

WE NEED PARTNERS !

That's why we have set up the Global RFID FORUM. It's free and it's available to companies, organisations or individuals interested in RFID worldwide. It's your opportunity to influence our thinking. See page 10 or Sign up now at : www.rfidglobal.eu

RFID VIEWPOINT

CASAGRAS
an EU Framework 7 Project

Welcome...

...to the Casagras e-Newsletter

Promoting international collaboration on RFID
standardisation for **The INTERNET OF THINGS**



CASAGRAS AND THE INTERNET OF THINGS - SETTING THE SCENE

Prof. Anthony Furness, chief technology officer for the European Centre of Excellence for AIDC and Technical Co-ordinator of CASAGRAS puts RFID in context with the Internet of Things. *Page 2*



EUROPEAN UHF RFID 4-CHANNEL PLAN GOES GLOBAL :

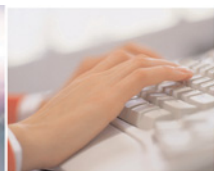
Josef Preishuber-Pflugl of CISC Semiconductor Design + Consulting GmbH reports on the successful world-wide uptake of this European concept. *Page 12*

To read the full CASAGRAS Newsletter
[Click Here](#)

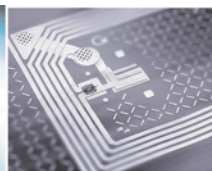
CASAGRAS project



**CASAGRAS
in ASEM
RFID workshop**
CASAGRAS will
be a key
participant in an
ASEM workshop
in Lithuania
Page 15



**French
Conference**
will put the
spotlight on The
Internet of Things
and its
development
Page 14



**Meet the
CASAGRAS
Partners**
and learn more
about their
organisations and
expertise
Page 3



**Looking at
Standards for
Privacy &
Security**
the need to
address public
concerns in RFID
systems
Page 8



**International
Events Diary**
check-out
conferences,
workshops and
exhibitions
including next
CASAGRAS
meetings
Page 16

CASAGRAS and The Internet of Things - **Setting the Scene**



One of the primary objectives for CASAGRAS is to consider the role of RFID and associated standards within the emerging concept of the Internet of Things. A critical review of European-based project and conference developments revealed that the concept required further definition and development in terms of scope and content. It also revealed that RFID, although viewed as a key enabler for the Internet of Things, was not the only technology that could contribute to a networked infrastructure exploiting the potential for connecting with the physical world. It was therefore concluded that CASAGRAS should address the potential offered by considering a more inclusive model for the Internet of Things. The model identified distinguishes an 'object space' in which a variety of 'edge' technologies, including RFID, could be exploited to:

- Connect with and identify objects, using natural feature and data carrier techniques and technologies
- Network objects and object-connected readers, both fixed and mobile
- Facilitate, as appropriate, the location of objects
- Facilitate, through object-connectable sensor devices, sensing of environmental quantities to which the object is subjected.

Linking the object space, or the object-connected physical world, to create an Internet of Things, are fixed wired and wireless, and mobile wireless communications structures with associated interfaces and processing nodes and subsequent linkage, where appropriate for integration within the evolving Internet. These components support the growth of a network of networks embracing ad hoc networks and sensor networks.

Identification coding and coding to facilitate communications within and between networks is seen as a necessary feature of the Internet of Things, with a global coding structure being distinguished to accommodate legacy identification schemes, such as electronic product code (EPC) and ubiquitous identification (UID). Further work is being undertaken to establish a robust recommendation for the overall scheme for object-identification within an Internet-related infrastructure.

Object-space considerations have so far only received moderate consideration with respect to object groupings and how those groupings might translate into services and or support structures within the Internet of Things. A parallel has been drawn with the growth of the Internet and the prospective growth of the Internet of Things based upon assignment of nodal sites and independent, owner-based development of services. This of course raises a number of issues such as scalability, vulnerability, security, quality of services, network performance, control and governance, each of which are to be considered further within the CASAGRAS project.

The broader view of the inclusive model for the Internet of Things also raises issues concerning standards and regulations relating to the broader technological base and the implications of integration. These are further issues to be considered within CASAGRAS.

Attention is also being directed at the nature of network structures that will populate the Internet of Things and the prospects that will emerge for linking, initiating and growing networks. Consequently, subsequent newsletter articles will address specific network components and their role within the **Internet of Things**.

MEET THE CASAGRAS PARTNERS



Association for Automatic Identification
and Mobile Data Capture

CASAGRAS comprises a key group of international partners representing Europe, the USA, China, Japan and Korea who have come together to form this EU-funded 7th Framework initiative. Together they will look at global standards, regulatory and other issues concerning RFID and its role in realising the Internet of Things.

AIM UK: since its foundation 25 years ago AIM UK has been the leading non-commercial trade association for the automatic identification and data capture industry (AIDC). It is one of the longest established chapters of the AIM Global network and its member companies represent every aspect of AIDC including barcode, RFID, biometrics, mobile data capture, smartcards and voice recognition.

AIM UK members range in size from small niche consultancies to multi-national suppliers of software, hardware and turnkey solutions.

