THORN
LIGHTING

HAP
FOR RETAIL

High Accuracy Positioning for Retail with real-time analytics

WE
MAKE
LIGHT
WORK

REAL-TIME LOCATION DATA OF CUSTOMERS AND EMPLOYEES WITH SUB-METER ACCURACY

Harness the power of real-time data to transform the shopping experience. Targeted promotions can be enabled for specific items, for example a discount on a breakfast cereal or soft drink when a customer is within 50 cm of the product. In vast DIY stores, product navigation can be provided on request, saving customers time and eliminating frustration. Queues at point of purchase can also become a thing of the past, with enhanced demand management of check-outs.

Gain valuable insights from customer data analytics that were previously exclusive to web-based retailers, leading to improved store design and better performing promotions, resulting in increased sales and customer satisfaction. In combination with customer data, real-time analytical data of employees and workflow can be used to gain additional operational efficiency savings and higher productivity through process optimisation.

Using industry-standard Bluetooth® technology, Thorn's High Accuracy Positioning (HAP) system offers a reliable, versatile, highly customisable, fully scalable and cost-effective Real-Time Locating System (RTLS) solution for retail applications such as hypermarkets and supermarkets, members club wholesalers and DIY stores.

Retail   Logistics   Warehousing

Manufacturing   Industry

RETAIL OWNER BENEFITS OF A HAP SYSTEM

ENHANCED CUSTOMER EXPERIENCE

Retailers can create a more personalised and engaging shopping environment, ensuring that customers feel valued and satisfied throughout their experience.

OPTIMISED STORE LAYOUT AND TARGETED PROMOTIONS

Data-driven insights help retailers design store layouts that guide customer flow, making it easier for shoppers to find products and take notice of new and on-sale items they wish to highlight. Working in partnership with FMCG brands, targeted location-based promotions can be offered (with a marketing premium charged to the brand and measurable return-on-investment provided) such as a discount on a new variant of soft drink when a prospective customer is within as little as 50 cm of the product. A HAP system can deliver this valuable additional revenue stream in combination with location triggered on-shelf display screens or a retailer's smartphone app, for example.

INCREASED SALES AND CONVERSION RATES

By understanding customer behaviour and preferences, retailers can tailor their sales strategies such as the location of high and low value items, fresh and non-perishable produce, new and on-sale product lines; all leading to higher conversion rates and increased turnover.

IMPROVED MARKETING ROI

By analysing customer responses to marketing campaigns, retailers can refine their strategies and allocate resources more effectively, resulting in better returns on investment. At the same time, retailers can also monetise this data by selling it to suppliers e. g. offer a traffic "hot spot" to a soft drinks manufacturer.

COMPETITIVE ADVANTAGE

Retailers leveraging data insights can differentiate themselves in a crowded market, providing unique offerings and experiences that attract and retain customers.

ENHANCED OMNICHANNEL INTEGRATION

Real-time analytics enable seamless integration across online and offline channels, allowing retailers to provide a cohesive shopping experience, no matter how their customers engage with the brand. and fostering long-term customer loyalty.

OPERATIONAL EFFICIENCY

Real-time analytics identify inefficiencies with in-store operations, enabling retailers to streamline processes, reduce labour costs, and improve productivity.

CRITICAL INSIGHT

High Accuracy Positioning systems with real-time analytics equip retailers with critical insights that empower them to adapt rapidly to changes within the store environment. By improving operational efficiency and creating exceptional customer experiences, a HAP system can play a vital role in driving higher revenue and fostering long-term customer loyalty.

CUSTOMER BENEFITS OF A HAP SYSTEM

PERSONALISED SHOPPING EXPERIENCE

In combination with a retailer loyalty application – tailoring shopping experiences to meet the unique preferences and needs of each customer, ensuring that every visit feels special and relevant.

