

Chipless RFID Market- Global Industry Size, Share, Trends, Opportunities, and Forecast 2018-2028F Segmented By Product Type (Tag and Reader), By Component Type (Direct Thermal and Thermal Transfer), By Frequency (Low frequency, High frequency, and Ultrahigh frequency), By Application (Smart Cards, Smart Tickets, and Others), By End User (Retail, Healthcare, Logistics and Transportation, BFSI, and Others), By Region, Competition

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Abstracts

Chipless RFID market is expected to grow during the forecast period as a result of factors such as high accuracy, low manufacturing cost, and providing more functions as compared to other alternatives. However, initially high capital investment is a major restraining factor to the global chipless RFID industry. In addition, growing shift of retailers towards chipless RFID is expected to create opportunities for chipless RFID industry. Furthermore, owing to its huge data carrying capacity, adaptability in the application, and flexibility in its working during the forecast period, Chipless Radio Frequency Identification (RFID) has emerged as one of the most cutting-edge and fast-growing technologies. It is expected to replace the optical barcode. Generally speaking, Chipless tags are RFID tags without silicon chips. RFID systems have been effectively used in manufacturing, logistics, supply chain, healthcare, and transportation.

A Chipless RFID system is equipped with a planar encoder (characteristically a printed pattern containing the ID code) & an antenna for communication with the reader. Due to

low-cost conductive inks, the cost of the tag can be significantly reduced. The chipless RFID system has benefits over conventional sensors, due to its lower radiated power, lower cost, robustness, and longer storage life. Alternatively, chipless RFID system provides identification data and monitors several physical parameters of tagged items without having an active sensor in the circuitry. A chipless RFID tag is also used as a chipless RFID sensor in offering low-priced sensors for realizing the universal networks required by the IoT paradigm. A chipless RFID sensor is mainly used for the detection of CO₂.

Global Chipless RFID Market: Drivers & Trends

Increased Efficiency Offered by Chipless RFID Tags:

RFID has made great developments in improving inventory accuracy & providing accurate counts. Also, RFID technology catches wide range of data at a fast speed. Since no direct line of sight is required, it completes inventory counts in few minutes. Additionally, RFID also prevents transcription mistakes, replication of data, and missed items when used to collect data on large number of items concurrently. The use of cloud-based systems permits everyone in the organization to see up-to-date data on the whereabouts or status of items.

Rise In Demand for Chipless RFID in the Banking and Healthcare Sector:

Expanding demand for chipless RFID tags in banking and healthcare sector is estimated to lead the global chipless RFID market. Numerous industries such as healthcare & the BFSI sector are implementing chipless RFID tags to keep a track of their products. However, these chipless RFID tags are moderately less expensive since they do not have silicone chip and do not need maintenance operations. Thus, these factors have increased the adoption of chipless RFID tags in passports & banking cards. Also, several companies are suggestively adopting chipless RFID due to its cost-efficient & anti-counterfeiting properties, which in turn, is expected to boost the global chipless RFID market growth during the conjecture period.

Low Cost of Manufacturing:

Manufacturing of chipless RFID products is relatively low-cost as it does not require silicon chip or any batteries inside the tag for product tracking, which decreases the price of these tags. As these tags do not have specific applications, they can be used in numerous industries. Generally, these tags are printed with the help of inkjet printers,

which is comparatively cheaper and allows time for multiple tag printing, making the entire manufacturing process easy and simplified. This, in turn, is expected to propel the market growth over the forecast period.

Technological Advancements in Printed Electronics is a Major Trend in the Market:

Development of novel technologies in printed electronics has aided RFID developers to create thin and flexible RFID tags. Furthermore, growing use of ink technologies and electronic printing is expected to support RFID developers to print their own chipless RFID tags onsite, as per demand. Numerous key players in the market are focused on 3D printing technology for companies, in order to directly print RFID tags and on/in products. Therefore, constant development in printed electronics is expected to boost the demand for chipless RFID tags in the near future.

Global Chipless RFID Market: Restraints

Risk Associated with Breach of Confidential Information:

Despite of its various points of interest, chipless RFID doesn't have locking framework or security password, which may create a data breach threat. Numerous organizations in healthcare and different businesses regularly try not to utilize chipless RFID labels for resource because of danger related with information breach related to usage of medicine and its composition. These elements are required to obstruct its appropriation and accordingly limit the global market development over the forecast period.