AIM UK has established excellent working relationships with UK government agencies for whom it has produced a wide range of authoritative guides and publications for the AIDC end-user community. It also enjoys an excellent working relationship with the European Commission following the success of several EU projects in which it has taken a key role. These include EU FoodTrace, the PETER project on traceability in the food supply chain and Bright Animal, a new project which will look at precision livestock farming. (www.aimuk.org)

AIM UK president **Ian G Smith**, co-ordinator of the CASAGRAS project, is also chief executive officer of the **European Centre of Excellence for Automatic Identification and Data Capture Technologies**, another project partner. The centre's head of technology, **Professor Anthony Furness**, acts as chief technology officer for CASAGRAS.

Opened in late 2007, the AIDC Centre of Excellence is a publically funded organisation responsible for raising awareness among end-user communities of the potential of AIDC technologies to transform business efficiency and profitability; to encourage excellence in innovation, research and development; to contribute to setting globally agreed standards; and to offer high quality training opportunities to both end-users and industry members.

The AIDC Centre of Excellence contains ten demonstrator units covering areas such as healthcare, manufacturing, food supply chain and logistics which allow visitors to see the technologies in action in real time and to better understand their potential and efficient application. (www.aidc.org)



Ian G Smith



Anthony Furness





The ETRI team, from left :
Junseob Lee, Byoungnam Lees,
Yong-Woon Kim, Sangkeun Yoo
and Eunsook Kim



Prof. Dr. Ken Sakamura

ETRI (Electronics and Telecommunication Research Institute) Korea : ETRI is the biggest government-funded ICT research and development institute in Korea and takes the lead in: telecommunications, mobile communications, radio and broadcasting, software computing, telematics, intelligent robot, RFID and wireless sensor networks. It was established in 1976 and employs about 2,500 R&D engineers.

Yong-Woon Kim is the team leader and senior research engineer of the u-infra standards team of ETRI and is responsible for leading four work areas:

- standardization for USN (ubiquitous sensor network) networking and application/services technologies
- standardization for 900MHz based mobile RFID technologies
- standardization of IPv6 based mobility support on next generation network
- development of IPv4/IPv6 transition and security technologies.

The team has developed domestic standards to support mobile RFID services which provide RFID-triggered B2C and B2B2C information content to consumers and has contributed its achievements to international standardization works handled by IT-U SG 13, SG 16, SG 17 and ISO/IEC JTC 1/SC 31. The ETRI team has also studied sensor network technologies as characterized in ITU-T as ubiquitous sensor networks (USN) which provides context-aware information and knowledge services. (www.etri.re.kr)

YRP Ubiquitous Networking Laboratory, Tokyo: Prof. Dr. Ken Sakamura is director of the YRP Ubiquitous Networking Laboratory (UNL) in Tokyo and represents the organisation as a CASAGRAS partner. UNL was established in 2002 and is an independent laboratory for research and development in ubiquitous networking and ubiquitous computing. Dr Sakamura is also professor of the Interfaculty Initiative in Information Studies at the Graduate School of the University of Tokyo.

In addition to these posts Prof. Sakamura is also chair of the T-EngineForum, a non-profit organisation set up to promote the results from the TRON Project, and of the uID Centre which is at the core of the management of ubiquitous ID architecture promoted by UNL.

The TRON Project (The Realtime Operating system Nucleus) was established in 1984 and aims to improve the state-of-the-art of operating systems for realtime embedded devices. The project is characterised by an open approach. The technical specifications produced by the project are available, free, within the public domain and can be used to create royalty-free products (see www.t-engine.org)

Prof. Sakamura is interested in making computers small and embedding them in many "real world" objects and the achievements of the TRON project have proved useful in promoting the future of ubiquitous computing. A ubiquitous computing paradigm is currently being promoted into a social infrastructure and research and development of RFID chips and application software systems is being carried out at the University of Tokyo and at YRP UNL.

The latest series of trials using RFID technology to offer sight-seeing, shopping, barrier-free facilities and other useful services to pedestrians have attracted world-wide media attention and trials are on-going in several Japanese cities. (See www.ubin.jp)

Supply Chain Innovation Centre, Hong Kong Science & Technology Parks Corporation, China: The Supply Chain Innovation Centre (SCIC) is a joint initiative between Hong Kong Science and Technology Parks Corporation (HKSTP) and GS1 Hong Kong. Its task is to bring supply chain management professionals and technology together to enable enterprises in Hong Kong and the Pearl River Delta to become more responsive to market needs and improve operational efficiency while bolstering overall economic competitiveness. Established in February 2007, the SCIC occupies an area of over 3,000 square feet at Hong Kong Science Park.

Sharing the common vision, the SCIC can leverage HKSTP's synergies in the Integrated Circuit Development Support Centre, the Material Analysis Laboratory and the Wireless Communications Test Laboratory becomes a focal platform for RFID development and activities.

The creation of the SCIC fulfils HKSTP and GS1 Hong Kong's mission to facilitate the local adoption of global supply chain standards, best practices and enabling technologies as well as providing implementation services and support to local enterprises. The SCIC aims to accelerate local adoption of RFID technology and showcase the latest RFID solutions through demonstrations of applications at work as well as training programmes. It shows how a complete supply chain covering the manufacturing, logistics and retail sectors increases efficiencies using the standards-based EPC network together with a suite of RFID integrated solutions.



Ricky Ma

Ricky Ma is senior manager of the HKSTP and champions the interests of the ICT, precision engineering technology (optoelectronics and nanotechnology) and industrial design clusters at the Science Park and at three industrial parks in Hong Kong. Ricky brings to bear over 25 years of private and public sector senior engineering and management experience in UK and Australia, in addition to Hong Kong. He is vice chairman of the Hong Kong Association for the Advancement of Science and director of international affairs for the Hong Kong Optoelectronics Association (HKOEAA).