BETTER ENGAGEMENT AND INTERACTIONS

Fostering meaningful connections between customers and stores through personalised communication and tailored promotional recommendations that resonate with individual shoppers. For example, location-based promotional offers can be enabled when a customer is within close proximity to a product that the retailer has decided to highlight. As items are browsed, on-shelf or on-app offers can be triggered to a customer at an individual level, making an offline shopping experience a more exciting and attractive proposition.

ENHANCED NAVIGATION AND CONVENIENCE

Designing store layouts and online interfaces that make it easier for customers to locate products, access information, and navigate seamlessly through their shopping journey.

SEAMLESS OMNICHANNEL EXPERIENCES

Integrating online and offline shopping environments so customers can transition effortlessly between channels, enjoying a unified experience regardless of where or how they shop.

REDUCED WAITING TIMES

Streamlining checkout processes and service interactions to minimise delays, allowing customers to complete their purchases quickly and efficiently.

SAFER SHOPPING ENVIRONMENT

Prioritising customer safety through enhanced security measures and health protocols, allowing shoppers to feel secure and comfortable while they browse and buy.

HAPPY, LOYAL CUSTOMERS

The implementation of real-time analytics systems such as HAP can empower a "bricks and mortar" retailer to create an efficient, enjoyable, and highly personalised shopping experience for their customers, equal to advanced online resellers.

By addressing individual needs quickly and effectively, these systems can help to reduce customer frustration, save time and money, and strengthen the overall connection between shoppers and stores. The end result being a significant boost in customer satisfaction and loyalty.

TRACK YOUR RETAIL PROCESSES IN REAL-TIME

HAP TAGS

HAP tags are small and discreet Bluetooth Low Energy (BLE) wireless devices that are affixed to mobile items such as equipment, automated guided vehicles (AGVs), forklift trucks, or worn by personnel – all with the same objective, to help track or manage their location in real-time. Thanks to excellent power optimisation, each tag embedded with a cell battery will last for up to five years.
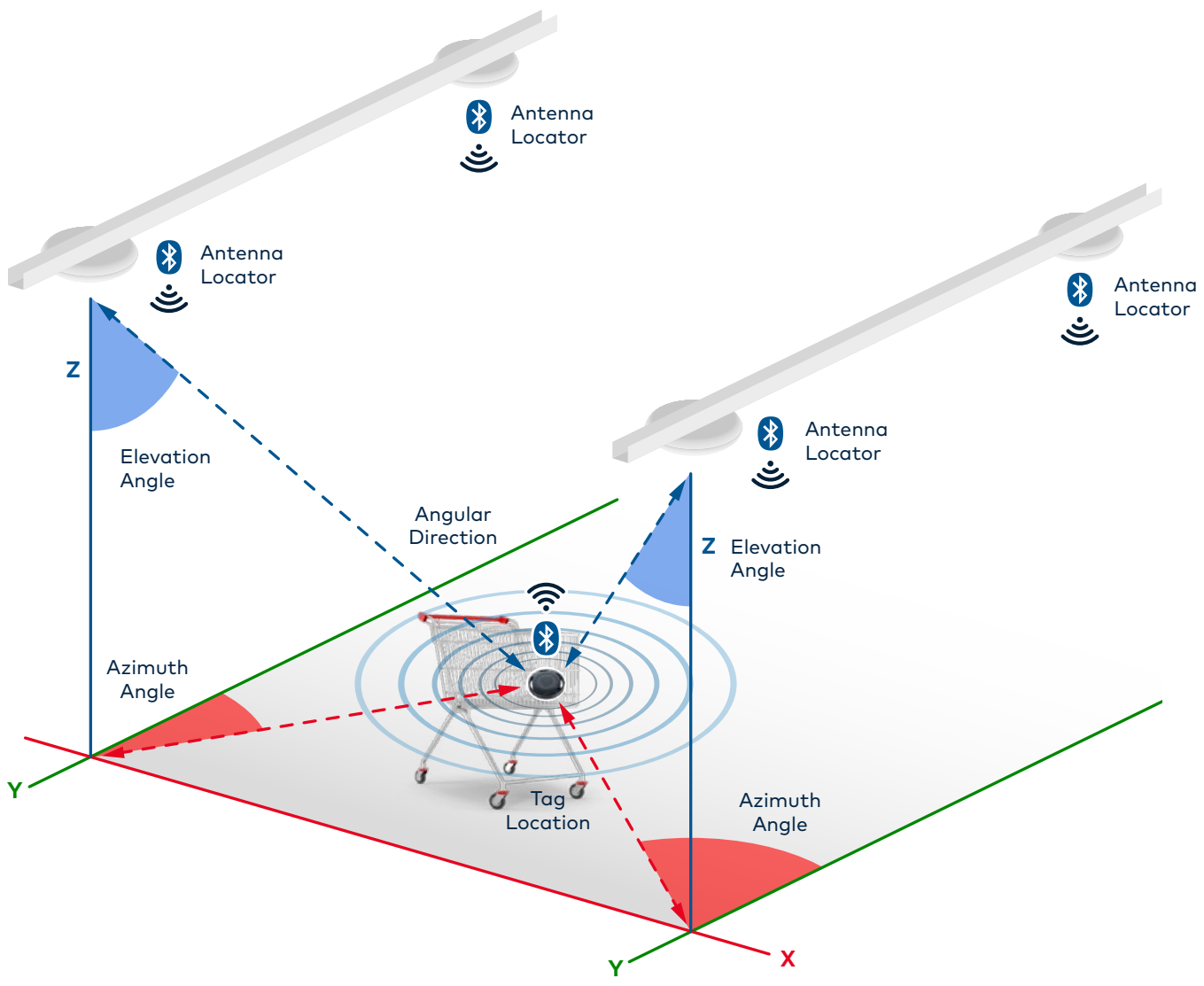
ANGLE OF ARRIVAL

