
RFID
JOURNAL
webinars

RFID JOURNAL webinars

JUNE 9, 2020

Best New RFID Products of 2020: RF Controls' CS-490 Smart Antenna and Times-7's Packing Station

FEATURED COMPANIES

RF CONTROLS
IDENTIFY • LOCATE • TRACK™

TIMES-7®
INTELLIGENT TRACKING | SMART TECHNOLOGY

Today's Presenters

Adrian Turchet
SVP Strategy & Corporate Development
RF Controls

Adrian joined RF Controls in 2018 to expand the company's sales and marketing strategy by growing its network of channel partners around the world. Adrian also served as a financial adviser to RF Controls from 2014 to 2015. He brings valuable experiences from several M&A transactions and corporate advisory during his ten-year career in the capital markets. He has a track record of scaling North American technology, logistics and manufacturing companies as they transition from start-up to various stages of growth capital.

Today's Presenters

Jos Kunnen
Managing Director and CEO
Times-7

Jos Kunnen leads his team in the development, manufacture, and distribution of innovative UHF RFID Reader antenna technology. He has sponsored several new product development programs in his four years at Times-7. Jos has more than 35 years of experience in diverse information technology management roles, in oil and gas, information technology, utilities and GIS.

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JUNE 09th, 2020

Long-Range “Passive RTLS” Increases The RFID Total Addressable Market & Customer ROIs

SPONSORED BY

Adrian Turchet (PRESENTER)

SVP Strategy & Corporate Development

Graham Bloy

Co-Founder & CTO

CS Smart Antenna

Reader + Bi-Directional Steerable Phased Array Antenna (“BESPA”)

- Scan Speed
- Read Distance
- Pinpoint Accuracy 2D / 3D

Stepping Up Our Game To Cover Higher Ceilings

Tag Location 2D/3D	1 – 3 ft.
Power Source	PoE / PoE+
Adjustable Scan Points	9 to 200+
Max Coverage	10,000 Sq. Ft

CS-490 (Released in 2020)

CS-445B

45 FT.

30 FT.

50 ft.

75 - 90 ft.

Global Origin (0,0,0)

Scan Point

Easy To Mount, Cable, Configure, Integrate, Maintain

RFC-OS is the first layer of location processing it send all antenna commands

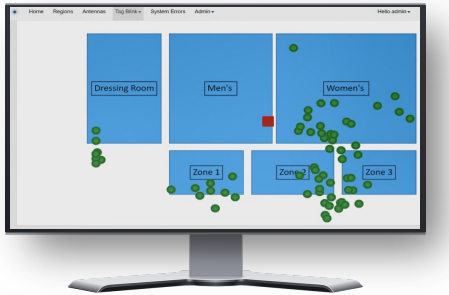
CS Smart Antennas

PoE / PoE+ Switch

Computer / Server (ACM)

RFC Operating System

RESTful APIs	Tagblink Processor	Security Services
ACM	Websockets	Web-UI
3D Visualizer	Tag Analyzer	Health Monitor



Integrations

Open Source Data Enables Any Software IoT Platform To Integrate

Total Tag Count: 315

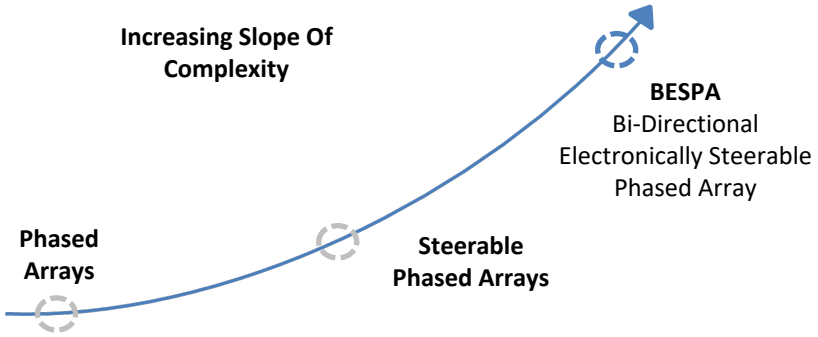
Antenna Name	Tag Id	Zone	X Location	Y Location	Z Location	Confidence	Rssi	Speed (ft/sec)
Antenna-151	67800000403900000000000	Clothing	16.62	17.57	0.00	0.76	-896	0.10
Antenna-152	AD6650801906040000000D9	Back of Store	10.31	3.38	0.00	1.00	-955	2.12
Antenna-152	AD6650801906040000000DA	Back of Store	9.76	3.73	0.00	0.60	-921	0.04
Antenna-152	AD6650801906040000000DB	Back of Store	8.59	5.21	0.00	1.00	-985	0.73
Antenna-152	AD6650801906040000000DC	Back of Store	7.43	6.46	0.00	0.81	-1001	0.36

Notes: ACM is a physical computer that resides on the LAN shared by the Antennas (OS: Windows 7, 64bit, Ubuntu 14.04, RHEL 7, Intel core i5 or greater, JDK Java Version 8+)

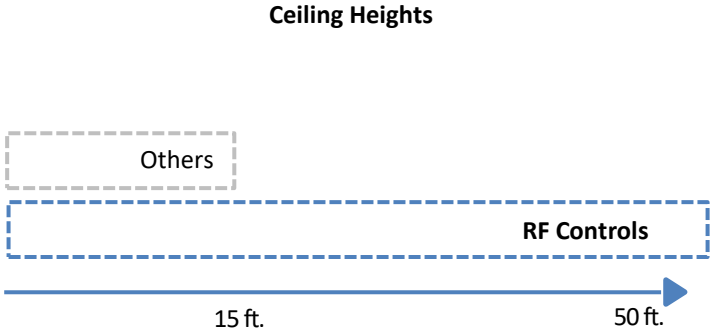
Patented Approach To Long-Range Passive RTLS