Bobby Tang

Bobby Tang is head of EPC/RFID with GS1 Hong Kong. His key role is to facilitate the technological development and industry adoption of EPC/RFID in Hong Kong and the PRD. He has over 20 years experience across a wide spectrum of business-to-business solutions encompassing strategic business development and management, business process management, market research and analysis, client relationship management and project management, taking in financial management, quality assurance and process improvement and product development in high-tech and consultancy firms.

Ronald Heung is senior project manager with GS1 Hong Kong. His responsibilities include managing large scale EPC/RFID projects to establish the Hong Kong EPC network to achieve end-to-end supply chain visibility as well as establishing the Supply Chain Innovation Centre. Before joining GS1 Hong Kong in 2005, Mr Heung worked for several multi-national companies managing major business and IT projects in Hong Kong, the Middle East and UK. Projects included SAP implementation, airline Internet booking systems, air-cargo Internet systems, insurance, banking and stock trading systems. (See www.scic.org and www.gs1hk.org)



Eldor Walk

FEIG Electronic GmbH, Germany: FEIG was founded 30 years ago and now employs around 150 people. Main business activities include RFID hard and software, control equipment for industrial doors and induction loop detectors, and its products are used all over the world. FEIG develops and manufactures RFID readers and antennas. As an OEM supplier, the company delivers only to system integrators and resellers. FEIG offers components within the range of 125kHz (access control), 13.56 MHz (eDocument, ticketing, logistics etc). The company's R&D department has 30 engineers while sophisticated development work on products in the frequency ranges <135 kHz, 13.56 MHz and UHF (860-96 MHz) is carried out in its fully equipped laboratory.

Eldor Walk, head of R&D and chief technology officer, leads FEIG's involvement in the CASAGRAS project. He is also currently : leader of work package for RFID standardisation of CE RFID (co-ordinating European efforts for promoting the European RFID value chain, member of ETSI ERM TG34 (RFID); member of ISO/IEC SC31 WG4 (item identification - RFID); member of EPCglobal hardware and software action groups; member of GS1 Germany steering committee RFID/EPC; member of German DIN committees; chair of AIM Europe RFID expert group. (See www.feig.de)



Craig Harmon

QED Systems, USA: QED Systems was established in 1981 by **Craig K Harmon** and is the world's leading consultancy on automatic identification, having founded and chaired the AIM Global RFID Experts Group, the ISO/IEC JTC 1/SC 31 and the ISO Joint Working Group on Supply Chain Applications of RFID. The company provides end-users and technology providers with the expertise they require to navigate the world of barcode, two-dimensional symbol, RFID and RTLS technologies and has been responsible for the advancement of numerous corporate, national and international standards. QED Systems leadership chairs the international effort on the network-centric solutions of mobile item identification and management (JTC 1/SC 31/WG 5), real-time location systems - JTC 1/SC 31/WG 5, the US TAG to ISO TC 122 (packaging) and two ISO TC 122 working groups having developed the ISO standards for barcode and 2D symbols on product packaging (ISO 22742), product marking (ISO 28219) and shipping labels (ISO 15394).

QED President Craig Harmon and the company's chief operating officer are both AIDC 100 members, while Craig is also the senior project editor of the ISO/IEC 18000 series and was the 2004 Richard Dilling Award recipient. He was project editor of the first JTC 1/SC 31 standard (ISO/IEC 15434) and the first JTC1/SC 31 RFID standard (ISO/IEC 18000-7).

Craig Harmon also serves as an officer in numerous ANSI, ISO and JTC 1 groups and the liaison to ITU and ETSI. He participates in the specification development of EPCglobal, has written substantially on the topic of RFID and is the author of four books on data collection technology.

(See www.qedsysinc.com)



Patrick Guillemin

ETSI (European Telecommunications Standards Institute) France: ETSI is an independent, non-profit organisation whose mission is to produce telecommunications standards for today and the future. Based in Sophia Antipolis, near Nice, France, ETSI is officially responsible for standardization of information and communications technologies (ICT) within Europe. These technologies include telecommunications, broadcasting and related areas such as intelligent transportation and medical electronics.

ETSI unites 696 members from 62 countries inside and outside Europe, including manufacturers, network operators, administrations, service providers, research bodies and users - in fact, all the key players in the ICT arena.

ETSI also plays a major role in developing a wide range of standards and other technical documentation as Europe's contribution to world-wide ICT standardization. This activity is supplemented by interoperability testing and other services. ETSI's prime objective is to support global harmonization by providing a forum in which all the key players can contribute actively. ETSI is officially recognised by the European Commission and the EFTA secretariat.

ETSI's members determine the institute's work programme, allocate resources and approve its deliverables. As a result ETSI's activities are closely aligned with market needs and there is a wide acceptance of its products.