The Angle of Arrival (AoA) technology provides real-time tracking of moving objects, making it highly useful in dynamic retail environments like supermarkets and DIY stores. AoA uses Bluetooth Low Energy wireless communication to precisely determine the direction from which a signal is received, proving invaluable in applications involving location tracking and navigation across buildings of varying sizes, potentially into the thousands of square metres.

HOW IT WORKS:

A tag transmits a BLE signal, which is then captured by the antenna locator. The antenna locators, strategically positioned at known distances apart, can accurately measure the phase or time difference of the incoming signal. As the signal reaches different antenna locators at slightly varying times or with different phases due to their spatial separation, the system can effectively measure these differences. The phase or time difference plays a critical role in calculating the angle.

The calculated angle indicates the direction from which the signal is coming relative to the receiver. This directional data can be leveraged to accurately locate the signal source. Therefore, AoA provides precise directional data, enabling exact location tracking within fifty centimetres.

Antenna Locator

Antenna Locator

Antenna Locator

Antenna Locator

Z

Elevation Angle

Azimuth Angle

Angular Direction

Z Elevation Angle

Y

Azimuth Angle

Tag Location

Y

X

Azimuth Angle

HAP ANTENNA LOCATORS

Thorn offers two sizes of antenna locator. The Q35 with IP66 certification is suitable for indoor and outdoor applications and due to its wide internal antenna array it can overcome the challenges associated with metal intensive environments often found large retail stores. It can be used with any HAP tag or sensor and also with the Q17 antenna locator. The IP44-rated Q17 model is suitable for multiple indoor applications including retail. Both antennas are powered via a 48 V Power over Ethernet wire.

