referenced in patent materials, the design ensures uniform near-zone energy distribution, improving reads on difficult assets and close-surface tags.

3. Compact, Lightweight, and Easy to Install

Weighing just 2 kg, the Packing Station Antenna significantly reduces overall system weight when integrated into a tunnel solution. Unlike traditional tunnel systems, which often require multiple antennas, extensive cabling, and additional components, pushing the total weight beyond 50 kg, this streamlined setup offers a much lighter and more efficient alternative.

Key installation benefits:
- Slim and compact: fits into small workspaces or work cells
- Flexible mounting: upright, flush on a horizontal surface, integrated into tunnels, or mounted beside/above conveyors
- Low operator burden: easy loading/unloading and ergonomic workflows
- Fast setup: minimal labour required

This makes it ideal for integrators deploying systems in environments such as micro-fulfilment centres, retail back-offices, kitting work cells and small e-commerce hubs.

Technical Details

The Packing Station Antenna is engineered for reliable item-level reads in densely packed product environments. Outperforming conventional multi-patch arrays in standard portal setups. By using a high-gain, multi-patch design with varied orientations, it delivers 100% read rates when integrated into tunnel systems.

Whether deployed as a standalone tabletop unit or built into a tunnel, this antenna enables efficient, adaptable workflows, and can read over a thousand tags in seconds.

Industries
- Manufacturing
- Logistics
- Retail

Applications
- Inbound/outbound verification
- Omni-channel pack-out
- Work-in-process tracking
- Cycle counts and returns processing
- Kitting and order consolidation
- Chambers, tunnels, and scanning enclosures
- Bins and totes with high item density

Electrical Specifications	
Frequency range	902-928 MHz (FCC) 865-868 MHz (ETSI)
Polarisation	Multilinear
Far-field gain	7dBi typical
3dB beamwidth (Port 2 & 3)	65° in Azimuth and Elevation planes with 10° beam tilt
3dB beamwidth (Port 1 & 4)	30° and 40°in Azimuth and Elevation with 15-20° beam tilt
VSWR	1.85 typical
Front-to-back ratio	-15dB typical
Physical Specifications	
Dimensions	640 x 650 x 8.6mm (21.1mm with connectors)
Weight	2kg
Connector/cable type	Four connectors, SMA jack, rear exit
Mounting	8 perimeter mounting holes (corners and mid-edge)
Operating and storage temp	-20°C to +55°C
IP rating	IP54

Ordering Information

Antenna	Frequency Range	Part Number
Packing Station Antenna EU (SMA, Black)	ETSI 865-868 MHz	75330
Packing Station Antenna US (SMA, Black)	FCC 902-928 MHz	75331
Packing Station Antenna EU (SMA, Black)	ETSI 865-868 MHz	75575
Packing Station Antenna US (SMA, Black)	FCC 902-928 MHz	75576

Applications

Although engineered for packing verification, the antenna excels in any environment requiring dense multi-tag reading, such as:

- Inbound/outbound verification
- Omni-channel pack-out
- Work-in-process tracking
- Cycle counts and returns processing
- Kitting and order consolidation
- Chambers, tunnels, and scanning enclosures
- Bins and totes with high item density

Static Scanning Station

A static scanning station provides a controlled, high-accuracy read zone for verifying items placed directly onto a desk, bench, or packing surface. This multi-polarised antenna eliminates the need for conveyors or portals and allow operators to simply set down a carton, tote, tray, or kit and trigger a read.

This setup is ideal for packing verification, kitting, returns processing, cycle counts, and QC checks, ensuring 100% item visibility even when products are densely packed or variably oriented.

With predictable performance, minimal footprint, and rapid deployment, static scanning stations are perfect for micro-fulfilment centres, retail back-offices, and manufacturing workcells where space is limited and speed matters.

Conveyor / Side Mounted

Side-mounted configurations enable reliable tag capture along a moving conveyor without the need for bulky overhead portals. Installed beside, above, or angled toward the belt, the antenna creates focused read zones that detect items as they pass through, ensuring smooth material flow with minimal infrastructure.