ETSI's participation in CASAGRAS is led by **Patrick Guillemin**. With 21 years experience in IT and telecommunications project management and 13 years in standardization, he is responsible within ETSI for development, co-ordination and management of new standardization initiatives in RFID and related fields. Also taking part with him in the CASAGRAS project are **Ultan Mulligan**, director of strategy and new initiatives at ETSI, and **Philippe Cousin**, currently technical director of the FP6 GO4IT project related to overall testing approaches and open test platform. (See www.etsi.org)



Paul Chartier

Paul Chartier is founder and principal of the UK based Praxis Consultants, an independent business and technology consulting firm established in 1980. The company provides advice, information and educational services and specialises in barcode, the integration of RFID into open systems applications and advising on other AIDC technology. Praxis Consultants has a particular expertise in AIDC standards development: industry application standards, data structuring and protocol standards, symbology specifications, technology standards in the domains of ISO, CEN and EAN.UCC and EPCglobal. In 2003 Paul Chartier was appointed visiting professor at the Technology Innovation Centre, a subsidiary of the University of Central England. In this role he has contributed towards establishing a body of knowledge related to AIDC for it to be disseminated through research papers. He leads Work Package 1 for the CASAGRAS project - review of standards and procedures for international standardisation in relation to RFID and the emerging Internet of Things.



David Armstrong

David Armstrong is chief executive officer and co-founder of RFIP Ltd., a UK based supplier of RFID equipment, consultancy and training. He was previously a senior vice president of BTG plc, a world leader in the fields of IP management, technology transfer and innovation. David Armstrong has extensive business experience in technology transfer, company creation and funding. Other posts held include CEO of RFIP Solutions Ltd., a joint venture that developed and licensed IP for incorporation in RFID integrated circuits. The early part of his career was spent at Quantel where he established the company's military electronics division. Thereafter he was technical director of Kontron Electronics, part of a major medical group. David Armstrong has a Masters degree in business studies and is a chartered engineer, chartered physicist and chartered scientist. He leads work package Work Package 2 for the CASAGRAS project - regulatory issues in respect of RFID standards.

CASAGRAS identifies the Need for Risk Assessment and Design Standard for Supporting Privacy and Associated Security in RFID Systems



Anthony Furness

By Prof. Anthony Furness, CTO European Centre of Excellence for AIDC, technical director AIM UK & technical co-ordinator for the CASAGRAS project

The European Commission consultation process on RFID, conducted in 2006, revealed that 61% of the 2190 respondents were of the view that the public in general were not sufficiently informed about or aware of RFID. It also revealed privacy to be their biggest concern. While awareness-raising was seen as a necessary expedient in addressing this situation the need can also be seen for awareness accompanied by confidence-building directives that demonstrate that privacy is appropriately supported.

The privacy imperative is not simply a consequence of RFID, it clearly relates to a broader base of technological concerns. A UK study [1], undertaken by the Royal Academy of Engineering has drawn attention to these broader issues and provides a contribution to the public debate on information technology in general and its possible impact on privacy. It stresses the importance of influencing policy on an international basis.

The broader considerations extend to all aspects of data collection, storage, transmission and processing of data, how they are monitored and managed so that effects are properly understood and controlled in the interests of privacy. With expanding usage of RFID and prospectively applications with global dimensions, such as those relating to the proposed 'Internet of Things', considerations should extend to global privacy policy [2].

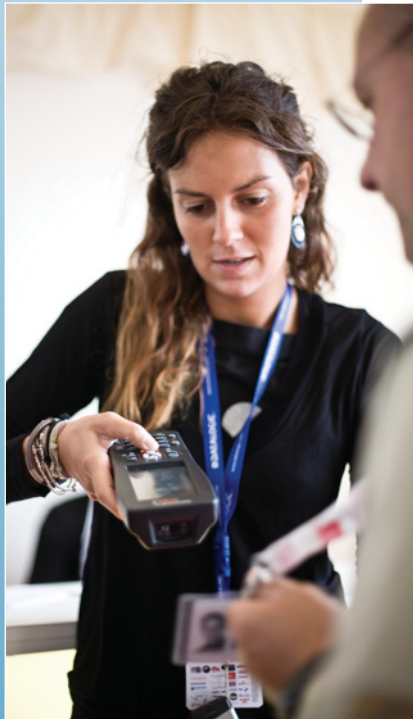
The European Parliament Scientific Technology Options Assessment (STOA) report, RFID and Identity Management in Everyday Life [3], has sought to establish a balanced view of RFID with respect to convenience, choice and control, and as such provides a useful standpoint for evaluating RFID with respect to privacy. Very importantly the study recognises that "the technology itself is neither good nor evil, and whether the future will be dark or bright will depend on how users and owners of RFID systems use them". To avoid taking sides in the debates for and against RFID the study participants have introduced a more neutral and dynamic concept, Identity Management, concerning the storage and use of personal data. This they define "as how a person, interacting with an information system, defines what is known about him/her to others using the system and how this relates to the information known or not known to the persons maintaining the system". In developing this concept the need has been seen for data protection legislation that goes beyond the EC Directive 95/46/EC with respect to supporting a governance model, including the implications of 'function-creep'.

Studies of this kind illustrate the multi-factorial nature of privacy, the often application-specific nature of privacy issues, the dynamics of change and the dynamics that influence attitudes and needs for protecting privacy. A seemingly open-ended flow of problems can be seen to arise with respect to RFID and privacy that command the need for solutions. Invariably, solutions have their limitations and, in some cases, other technologies could conceivably offer better solutions. Appraisal, and appraisal in the context of wider alternatives, should be seen as a necessary step in distinguishing solutions that are robust and characterised by attributes and limitations to allow appropriate consideration when structuring specific applications.