BESPA technology was a DAPRA breakthrough never intended for RFID

Only Provider Using Patented Approach which offers increased scalability + performance using a single beam to both transmit + receive tag ID and location data



Larger Addressable Market is achieved by having an expandable product for any ceiling and also high density tag environments



Notes: Defense Advanced Research Projects Agency ("DAPRA")

The Supply Chain IoT Gap

The Supply Chain


Raw Material


Supplier


Manufacturer


Distributor


Retailer


Consumer

Internet
(Digital Logistics Systems)

BlueYonder · infor · SAP · EPICOR · ORACLE · Softeon · Manhattan Associates

Human Connectivity Layer

1 

2 

3 

=

Human Error
Human Delay
Human Inefficiency

"IoT Gap"

Things
(Physical Goods)

Working With Tag Partners To Optimize Use-Case

Using low-cost RFID for Passive RTLS increases the tags overall ‘value’

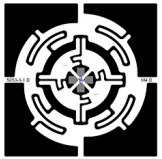
Single-dipole labels for apparel applications

Tag:	AD-238u8
Dimensions	2.756 x 0.571 in [70 x 14.5 mm]
Frequency:	Global (860 - 960MHz)
Chip:	NXP UCODE 8

Tag:	AD-310u8
Dimensions	1.63 x 1.142 in [41.4 x 29 mm]
Frequency:	Global (860 - 960MHz)
Chip:	U8

Dual-dipole labels for logistics applications

Tag:	Crosswaves
Dimensions	3.74 x 1.57 in [95 x 40 mm]
Frequency:	Global (860 - 960MHz)
Chip:	Monza 4E



Tag:	AD-681m4D
Dimensions	1.969 x 1.969 in [50 x 50 mm]
Frequency:	Global (860 - 960MHz)
Chip:	Monza 4D / 4QT

Successful Deployments Using CS Smart Antennas

Codegate® MOBILISING BUSINESS

Far superior to other overhead solutions. If the use-case requires long read distance and accuracy, RF Controls stands alone. The performance unlocks doors for so many industries.

Graham Fenton, MD
Keynote Speaker RFID Journal Awards 2020

RTV Engineering

After seeing RF Controls win a Journal Award it's clear RFID based RTLS could serve our customers over active.

Bob Veiga, CEO
Prev. SAVI Technologies

Other overhead systems offer X, Y positioning, and shorter range, but RF Controls gives us X, Y and Z and the ability to operate in any ceiling.

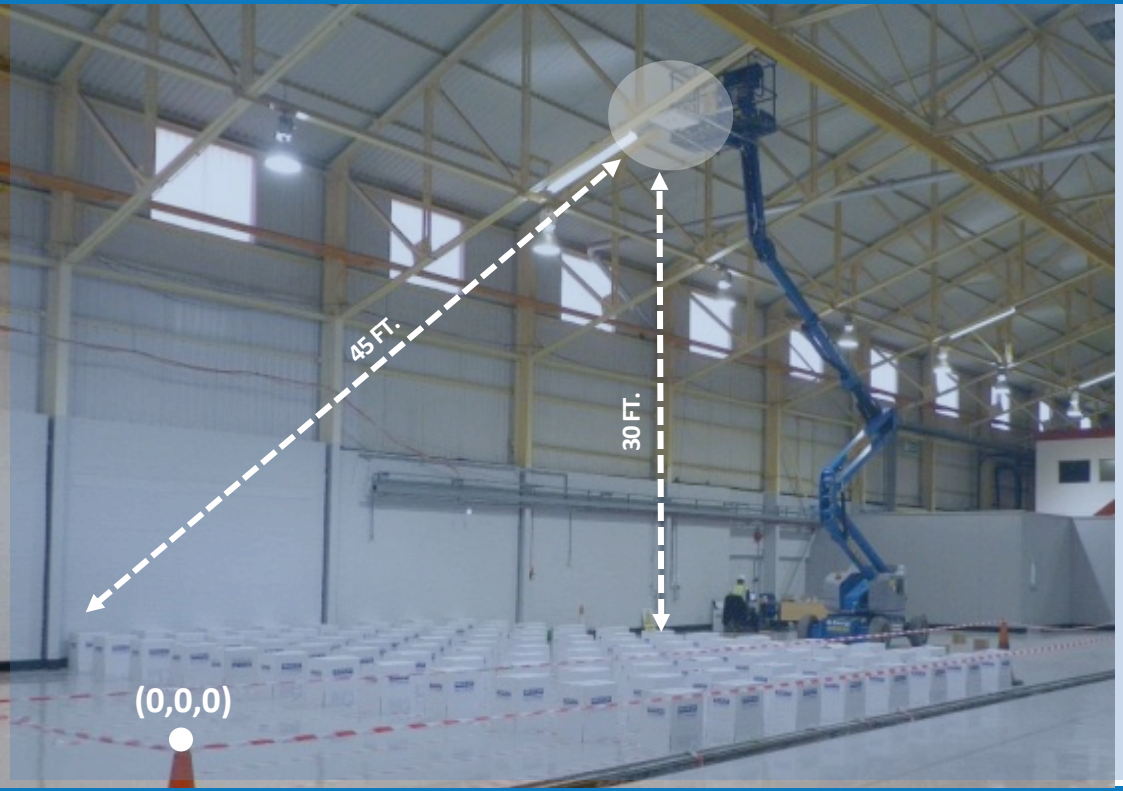
Joe Leone, Eng.
Consultant 20+ Years RFID

CARGOCAST

The differentiator is the distance, the capability to be installed at any ceiling height from 10 to 50 ft reduces indoor challenges. The right IoT platform turns the data stream into an Active RTLS system using low-cost RFID.