When using an advanced antenna like Packing Station Antenna, operators benefit from tilted beams, spatial diversity, and multi-polarisation scanning, which improves read rates on mixed-orientation tags, especially in bags, cartons, or soft goods.

This makes side-mounted solutions ideal for sortation lines, outbound validation, order consolidation, and baggage/parcel verification, providing performance similar to traditional tunnels but with dramatically lower cost, weight, and footprint.

Integrated in RFID tunnels

RFID tunnels are typically large, multi-antenna enclosures designed to read items in bulk as they move through a defined RF chamber. These systems create a controlled environment but are heavy, expensive, and occupy significant floor space, making them challenging for agile or decentralised operations.

Packing Station Antenna-based systems provide a modern alternative: a single-antenna, multi-polarised, multi-beam design that replicates tunnel-level coverage without the size and complexity.

FAQs

What makes this antenna different to other antennas?

There is no other antenna like this on the market. Many comparable solutions need several antennas positioned at different orientations to achieve wide coverage and maintain performance in environments with high tag density.

Our 4-port antenna solves this by switching electronically between multiple beams, each with different tilt angles and polarisation diversity. This built-in beam agility ensures consistent coverage and enables rapid, accurate reading of dense tag populations, all with a single antenna instead of several.

For tech heads this means, it contains a regular array of radiating elements, split into groups and fed with controlled phase delays. By switching reader ports in sequence, the system "scans" through polarisations and beam tilts so at least one beam strongly couples to each tag, boosting accuracy with dense, mixed-orientation items.

XZ Plane

YZ Plane

XZ Plane

YZ Plane

XZ Plane

YZ Plane
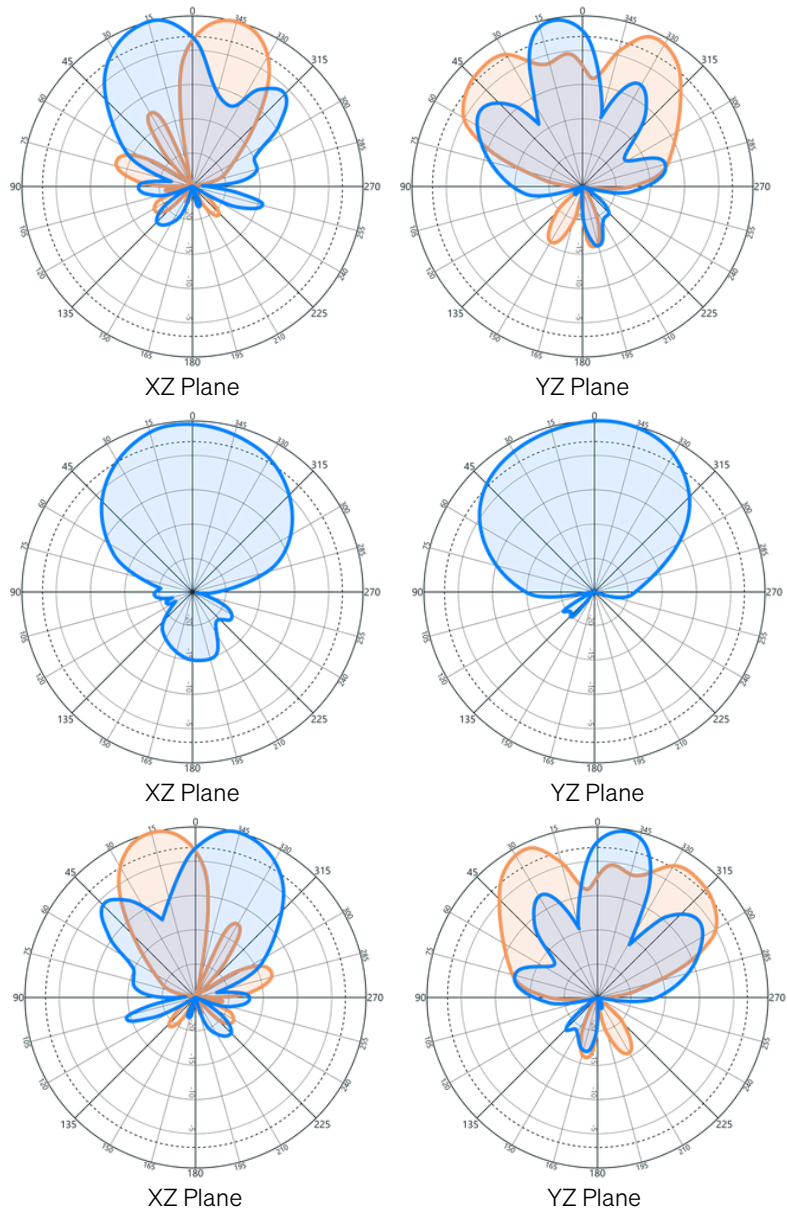
Radiating Patterns Key:

Horizontal Polarisation

Vertical Polarisation

How does this antenna improve operational workflows?

Traditional setups often require operators to shake, rotate, or manually adjust a package to ensure all tags are captured.

The packing station antenna significantly reduces this manual handling by providing greater read-point diversity, leveraging multiple beam angles, positions, and polarisation states. This enhanced coverage ensures faster, more consistent tag reads and smoother, more efficient workflows.

FAQs

## What broader efficiency and cost advantages does this antenna deliver?

It offers several meaningful operational benefits.

- Installation is fast and straightforward, reducing labour time and associated costs. It also decreases material expenses by replacing complex, multi-antenna configurations with a single, versatile antenna.

- Its slim and compact design allows it to fit easily into smaller workspaces, making it ideal for facilities with limited room or constrained layouts.

- Simple form factor enables seamless integration into existing systems.

- Its superior near-field performance ensures reliable reads on hard-to-read tagged items and items positioned close to the antenna surface.

- Importantly, the antenna allows smaller facilities to achieve package-verification performance on par with that of large distribution centres, without requiring the same scale of infrastructure.

## How many ports or connections does it have or need?

This is a four-port antenna, with four rear SMA connectors for attaching to a reader.

FAQs
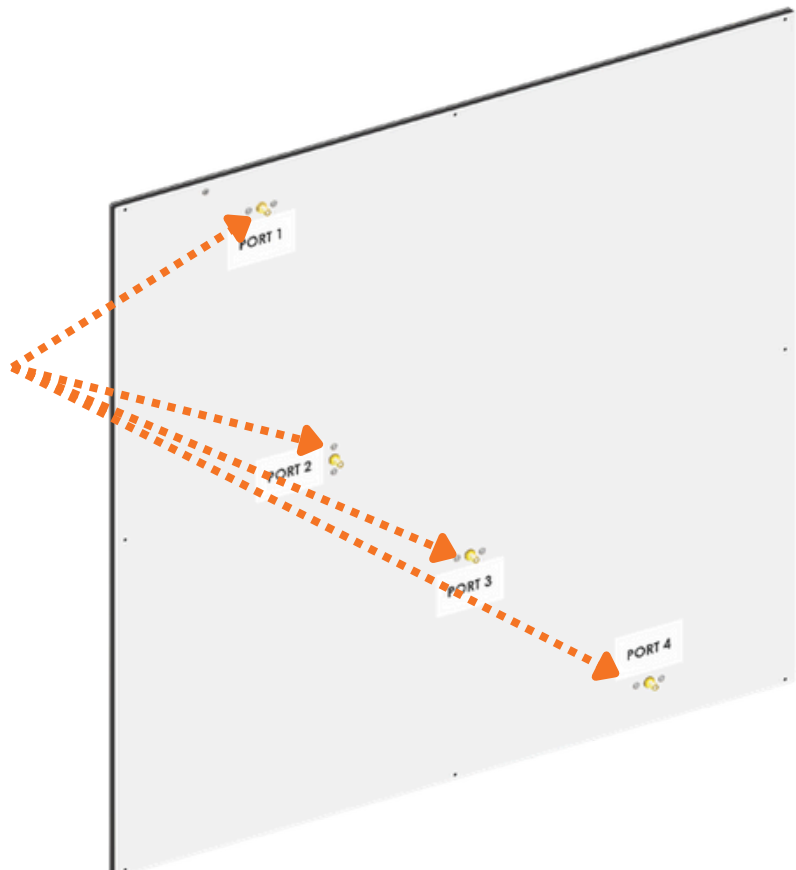
Can it be used in configurations outside of packing?