A C-shaped bracket has been designed to conveniently mount HAP antenna locators to Thorn's Contus trunking system. The bracket has undergone various tests to ensure safety and compatibility and to guarantee the functionality of both the luminaire and the antennas without compromising the performance of either. The linear nature of Contus means that an aesthetically pleasing installation can be achieved without untidy looking cabling, as the PoE wire can be easily attached along the top surface of the trunking.
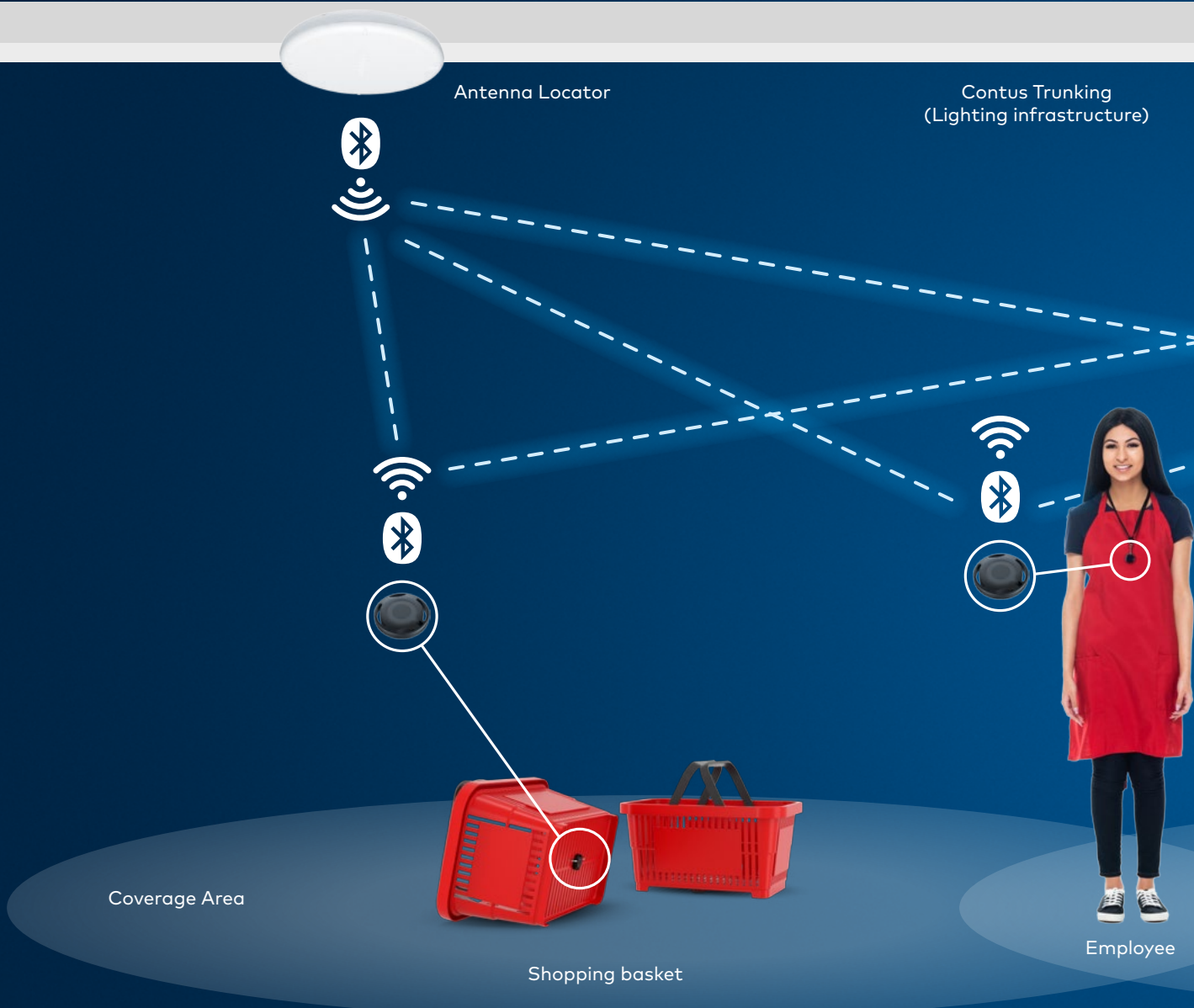
Antenna Locator

Contus Trunking
(Lighting infrastructure)