Dan Diephouse, CEO
Prev. Co-Founder Mulesoft

Bridging The IoT Gap (Physical Things vs. Digital Internet Layers)



Codegate
MOBILIZING BUSINESS

3,600 Sq. Ft.

100 Boxes

600 RFD Tags

Measuring The Location Of A CS Smart Antenna

Antennas seamlessly ‘hand-off’ to one-another in a networked array

Take advantage of wall and or ceiling mounts

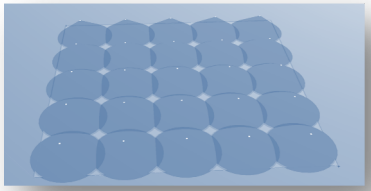
- Optimize coverage using ‘assumed z’ tag height
- Angles mounts benefit from read-range
- Overlapping beams enable 3D tag location data

Precise measurements are important

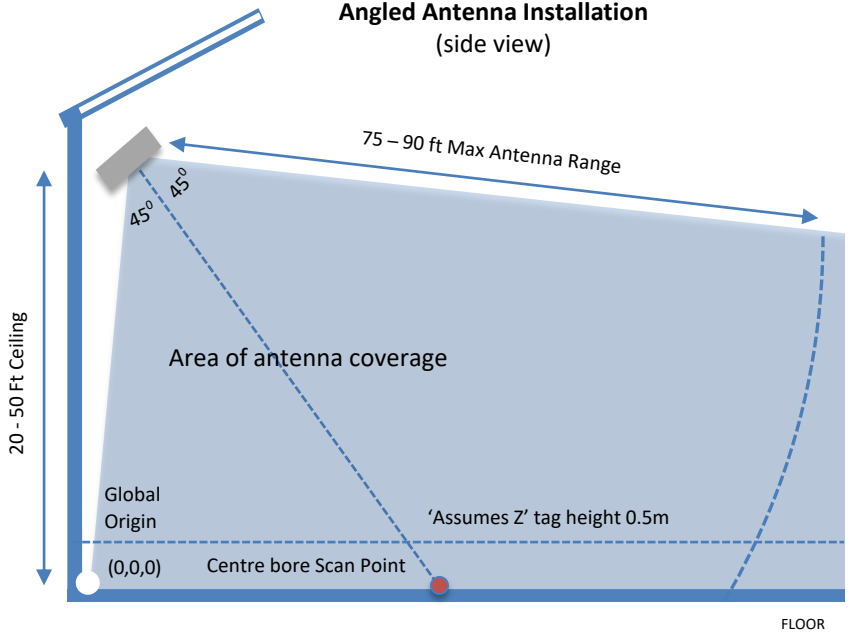
- Global Origin is defined by the (0,0,0) point where all measurements and Tag Blinks are referenced
- Antenna Global Coordinates (X, Y, Z)
- Angular Orientation (Alpha, Beta, Gamma)

Groups of networked antennas

- Configuration tools assist with mapping a facility



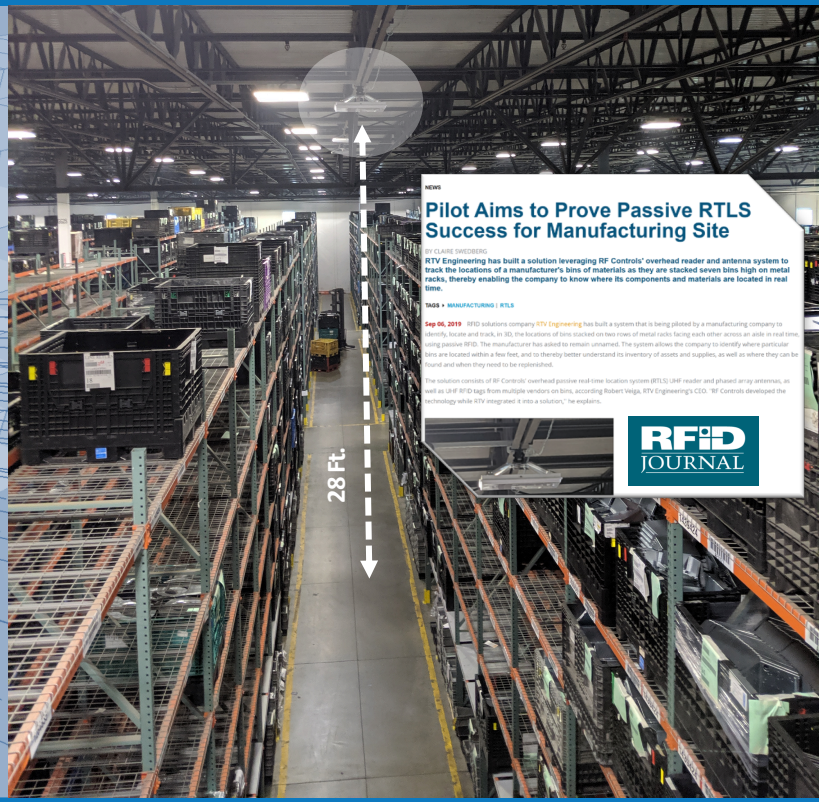
Angled Antenna Installation
(side view)



3D Bin/Rack Level Warehousing (Inventory, Forklift and Employee Tracking)

