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CE RFID Coordinator

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Partners:



RFID Standards and Radio Regulations

Results and Recommendations

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Picture courtesy of: Siemens



CE RFID

Radio Frequency Identification (RFID) is an outstanding key technology for Europe. RFID uses tags, readers and computer systems to transmit data wirelessly without contact or line of sight. European companies are at the forefront of RFID technology development and are continuously promoting the economic and social value of RFID.

European RFID users and vendors have launched the initiative “Coordinating European Efforts for Promoting the European RFID Value Chain” (CE RFID). CE RFID aims at improving the market conditions for RFID technology and at strengthening the development of the technology in Europe. The initiative was funded by the European Commission within the 6th Framework Programme.

The activities of CE RFID centred around five main topics:

- ▶ RFID application and technology roadmap
- ▶ European RFID research & development policy
- ▶ RFID standards and radio regulations
- ▶ RFID application and implementation guidelines, and
- ▶ Regulatory framework for RFID.

About 200 European experts from different stakeholder groups contributed to the work of CE RFID by participating in workshops or by reviewing reports, thus ensuring that the detailed recommendations for a supportive European policy on RFID are based on a broad societal basis.

The brochure highlights the results of CE RFID regarding RFID standards and radio regulations. This work package was lead by FEIG Electronic GmbH.

Challenges

Standardisation is a process of developing and agreeing upon technical standards and making them a vital instrument for new technologies to avoid an uncontrolled growth of research results. Standards regarding RFID concern frequencies, communication, data, networks, safety and applications, and need to be coordinated internationally.

There are a vast number of RFID-related standards and standardisation organisations. More than 250 standards describing RFID-related solutions have been established by around 30 different organisations until today. This large quantity of documents shows that RFID is an eminent advantage for a wide range of applications in different industries, as can be seen in the RFID Reference Model. On the other hand it raises the question, if too many standards exist. In fact, if standards are worked out too early without well defined market requirements, this leads to “dead” standards, existing on paper but not used practically on a wide scale.

The main objectives of the analysis were the collection and analysis of all kinds of RFID-related standards. This especially includes:

- ▶ RFID frequencies and radio regulations,
- ▶ RFID communication standards,
- ▶ RFID data standards,
- ▶ RFID network standards,
- ▶ RFID security and privacy standards, and
- ▶ RFID application standards.

The analysis of these standards has taken place with respect to overlaps, inconsistencies, sector-specific standards and gaps within standards. After the analysis of different standards recommendations for European RFID standardisation activities have been developed.

Major results

The analysis led to five main recommendations:

Support creating fewer but more broadly accepted standards

It is important to create fewer, but more broadly accepted standards. If the complete set of regulations is given, technology providers as well as users of a product do not have any leeway to create their own solutions. If there are many standards for similar topics they need to opt for one of them, which in fact would be similar to a situation of having no standards at all. Unfortunately, there is still a lack of well-established standards. Many standards are in place; however, there is a little agreement on which ones should be held up.

Ensure an appropriate radio spectrum framework

Presently there are some problems concerning radio spectrum in the European Union, such as the lack of harmonisation and full availability of “first generation” radio spectrum ranges, besides from the fact that they are considerably smaller than the available frequencies in other countries, which impedes the technological development of the EU. In addition, there is a growing need for a pan-European program to tackle radio spectrum matters.

Ensure cooperation and data interoperability between different code issuing agencies

For the Electronic Product Code, the non-profit organisation GS1 acts as the issuing agency for codes. For many end users, many synergies could be leveraged relying on the family of GS1 Identification Numbers, known collectively as the GTIN (Global Trade Item Number), GLN (Global Location Number), SSCC (Serial Shipping Container Code), GRAI (Global Returnable Asset Identifier), etc. GS1 assigns EPCs to end users and ensures that the numbering schemes guarantee uniqueness. Industries which do not make use of EPC need to be encouraged to use the relevant ISO standards to assign identifiers.

Harmonised international standards and application-specific standards should be only established if generic standards are not sufficient

The analysis of the application standards shows that there is a strong need for more harmonised international standards. The need for such a standardisation activity is driven by the increasing level of international commerce in combination with the more global flow of goods. Standards could be based on existing and already established national standards.

Identify the needs for data protection and data security of different application fields and develop corresponding guidelines and suitable security standards

Different application fields have different needs for data protection and data security. The requirements of specific application fields regarding data protection and data security should be identified and corresponding guidelines should be developed. Further, there is a need for the development of suitable security protocols and algorithms, which are specific for certain applications and which may also contribute to a better protection of personal data.

Further reading

All CE RFID reports are available in the internet: www.rfid-in-action.eu.

In addition to the reports, the partners of CE RFID have published a summary of the findings in the book: Gerd Wolfram, Birgit Gampl, Peter Gabriel (eds.): The RFID Roadmap: The Next Steps for Europe. Springer: Berlin/Heidelberg 2008

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