In order to accommodate the diversity of factors that relate to privacy and associated security and provide a better foundation for supporting privacy needs, a requirement can be seen for both risk assessment methodology and for a design standard that goes beyond the general principles for system design. Logically, the design methodology embodied in such a standard must also exploit the results of risk assessment. With these considerations in mind a framework for a design standard may be proposed that draws attention to:

- Design for user acceptance
- Design for legislative conformance and governance, inclusive of data protection legislative principles
- Design for protection against abuse from prospective attackers, with methodology based upon appropriate risk assessment and studies of attack scenarios
- Technology attributes, techniques and solutions framework to assist in selecting system components appropriate to needs. Collectively, the solutions that can be considered robust distinguish a set of techniques for accommodating privacy and associated security issues. Moreover, when viewed as part of a design methodology they constitute part of a framework or 'tool-box' for selecting techniques appropriate to particular application needs. Viewed in isolation they may yield a degree of confidence on the part of consumers and campaign groups but to have more impact in this respect they need to be viewed in context of overall application requirements.



The risk assessment methodology must of necessity include risk identification as well as assessment. From the standpoint of privacy-attack a RFID system may be considered as an identification and data transfer facility with vulnerabilities that potential attackers might exploit with intent to track, gather personal information or otherwise compromise privacy. Understanding attack modes, the effects and criticality of effects, is a necessary requirement in seeking effective application-specific solutions. Such an approach is analogous to failure modes and effects analysis (FMEA) used effectively in engineering design. Correspondingly, failure is a further aspect for consideration since in practice systems cannot be expected to be immune from technical failure that can lead to personal data being lost or stolen. However, analysis and contingency can assist in alleviating or minimising such problems.

With these aspects in mind a risk assessment and design standard may be envisaged for assisting the design of RFID systems (including those within an Internet of Things) where privacy and associated security are important application and system requirements. CASAGRAS is to pursue this approach and help define the structure for such a standard.

Prof Anthony (Tony) Furness - Tony Furness is Chief Technology Officer (CTO) for the Centre, Technical Director for AIM UK and Technical coordinator for the CASAGRAS project. He is a specialist in automatic identification and data capture (AIDC), including radio frequency identification (RFID) with respect to which he is a member of the European Commission RFID Expert Group. He is visiting Professor to the Advanced Manufacturing Research Centre with Boeing, University of Sheffield and has over twenty years experience in the AIDC technologies. He has been involved, often in a lead role, in specifying and delivering numerous AIDC related national and European projects.

[1] The Royal Academy of Engineering (2007), Dilemmas of Privacy and Surveillance - Challenges of Technological Change, ISBN 1-903496-32-2

[2] Perrin, S (2006) RFID and Global Privacy Policy, RFID Applications, Security and Privacy (Edited: Garfinkel, S & Rosenberg, B) Addison Wesley. ISBN 0-321-29096-8

[3] Parliament Scientific Technology Options Assessment (STOA) study (2006), RFID and Identity Management in Everyday Life - Striking the balance between convenience, choice and control, IPOL/A/STOA/2006-22

RFID GLOBAL FORUM OFFERS WORLD-WIDE STAKEHOLDER PARTICIPATION

Register FREE and be part of the debate !

It is an exciting world for anyone involved with RFID and its related technologies.

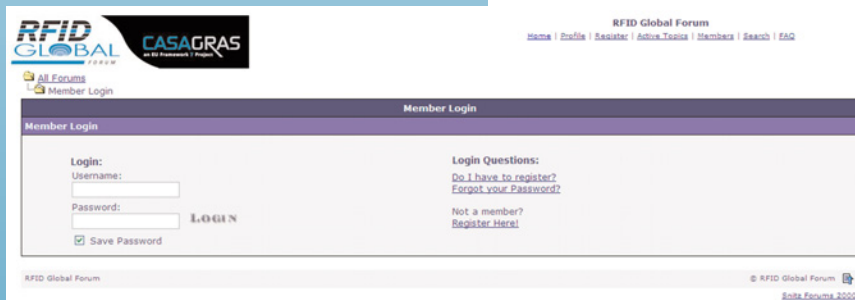
The international move towards the development of an Internet of Things continues to raise the profile of RFID as a technology with enormous potential to revolutionise global markets, bringing both economic and societal benefits.

How best to meet these global challenges and maximise the opportunities?

CASAGRAS is examining global standards, regulatory and other issues concerning RFID and will provide a framework of foundation studies that will assist the European Commission and the international community in influencing and accommodating the issues concerning RFID and the emerging Internet of Things.

In fact CASAGRAS is one of the most important RFID projects ever funded by the European Commission with a brief to make recommendations and to propose standards and best practice that can be agreed and applied world-wide.

To do this, CASAGRAS needs input from the widest possible range of stakeholders so that views, concerns and experiences from every world region and every industry sector can be considered. Solutions providers, hardware and software specialists, standards organisations, governmental and academic bodies and of course end-users all have an essential contribution to make to the shape of future RFID developments and the Internet of Things.



That's why the CASAGRAS partners urge you to sign up as a member of the project's RFID Global Forum. You will find it on our website www.rfidglobal.eu Registration is FREE and you will be given a unique password enabling you to post comments and read the many strands of debate that CASAGRAS generates.

Remember, these are just a few of the generic topics CASAGRAS is addressing:

- The need for a global coding or numbering system that embraces existing legacy systems including EPC, ubiquitous ID
- An adopted set of data carrier and natural feature technologies and associated data structure and communication protocols to meet the needs of the Internet of Things.
- A universal data appliance protocol to accommodate a range of data carrier and natural feature technologies
- Network interfacing protocols to accommodate the range of heterogeneous network technologies and protocols called for with respect to the Internet of Things.
- Migration strategy to specify a pathway of development and agreements that will be necessary in realising the Internet of Things.
- The need and form for supporting international standards.