4 Ft. Cubic Zone Accuracy

1-3 Scan Points Per Zone



RTV Engineering

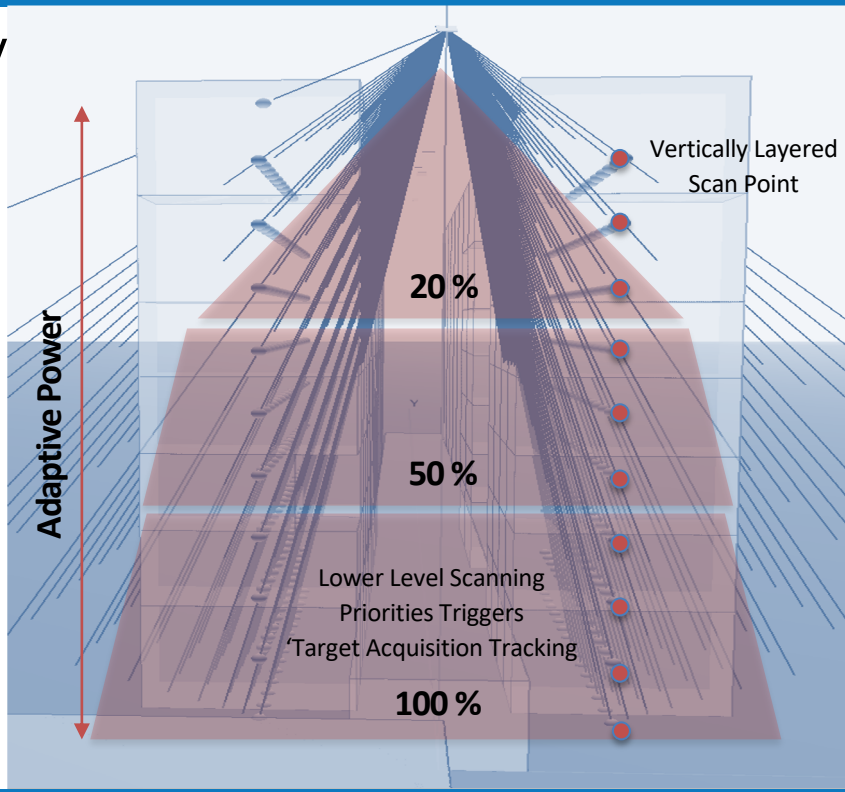
Optimize & Tune For Warehouse Rack Use-Case

Tuning Scan Points for 3D location accuracy

Vertical vs. Horizontal Scan Points (Phase I)
- Steer the beam to the specific bin / rack ‘put back’ locations
- Adapt power output based on read-range

Adaptive Power (Phase II)
- Adjusting power settings, based on defined rack level vertical scan points to decrease “tag jitter” and increase location accuracy

Listening In Motion Detection Mode (Phase III)
- Prioritize lower level scans to listen for moving tags to trigger an upcoming warehousing event



Notes: Horizontally and vertically layered scan points are not ALL scanned in a single full scan rotation by design

Target Acquisition Tracking

Automatically adjust Scan Points using predictive steering to ‘Lock-On’ target

Motion Detection Mode (Phase I)

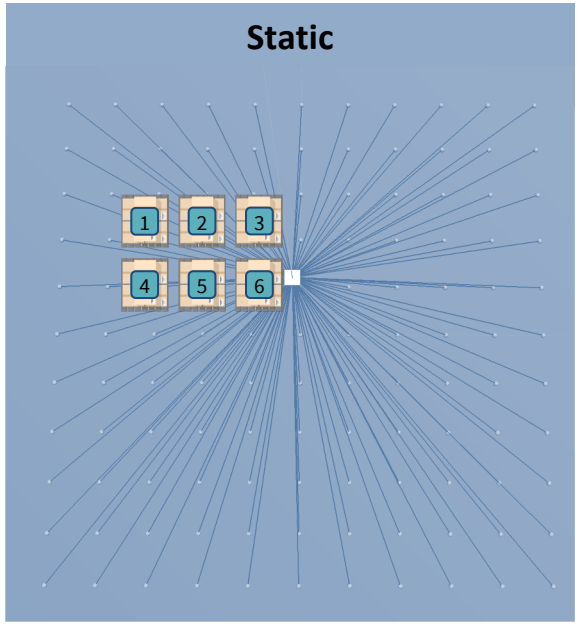
- Moving tags or priority “Trigger Tags” placed on assets (forklifts) can adjust algorithms from Static to Dynamic modes to increase tracking performance

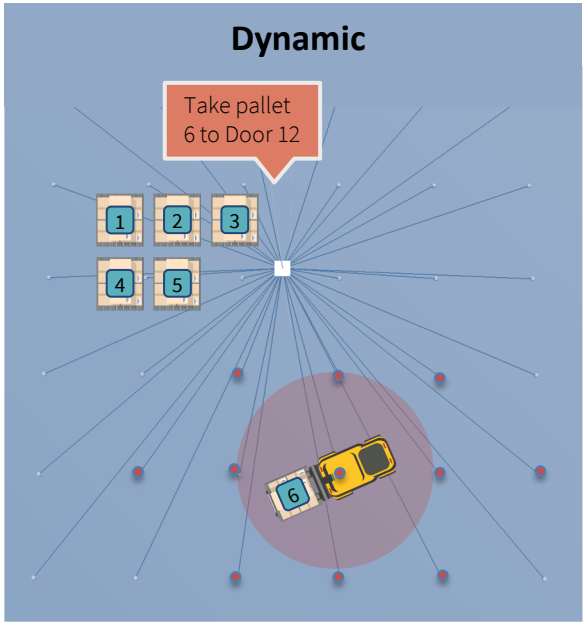
Target Acquisition Tracking (Phase II)

- Predictive steering reduces scan points per rotation to enable the antenna to change patterns, lock-on and track target
- Adjacent antennas prepare for hand-off

Revert To Static Mode (Phase III)

