Anti-counterfeiting and anti-piracy technology guide

https://euipo.europa.eu/anti-counterfeiting-and-anti-piracy-technology-guide

Battery-Assisted Passive (BAP) or Semi-Passive Tags

These RFID tags have a small battery that powers only the microchip. This gives them the advantage of larger, potentially rewritable memories, as well as the ability to run and store information from environmental sensors (among other possible types of sensor). Because of these features, BAP tags are typically used in the 'cold chain', that is, ensuring the temperature of products (food, pharmaceuticals or other healthcare products) remains at a constantly low level from the manufacturer to the end user.



Used for
- Authentication
- Tracking/Tracing

Suitable for
- Medium-sized products
- Large products

Goes on
- Product
- Packaging

Can be used for
- Physical products

Visibility
- Invisible

Reading device needed
- Yes

Connection to server
- Yes

Description

BAP tags are also known as semi-passive tags because although they have a battery (like active tags), they do not have a transmitter. Instead their signals are activated by a reader (like passive tags). The battery powers the microchip, which allows BAP tags to offer similar additional features to active tags (e.g. environmental sensors and a larger, potentially rewritable memory). They also have a longer read range than passive tags, and can operate a few dozen metres from the reader (but usually no more than 30).

As with active tags, the main disadvantages of BAP tags are their limited battery life and the adverse environmental impact of battery replacement and disposal. However, these disadvantages could be overcome by using solar energy or inertial systems to power the battery, much like solar-powered wristwatches.

Uses

Owing to their larger memory capacity and sensors, BAP tags are often used to record movement of objects and measure external temperature and pressure (in addition to tracking and authenticating).

Implementation

Any changes that may need to be made to the production process to implement this technology will depend on how you decide to attach the BAP tag to the product. If you attach it to the exterior of the finished product, only minor changes will be needed (e.g. adding an attachment process to the end of the production chain). If,

however, you decide to embed the BAP into the product – so as to make it less visible and easily accessible (and thus removable or replaceable) – you may need to make significant changes to the production process, although these will depend on your particular product and the mode/place of embedding.

Cost

Implementing a BAP RFID tag system will require initial investments in equipment management systems, readers and changes to the production process. The cost of the tags themselves is around a few euros per tag and depends mainly on the cost of the battery. These costs may be reduced by using small solar-powered rechargeable batteries or inertial systems to charge the batteries.

*The information contained in this site is of **general** informational nature and does not constitute legal, consulting or any other **professional advice or guidance**. The information contained in this site is provided on an 'as is' basis with **no guarantee of completeness**, accuracy, usefulness or timeliness and without any **warranties** of any kind whatsoever, express or implied, including but not limited to warranties of performance, merchantability and fitness for a particular purpose. The use of the information is at the user's own risk and the EUIPO does **not guarantee any specific results** or outcomes based on the use of the information provided on this website. The search results are **not presented in any order of recommendation** . This website contains links to **other third-party websites**. Such links, which are free and publicly available, are only for the convenience of the user or browser; the EUIPO does **not recommend, endorse**, warrant, or assume liability of the content or practices of these third-party sites. The EUIPO may update, modify, or remove any information on this website without prior notice. It is the user's responsibility to stay informed of any changes.*