If you have an interest in these or in any of the many other factors that will influence the world's adoption and best use of RFID and the evolution of the Internet of Things then please make your views known through the RFID Global Forum at www.rfidglobal.eu and help shape CASAGRAS proposals and recommendations.

GRIFS and CASAGRAS

ISSUE JOINT STATEMENT ON CO-OPERATION

Central to the work and success of the CASAGRAS project is co-operation and liaison with other projects operating in complementary areas. Key among these is GRIFS (Global Interoperability Forum for Standards), an EC funded Support Action Project to improve collaboration and thereby to maximise the global interoperability of RFID standards. A two year project which started in January, 2008, it is managed by GS1, ETSI and CEN (see www.grifs-project.eu)



Ian G Smith



Henri Barthel

Because CASAGRAS and GRIFS have many areas of common interest, their co-ordinators Ian Smith (CASAGRAS) and Henri Barthel (GRIFS) have agreed a joint statement outlining how the two projects can operate to best mutual effect:

"GRIFS and CASAGRAS are both FP7 Support Action Projects launched in January, 2008. GRIFS will last for two years while CASAGRAS is planned for 18 months. Both projects have similar scope but they have different partners and distinct objectives.

CASAGRAS addresses the broader concept of the Internet of Things and intends to issue recommendations primarily targeted to European governmental bodies. GRIFS will focus on RFID for item management with the main objective to provide a sustainable platform where interested standard bodies will co-operate. Despite these differences there are opportunities for the two projects to merge some activities and to co-operate on others.

CASAGRAS and GRIFS have a common partner in ETSI and also have common technical experts working in both projects. This will lead to close co-operation between the projects. Specifically, the two projects have agreed the following ways of working together.

1. CASAGRAS and GRIFS workshops: The GRIFS workshops are intended to lay the groundwork for setting up the platform for interested standards bodies to co-operate. The workshops will identify organisations and topics where co-operation is needed and will review the form that such co-operation may take.

The CASAGRAS workshops will be more focused on developing a framework for the standards required to implement the Internet of Things and developing guidelines on the application areas where RFID is most effective, particularly in relation to SMEs.

The target audience for the open workshops by GRIFS and CASAGRAS will be very similar. The projects will therefore co-ordinate the dates and venues of these events whenever possible. Some meetings may be held jointly with GRIFS-specific and CASAGRAS-specific items in the same agenda.

2. Documents exchange: the two projects will exchange minutes of project member meetings and early versions of working documents and draft deliverables in order to facilitate co-operation.

3. Communications: the two projects have established mutual links on their web sites' home pages and will co-operate and co-ordinate press releases and newsletters.

4. Work sharing: where both projects need to carry out similar work The two projects will share resources and results. This sharing will be made explicit in any deliverables."



EUROPEAN UHF RFID 4-CHANNEL PLAN GOES GLOBAL

CASAGRAS
an EU Framework 7 Project



By Josef Preishuber-Pflugl

The success of the European UHF RFID 4-channel plan has been confirmed by its adoption outside Europe. Only three months after its adoption in Europe, it has already been fully taken up in South Africa, Japan has adopted the concept for two channels and Korea is also seriously considering its adoption.

Only about ten years ago, when the first UHF RFID products arrived in Europe, we had only one 250kHz from 869.4 – 869.65MHz with only 0.5 W ERP whereas, for example, the USA had 52 channels, each with 500 kHz and 4 W EIRP. This disadvantage of having only 45% range and 1% of bandwidth led to the demand for multiple channels and ten were finally made available in the 865-868 MHz band. However, to be able to share this band with other applications, in particular SRD (Short Range Devices), LbT (Listen before Talk) had to be introduced. This was well accepted by the RFID community as it also helped to avoid the situation of more than one reader sending in the same channel – something that would cause reader to tag interference.

During the development of EPCglobal UHF Class 1 Gen 2 it was recognised that reader to tag interference would limit the number of readers in close proximity. Consequently, the DRM (Dense Reader Mode) was introduced in the EPCglobal UHF Class 1 Gen 2 standard and ISO 18000-6C. However, at the end of 2005 it was recognised that the LbT still did not allow the appropriate use of DRM in Europe where regulations were still too strict for set-ups with multiple readers and limited the number of readers to ten in an 18 km open space environment. LbT was identified as a roadblock for UHF RFID.

Pushed by German end-user Metro, EPCglobal initiated in early 2006 a dedicated group to work on this issue. In co-operation with ETSI TG34 this group developed a concept for interrogator synchronization and which in September 2006 proved itself via a huge number of tests at a Metro distribution centre. The tests were run continuously for three weeks in a distribution centre which operated 36 RFID portals in parallel. The tests proved that interrogator synchronization would allow multiple RFID readers in DRM to work on four dedicated channels for transmit, allowing tag backscatter between the transmit channels.

The success of the tests as shown to European regulators, supported by major involvement of the German regulatory office responsible for RFID in Europe (CEPT), helped to progress things even further and open the way for a change of regulations for a 4-channel plan without LbT.