- Re-focuses steering on entire scan area





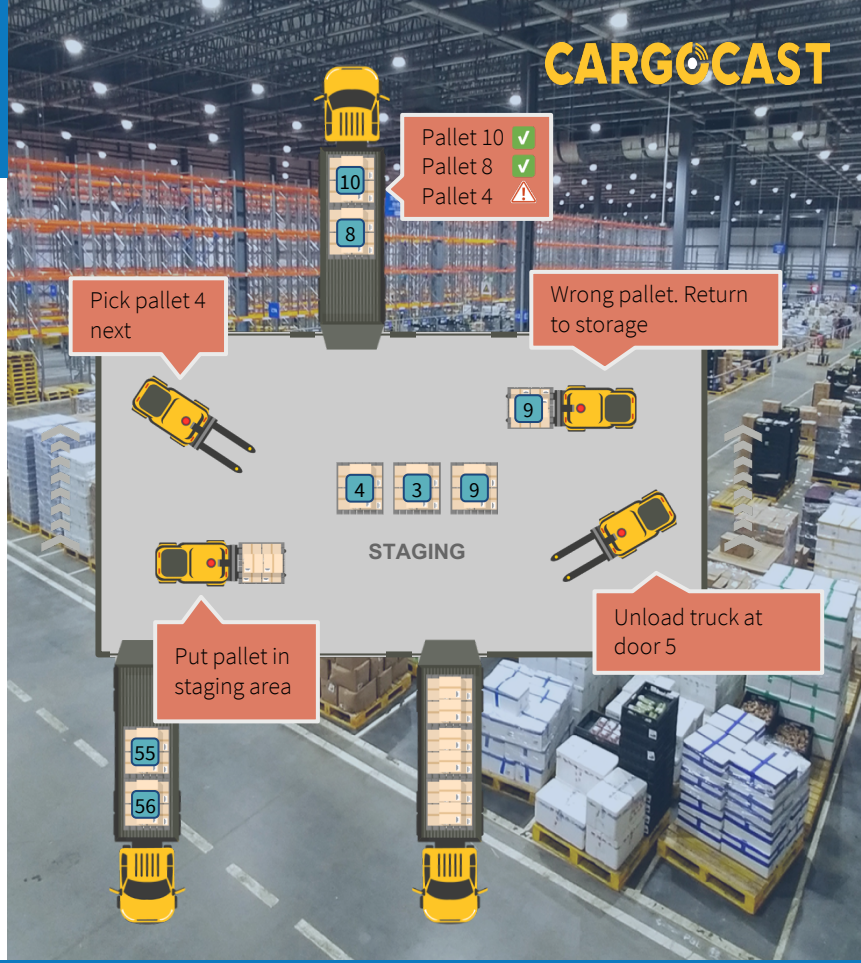
Notes: Target Acquisition Tracking is a new feature proven using CS-445B’s and its most effective for high ceilings

True Real-time Visibility

See What You've Been Trying To Manage

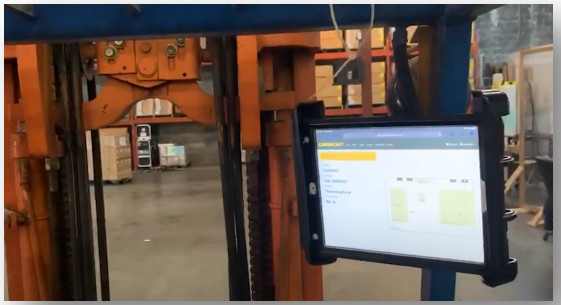
Benefits Deliver Significant ROIs Across Supply Chain

- Optimize space, inventory, assets and people
- Eliminate shipping errors and inventory counting
- Reduce fleets size and new hire training costs
- Decrease time finding "things" and deter theft
- Reduce stock on hand
- Improve margins and gain market share
- Reduce the need for secondary Active RTLS infrastructure



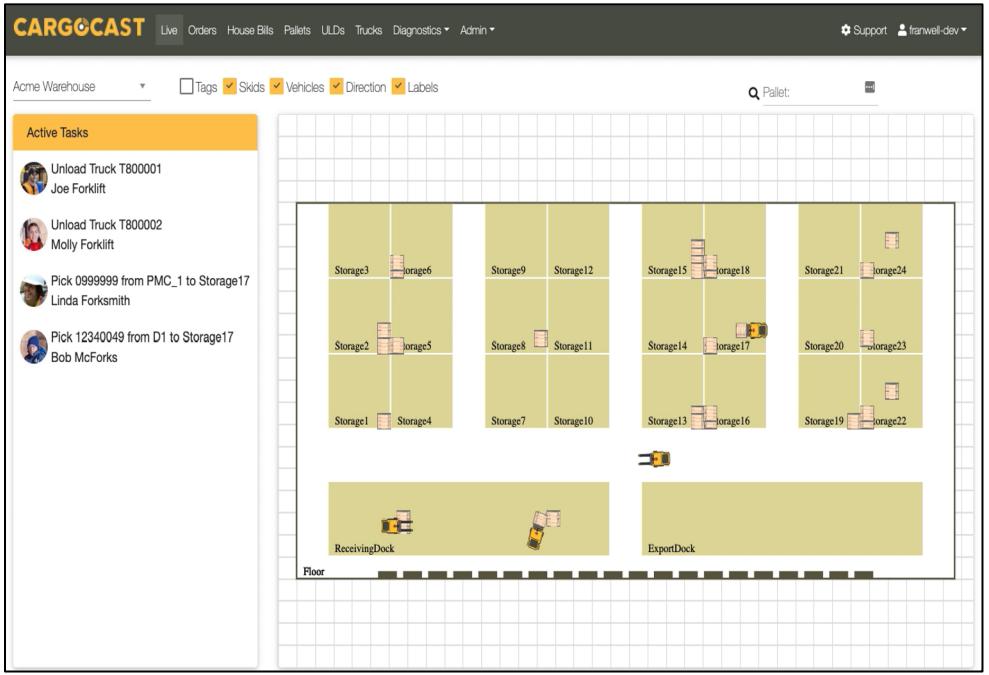
Channel Partners Deliver Enterprise IoT Platforms