Global Chipless RFID Market: Opportunities

Growing Shift of Retailers Toward Chipless RFID Products:

Retail sector is increasingly adopting chipless RFID tags in its retail chain & stores, thereby driving the global chipless RFID market growth. In the retail sector, chipless RFID tags are mainly used in item-level tagging and smart shelves. Smart shelves are designed with built-in RFID reader system and are programmed to raise an alarm whenever the stock on the shelf is lower, thereby preventing situations such as out-of-stock. Furthermore, in item-level tagging, consumers can view details of tagged products by scanning them. This eventually saves time and personnel at work. For example, in Germany, Metro AG, a supermarket chain, implemented RFID in its supply chain due to which its suppliers, distributors, & other middlemen use RFID enabled logistic unit for recording each and every detail of the inventory.

Innovation of Cloud-Based System:

Manufacturers can combine cloud-based applications for various sectors such as logistic & retail, in order to combine with chipless RFID tags. Generally, these tags are mostly used in healthcare, logistics, retail, manufacturing, and other sectors.

Deployment and management of data recorded on chipless RFID tags is challenging, thus, integration of cloud-based applications with chipless RFID tags can assist in providing central management without increasing deployment cost.

Integration of Sensors in Chipless RFID Tags:

In order to hinder corporations from connecting their belongings and regulating the transportation of their merchandise, chipless RFID incorporates communication technology and sensors. Numerous companies in the market, due to the extensive application of Chipless Radio Frequency Identification (RFID) in various sectors, are consistently engaged in research and development to innovate novel products. Moreover, numerous manufacturers in the industry furnish their products with sensors that can endure elements such as pressure, humidity, temperature, etc. These factors are anticipated to generate lucrative opportunities for participants in the global chipless RFID market.

Global Chipless RFID Market: Recent Developments

In April 2019, Alien Technology, announced Higgs-9 IC, the first announcement of its next-generation of Higgs RFID semiconductor integrated circuits. Higgs-9 enables enterprise-critical applications to run faster, smarter and with quicker ROI in RFID deployments.

Identiv, Inc. announced that by the end of 2023, its Singapore transponder factory would have constructed 350 million units of Radio Frequency Identification Devices (RFID). The firm attained globally recognized compliance certifications and performance indicators to allow faster growth in original IoT and RFID solutions. Identiv continues to release best-in-class engineering and products to the public and hopes to grow in the upcoming years.

In May 2022, SELFLY launched new RFID-enabled micro-stores for easier customer experience and a reduction in labour costs. The stores are said to be completely unmanned and open 24x7 to the public, to allow easier and more

efficient access to customers. These stores utilize cloud computing and IoT technology to keep track of the products and maintain inventory to minimize wastage.

In April 2019, Avery Dennison, in a partnership with Kit Check, aimed for the implementation of RFID technology for big pharma. This collaboration will help pharmaceutical companies to build into their medication labels, thereby enabling the tracking of each product from the point of manufacture until after it arrives at the hospital.

Market Segments

Global Chipless RFID market is segmented into product type, component type, frequency, application, end user, and region. Based on product type, the market is segmented into tag and reader. Based on component type, the market is segmented into direct thermal and thermal transfer. Based on frequency, the market is segmented into low frequency, high frequency, and ultrahigh frequency. Based on application, the market is segmented into smart cards, smart tickets, and others. Based on end user, the market is segmented into retail, healthcare, logistics and transportation, BFSI, and others. Based on region, the market is segmented into Europe, North America, Asia-Pacific, South America, and Middle East & Africa.

Market Players

Major market players in the global chipless RFID market are NXP Semiconductors, Honeywell International Inc., Zebra Technologies Corp., Alien Technology, LLC., Impinj Inc, Invengo Information Technology Co., Ltd, Checkpoint Systems, Inc., Avery International Corporation, Applied Wireless RFID, Tag Sense Inc.

Report Scope:

In this report, global Chipless RFID market has been segmented into following categories, in addition to the industry trends which have also been detailed below:

Chipless RFID Market, By Product Type:

Tag

Reader

Chipless RFID Market, By Component Type:

Direct Thermal

Thermal Transfer

Chipless RFID Market, By Frequency:

Low frequency

High frequency

Ultrahigh frequency

Chipless RFID Market, By Application:

Smart Cards

Smart Tickets

Others

Chipless RFID Market, By End User:

Retail

Healthcare

Logistics and Transportation

BFSI

Others

Chipless RFID Market, By Region:

North America

United States

Canada

Mexico

Asia Pacific

China

India

Japan

South Korea

Australia

Europe

Germany

Italy

Spain

United Kingdom

France

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in Global Chipless RFID Market.

Available Customizations:

Global Chipless RFID Market with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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(Note: The companies list can be customized based on the client requirements)

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