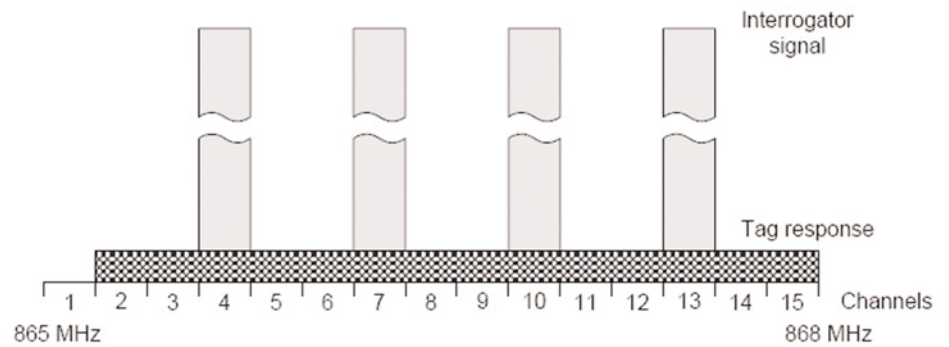
The new European 4-channel plan as described in CEPT REC 70-03 [1] and ETSI EN 302 208 [2] [3] allows operation of an unlimited number of readers in each of the four transmit channels, while the tag responses in the DRM (Dense Reader Mode) are between the transmit channel.

As shown in Fig.1 the DRM with BLF = 300 kHz and Miller Factor $M = 4$ today allows around 30% faster identification speeds in Europe than in the US and is successfully used in multiple UHF RFID installations throughout Europe.

Many countries have studied the European model. South Africa now uses it fully, Japan uses the concept for two channels and Korea is also considering its adoption.



While the European UHF RFID regulations based on the 4 channel plan are going global, European end-users, product vendors and regulatory bodies are already preparing the next step so they can serve future application needs with twice the power and twice the bandwidth resulting in 40% more range and doubled identification speed within the next three to four years.



ETSI EN 302 208 : Diagram of 4-channel plan. European Telecommunications Standards Institute 2008

[1] ERC RECOMMENDATION 70-03 (Tromso 1997 and subsequent amendments) RELATING TO THE USE OF SHORT RANGE DEVICES (SRD). Recommendation adopted by the Frequency Management Regulatory Affairs and Spectrum Engineering Working Groups version of February 25, 2008.

[2] ETSI EN 302 208-1 V1.2.1 (2008-04): Electromagnetic compatibility and radio spectrum matters (ERM); Radio frequency identification equipment operating in the band 865 MHz to 868 MHz with power levels upto 2 W; Part 1: technical requirements and methods of measurement.

[3] ETSI EN 302 208-2 V1.2.1 (2008-04) Electromagnetic compatibility and radio spectrum matters (ERM); Radio frequency identification equipment operating in the 865 MHz to 868 MHz with power levels upto 2 W: Part 2: harmonized EN covering essential requirements of Article 3.2. of R&TTE Directive.

GRIFS WORKSHOP FOR TOKYO

One of the aims of the GRIFS project (Global RFID Interoperability Forum for Standards) is to initiate a forum of collaboration that will continue to work constructively after the project finishes in January, 2010.

To help create the GRIFS forum a series of five preparation workshops are being held in Europe, Asia and North America to obtain feedback on the future Memorandum of Understanding and Forum of collaboration. Workshop objectives are:

- Raise awareness of GRIFS objectives and activities
- Gain commitment to the need for a co-ordinating forum through highlighting areas where co-ordination is particularly critical and/or where urgent action is required
- Gather information on which organisations should be invited to participate in the forum
- Gather feedback on the forum's proposed structure

The next workshop will be held in Tokyo on Friday, September 26. The morning sessions will focus on data standards, device interface standards, data encoding and protocol standards, with the afternoon session devoted to the definition and development of the forum.

The agenda and registration form for the Tokyo workshop can be found at <http://www.grifs-project.eu/index.php/events/en> or for further information please contact info@grifs-project.eu

NICE CONFERENCE

PUTS INTERNET OF THINGS IN SPOTLIGHT

Aspects related to the development of the mobile Internet and the industrial and technological perspectives necessary for the development of the Internet of Things in Europe will be the focus of a conference in Nice being held under the auspices of France's presidency of the European Union.

Internet of Things – Internet of the Future, from October 6 – 7, aims to foster the creation of the technological, economical and political bases necessary for the development of a European market for mobile services as well as for services related to the Internet of Things.

Over 40 speakers representing industry, standards organisations, government and the end-user community will participate. Prof. Tony Furness CASAGRAS Technical Co-ordinator is one of the expert speakers.

Bernhard Benhamou, delegate on Internet usage at the French Ministry of Research and Higher Education said: "The next step in the development of these communications technologies will correspond to the creation of an Internet of Things that will generate new links going well beyond the Internet of computers. Thanks to the joint use of mobile Internet technologies and RFID technologies, network services will accompany citizens and enterprises in many activities: geolocalisation and proximity services, security and traceability related to consumer goods, the fight against fraud and the management of ecological risks etc."

Mr Benhamou added that, thanks to one of the most important unified mobile communications markets and a scientific and cultural heritage that is unique in the world, Europe had some vital assets to enable it to become one of the key regions of the Internet of tomorrow.