Cargocast Innovation Center



Uberization Of Passive RTLS Data

- Viewing real-time data for a customer order on a tablet, the heads-up-display shows the forklift location (asset), the pallet (inventory) for pickup and its next destination



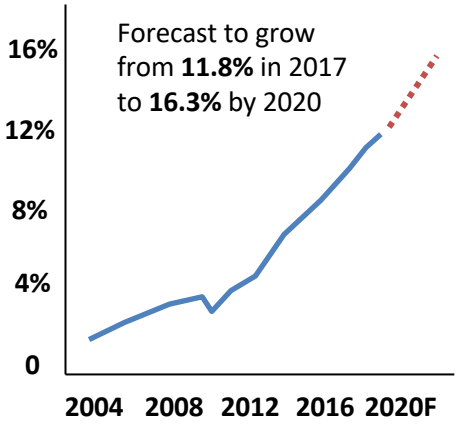
Notes: Watch CargoCast demo video from Stifel Webinar June 5th 2020 - www.cargocast.io/stifel

Macro Trends = High Ceilings + Additional Sq. Ft.

Growing eCommerce Increases Need For Indoor Visibility

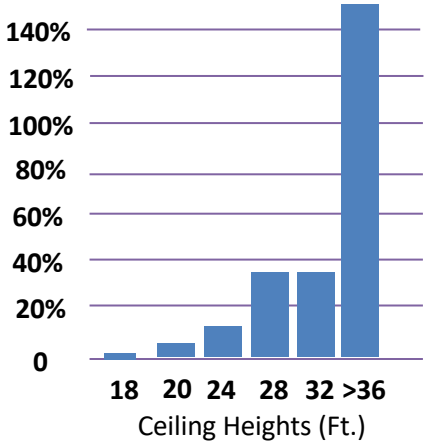
E-Commerce Sales, Global

Share of all retailers sales, %



Growing Addressable Market

Growth Rates In Rentable Area By Ceiling Height, 1997 – 2017



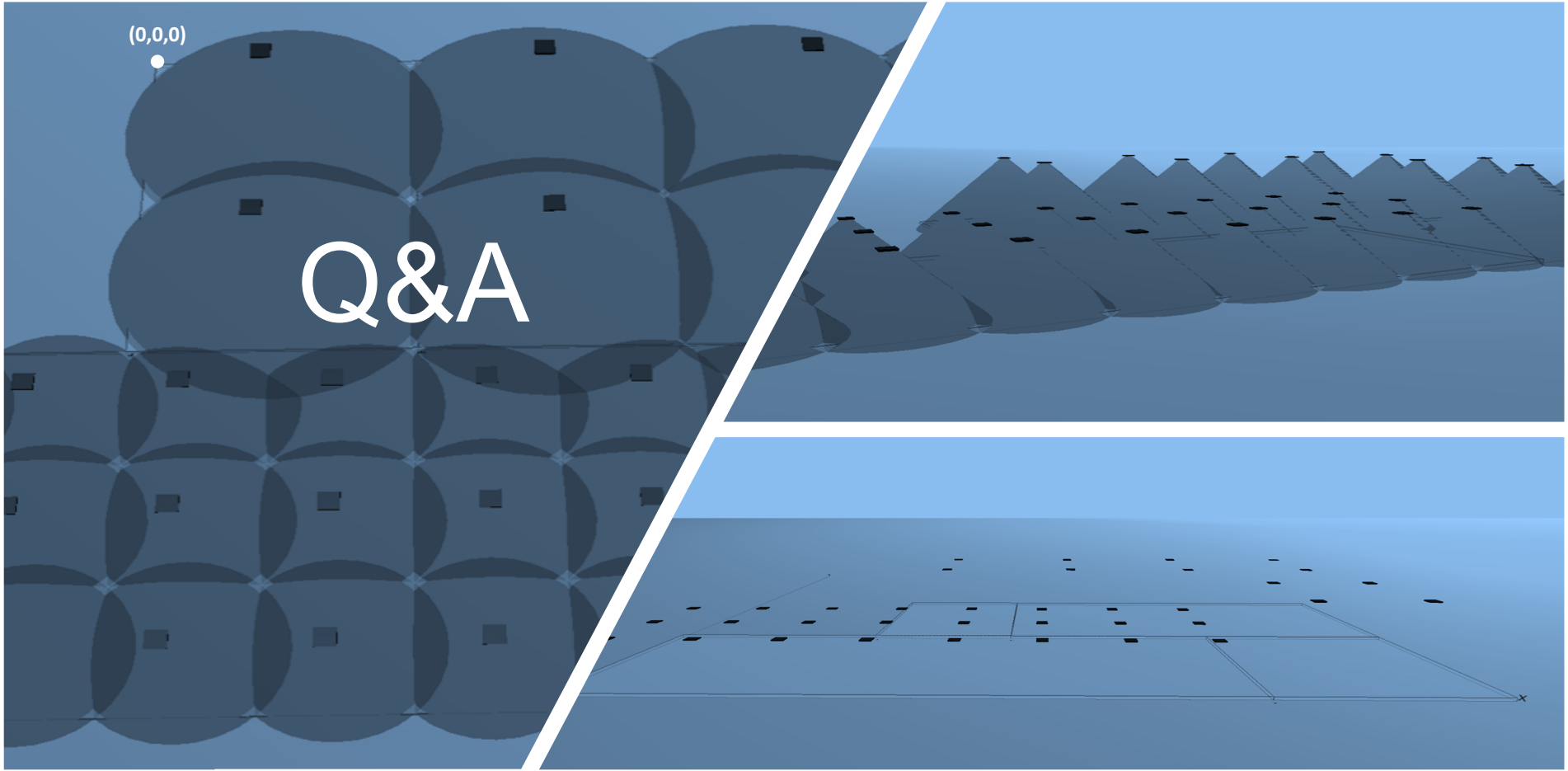
E-Commerce Supply Chain Requires More Sq. Ft. Than Brick-n-Mortar