Coverage Area

Shopping basket

Employee
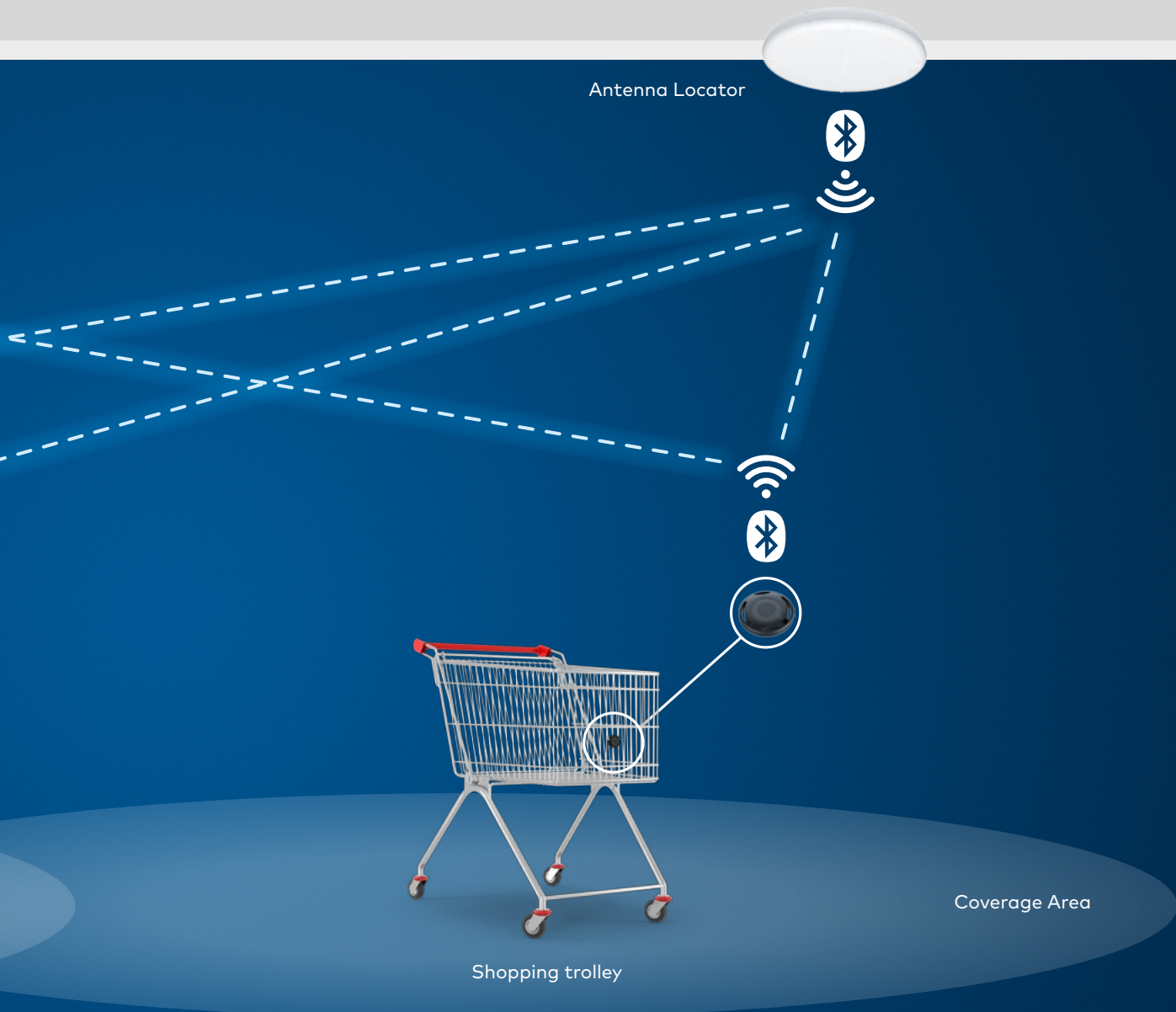
C-Bracket for
convenient
mounting to
Contus trunking

Q17 Antenna
Locator

Power over
Ethernet

Antenna Locator

Shopping trolley

Coverage Area

WE
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LIGHT
WORK

**1 YEAR
GUARANTEE**

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TOUCH

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