Bernard Benhamou

Internet des Objets
Internet du Futur

Construire ensemble l'Internet de demain

Conférence de la Présidence Française de l'Union Européenne
Nice Acropolis, les 6 et 7 octobre 2008



For more information
visit
www.internet2008.fr

"The conference objective is to stimulate R&D activities and to facilitate the creation of European initiatives in the area of value added services on the Internet. The conference will also discuss questions related to the governance of the Internet of the Future as well as to data protection and privacy in order to build up the trust necessary to develop these innovations in Europe."

CASAGRAS CO-ORDINATOR TO CHAIR ASEM CONFERENCE ON RFID

Ian G Smith, co-ordinator of the CASAGRAS project, will chair a special workshop being organised in Vilnius, Lithuania, by ASEM to discuss RFID development and implementation.

ASEM (Asia-Europe meeting) is an informal process of dialogue and co-operation which brings together 27 EU members states and the European Commission with 16 countries in the ASEAN secretariat. It addresses political, economic and cultural issues with a view to strengthening relationships between the two regions.



The Vilnius workshop (November 17 - 18) will examine the global RFID market; update delegates on global standards and the GRIFS project; consider how barriers to RFID implementation can be resolved; look at matters relating to privacy, data protection and security; the Internet of Things and the challenges it presents; initiatives on promoting awareness among SMEs.

There will also be case studies on successful RFID applications from China, Spain, Germany and Japan.

Among the speakers are Prof. Anthony Furness (CASAGRAS project technical co-ordinator); Emilie Danel (GS1); Dr Peter Harrop (IDTechEx); Zhiwen Zhang (director of high-tech development and

industrialisation, Ministry of Science and Technology, China); and Ryo Imura (executive managing director, Hitachi, Japan).

Ian Smith said: "The workshop will be an extremely valuable way for stakeholders from Europe and Asia to exchange ideas and experiences regarding the challenges which must be addressed if the potential of RFID is to be fully exploited. In the global business environment it is vital to try and achieve consensus on the best way forward. In two days of presentations delegates will benefit from the knowledge and experience of some of the world's leading RFID experts together with the opportunity to question and discuss."

For more information about ASEM see www.aseminfoboard.org

Useful Links

CERP (Cluster of European RFID Projects)

www.rfid-in-action.eu/cerp

GRIFS (Global RFID Interoperability Forum for Standards)

www.grifs-project.eu

EU Framework 7 ICT Programme

<http://cordis.europa.eu/fp7/ict/>

Contact Us

CASAGRAS Administration

Amanda Brooke

Amanda.Brooke@aidc.org

www.rfidglobal.eu

Tel: +44 1422 399495

CASAGRAS

GRIFS workshops

CERP

ETSI

SECURITY

RETAIL

OTHER

Monday, November 17 - Tuesday, November 18 : ASEM Workshop on RFID – Vilnius, Lithuania

Friday, December 5 : open meeting – Hong Kong Science Park

Monday, December 1 or 8 (to finalise) : open meeting – Shanghai

Tuesday, December 2 or 9 (to finalise) : closed partners meeting – Shanghai

Friday, September 26 : workshop covering data standards, device interface standards, data encoding and protocol standards – Tokyo

Thursday, November 20 : air interface standards, sensor standards, conformance and performance standards – San Diego, California

Thursday, December 4 : industry application standards and real time location standards – Hong Kong

Thursday, February 19, 2009 : frequency management standards, health and safety standards, environmental standards, data protection and privacy standards – Brussels

(for more information on GRIFS events visit <http://www.grifs-project.eu> or email Emilie.danel@gs1.org)

Friday, September 19 : high level expert conference: Towards a European Policy on RFID – Brussels (see www.rfid-in-action.eu/cerp)

Tuesday, November 18 – Wednesday, November 19 : workshop on multimodal interaction on mobile devices – Sophia Antipolis, France (see www.etsi.org)

Tuesday, September 23 – Friday, September 26 : SMM2008 – Hamburg

Wednesday, October 1 – Friday, October 10 : Japan Aerospace – Yokohama

Wednesday, October 1 – Thursday, October 2 : Port Security, Identify Risks and Mitigate Threats – Barcelona

Wednesday, October 15 – Saturday, October 18 : SFITEX 2008 Forum – St.Petersburg, Russia

Wednesday, October 15 – Sunday, October 19 : Dubai Airshow – Dubai, UAE

Monday, November 17 – Wednesday, November 19 : Milipol 2008 – Qatar (for more on the above see www.security-industry-today.com)

Tuesday, October 14 – Thursday, October 16 : EPC Connection – Chicago (see www.rfidjournalevents.com)

Wednesday, November 5 – Friday, November 7 : RFID/USN Korea 2008, international exhibition and conference, COEX Atlantic Hall, Seoul, Korea.

Tuesday, October 6 – Wednesday, October 7 : Internet of Things; Internet of the Future – Nice, France (see www.internet2008.fr)

Tuesday, October 21 – Friday, October 24 : Scandinavian RFID Expo & Conference – Stockholm (see www.rfidnordic.se)

Tuesday, November 4 – Thursday, November 6 : RFID Journal Live! Europe 2008 – Prague (see www.rfidjournalevents.com/europe)

Wednesday, November 5 – Thursday, November 6 : Active RFID, RTLS & Sensor Networks 2008 – Dallas, USA (see www.idtechex.com/active)

Monday, December 1 – Wednesday, December 3 : RFID Journal Live! Toronto, Canada (see www.rfidjournalevents.com/canada)

● while every effort is made to ensure the accuracy of this information the publishers can accept no responsibility for any changes of date or venue or cancellations made by event organisers.