Share of all retails sales, %

	Sales (US$, B)	Space (MSF)	Efficiency (SF / $1B)
Online	228	286	1,251
Brick-and-Mortar	1,068	510	478K

+/-3x

Sources: Prologis Research, U.S. Census Bureau (historical); Goldman Sachs, NAIOP.org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Q&A

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Best New RFID Products of 2020: Times-7's Packing Station

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Introducing

veRFIDa!®

A revolutionary solution for decentralized retail packing & shipment verification, using UHF RFID.

Times-7

- Specialist UHF RFID Reader Antenna Manufacturer
- Largest RAIN RFID Reader antenna portfolio
- Custom RAIN Antenna Design & Manufacture
- World-wide Distribution Network
- RAIN Alliance member
- Headquartered in New Zealand
- Since 2006

Global Retail Trends

- Online shopping market size is expected to hit $4 trillion this year. Making it the biggest marketplace in the world.
- US alone are expected to have 300 million online shoppers by 2023 (91% of the population)
- Since Covid-19 online food shopping has nearly doubled in US
- More people are choosing Buy Online Pickup In Store (BOPIS) model of shopping (nearly 70% of shoppers have made multiple BOPIS purchases)
- Expectations of fast/ same day delivery and Click & Collect are on the increase
- Online shopping is expected to continue to vastly grow and thus online and retail stock visibility is essential
- Amazon has opened smaller warehouses for same day delivery, a tenth of the size of their usual warehouses

"The problem for retailers is that as they merge their online and store channels, the need for accurate, near-real-time inventory increases dramatically.

Retailers cannot disappoint shoppers by not having products when customers go to pick them up."

MARK ROBERTI
RFID JOURNAL

What Retailers Need

- Accurate retail **stock visibility is essential**
- Move stock from **DCs into local stores** for **faster delivery**
- **Fast and reliable receipt of inwards goods** to local stores
- **Accurate verification of customer orders** prior to pick up or shipment
- **A smaller and cheaper alternative to a DC tunnel**

Problems with Current Approach

Tunnels

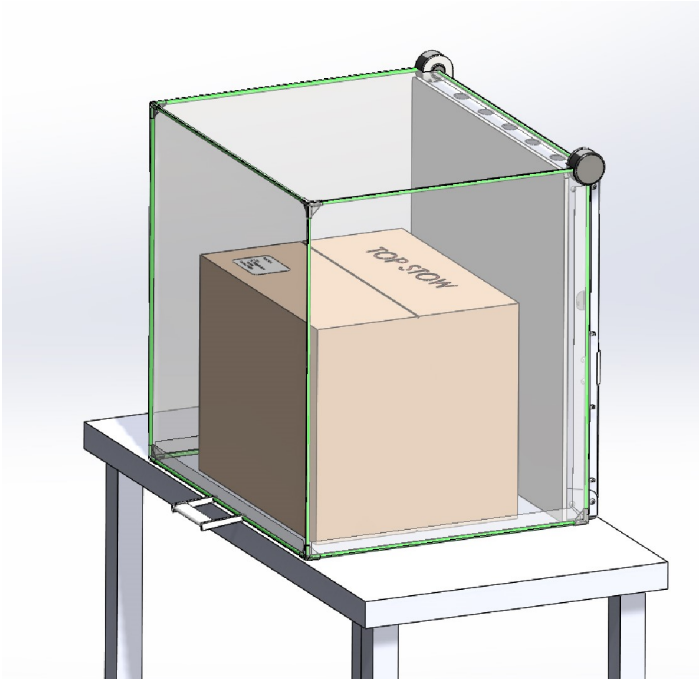
- RFID Tunnels track inventory well
  - Expensive
  - Consume a lot of real estate
- Distribution is putting more stock into local stores

Stand-alone Reader Antennas

- Read reliability & read accuracy
- Stray reads
- Staff shake and move boxes to improve reads
- Customer & staff dissatisfaction with inaccurate results

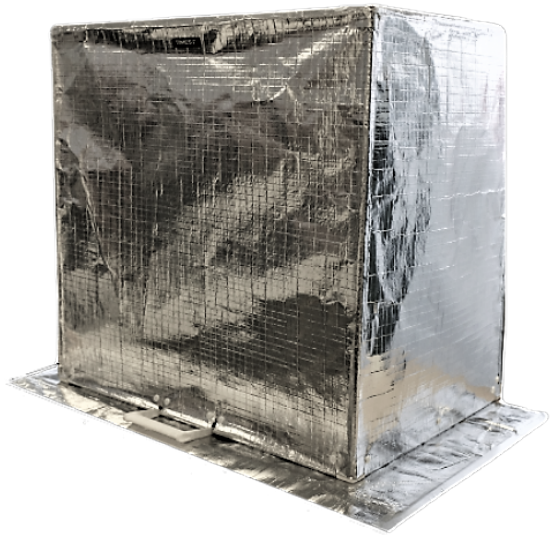
Need a low-profile solution that reads all tags; first time, every time!