Yes, this antenna can be used in any application that requires large numbers of dense tags to be read.

Some examples include tunnels, scanning chambers, and bins containing dense, tagged items.
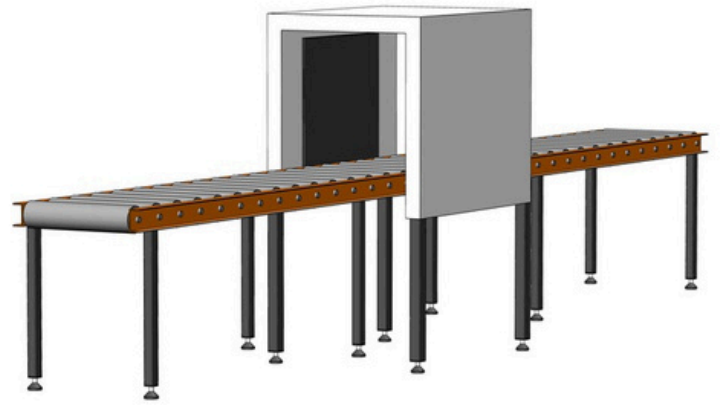
What are the mounting options for this antenna?

Flush-mounted to a surface, wall, tunnel interior or conveyor arch via the 8 mounting holes around the perimeter of the antenna.

Can it be mounted underneath a conveyor belt?

This antenna is not intended for direct mounting beneath a rubber conveyor belt.

If your application requires placement directly under a conveyor, we recommend the A6011 or A6015 antenna models, which feature housings specifically designed for conveyor belt environments.

However, this antenna can be effectively mounted on the sides or top of most conveyors, as well as directly beneath a roller-style conveyor.

FAQs

What is the payload for this antenna?

Any point load must not exceed 100psi (7kg/ cm2) and the maximum distributed load on the antenna should not exceed 1100lbs (500kg).

How fast can this antenna read tags?

In a static configuration the Packing Station Antenna is able to read thousands of densely packed tags in seconds.

Is there an optimal orientation for installation?

No, the antenna is a multilinear tilted beam and can be mounted in a variety of orientations whilst maintaining performance.

Need assistance with selecting the right atenna for your application?

The Times-7 team are here to help.

Online Tools

Explore Real-World Use Cases
Visit our Applications page to see how Times-7 antennas are used across industries, along with guidance on key selection factors such as read range, polarisation, environmental ratings, mounting profiles

Product Comparison Tool
Filter antennas by type, use case, and technical specifications for side by side comparison.

https://www.times-7.com/applications

View the applications page on our website for industry or use-case specific antenna recommendations

Antenna Recommendations

We begin by exploring your use case in depth, including what you're tracking (assets, inventory, people), the read ranges required, environment (indoor, outdoor, metallic, cleanroom), mounting constraints, tag type, and any regulatory or compliance needs.

We'll propose one or more Times-7 antenna models suited to your needs. We'll explain the trade-offs (e.g. gain vs beam width, polarisation choices) so you feel confident in the your antenna selection choice.

Guidance & Best Practices

Antenna choice is just one component. Optimal performance depends heavily on a multitude of factors, such as antenna placement, the type of items/assets being read, tag type / how the items are tagged, and read area.

We provide layout advice and tuning tips to maximise read performance in your specific environment.

Ongoing Support

From pilot tests through full deployment, our technical and customer support teams are available to answer questions, troubleshoot issues, and optimise performance as your system evolves.

Demo Kits

We also provide sample units and demo kits for testing purposes. Contact sales@times-7.com for your demo kit today.