Times-7 Solution: veRFIDa!®



- ✓ High performance
- ✓ Reliable
- ✓ Accurate
- ✓ No stray reads
- ✓ Compact
- ✓ Easy to operate & assemble
- ✓ Compatible

Product Overview



- Bench mounted vertical system
- Lightweight & liftable RF reflective hood
- Complex patch antenna array
  - multi-linear polarization
  - tilted and non-static RF fields

Proven Read Performance

Test box: 500 densely packed tags*

- **500 test cycles**
- 100.00% consistent reads
- <2 seconds per read cycle

*Using Checkpoint Vortex R6-A tags

Proven Speed Performance

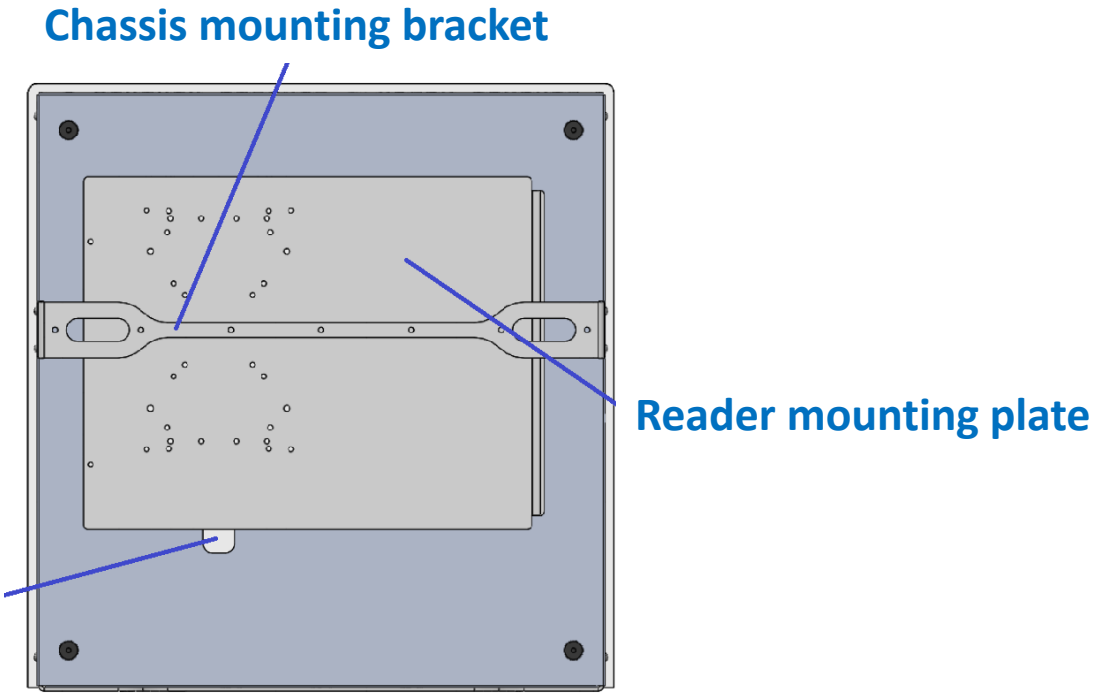
Read up to **1000**
tags per **second***

*In test conditions using Impinj Speedway R420

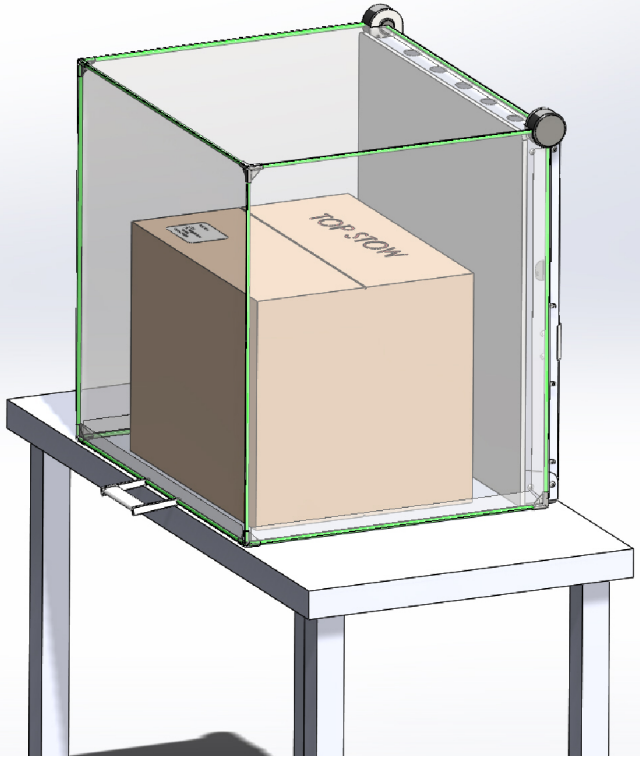
Technical Details

- **Dimensions Closed Position:**
  Width: 690mm / 27.2"
  Length: 550mm / 21.7"
  Height: 695mm / 27.4"
  Height (open position): 1200mm / 47.2"
- **Weight of Hood: 650g / 1.4 lb. approx.**
- **Lightweight: Approx. 8kg / 18 lb.**
- **Frequency: FCC, ETSI or ETSI Upper Band**
- **Farfield Gain: 7 dBi gain**
- **Requires a 4 port reader**
- **Diversified RF fields: both Near Field and Far Field**
- **Uniform near-zone power distribution**

Installation



Installation



The Future:

The possibilities are endless

Availability

- Shipping in 4-6 weeks from order
- Available through our distribution network
- MSRP $2499
- Get in touch: sales@times-7.com
- www.times-7.com/verfida!

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