THE STANDARD

MADE IN EUROPE FOR GLOBAL USE

ETSI
World Class Standards

ETSI Newsletter • February 2012

Welcome to the World of Standards

The growth of M2M applications will have a profound impact on the standards which define our networks and for this reason we have given this edition of 'The Standard' a particular focus on machine-to-machine communications.

Not only will you learn about our ambitious plans for a Global M2M Standardization initiative that ETSI has taken together with partner standardization organizations from around the world, but you will also read about the great success of our M2M Workshop which gathered leading experts from all over the world to hear how ETSI M2M technology standards are being deployed. Focusing on the latest technological developments in M2M communications is also a new book entitled 'M2M Communications – A Systems Approach' which has been co-authored by some of our TC M2M members and the committee's Technical Officer. I am certain that this book will help us to better understand the issues we need to tackle in order to create an M2M-enabled world.

Whilst paying particular attention to M2M in this issue, 'The Standard' covers a wider range of our activities and I am certain that there will be something of interest for everyone involved in ICT standardization. As you may know, our newsletter introduces an ETSI cluster in every edition and this time we look at the 'Interoperability' cluster in more detail. Not only will you find a comprehensive overview of our activities in this field but you will also learn about standardization and testing in practice, based on the example of GeoNetworking, ad-hoc communication in vehicular networks using short-range radio.

Furthermore, you will read about the evolution of 3GPP standards, improved ETSI meeting facilities, and lots more.

I look forward to seeing many of you in person at Mobile World Congress in Barcelona in February and at the next ETSI General Assembly in Cannes in March.

Luis Jorge Romero Saro
Director General, ETSI

'The Standard' provides an information platform for ETSI Members, to inform you of the latest developments - both within our technical committees and the Secretariat - and offers a space for our Members to communicate with each other.

Major Standards Development Organizations agree on a global initiative for M2M Standardization

M2M services rely upon communications networks for connectivity between the myriad of devices in the field and the M2M application servers. Major Standards Development Organizations -- ARIB, ATIS, CCSA, ETSI, TIA, TTA, and TTC -- have identified the need for a common, cost-efficient and widely available M2M Service Layer, which can be readily embedded within various hardware and software. As a result, the SDOs have also identified the need for a cooperative M2M community standards activity, and have agreed to jointly address the challenge of common standardized solutions. The SDOs have taken initial steps to form a global initiative for M2M Standardization.

This initiative will seek to develop globally agreed M2M end to end specifications and reports with an initial focus on the Service Layer using common use cases and architecture principles across multiple M2M applications. The initiative will develop specifications that will help drive multiple industries towards the goals of lowering operating and capital expenses, shortening time-to-market, creating mass-market economies of scale, simplifying the development of applications, leveraging the worldwide network for enhanced potential of services, expanding and accelerating global business opportunities, and avoiding standardization overlap. In addition, the initiative will focus on cooperative efforts with other standards organizations and fora, including those representing specific aspects of M2M applications.

Participation in the global initiative will be open to interested organizations and parties to provide opportunities for various levels of participation and provide flexibility for inputs from all market segments.

The SDOs will establish a simple and effective operational structure which is responsive to the needs of the various stakeholders. The initiative will seek to balance regional requirements and differences, and to address their respective timeframes, with the primary goal to support global harmonization and consolidation.

The global initiative will be established early in 2012 and will then initiate the technical work to meet the challenges of rapidly evolving industries.

The following SDOs are involved in the global initiative: the Association of Radio Industries and Businesses (ARIB) and the Telecommunication Technology Committee (TTC) of Japan; the Alliance for Telecommunications Industry Solutions (ATIS) and the Telecommunications Industry Association (TIA) of the USA; the China Communications Standards Association (CCSA); the European Telecommunications Standards Institute (ETSI); and the Telecommunications Technology Association (TTA) of Korea.

3GPP
A GLOBAL INITIATIVE
Update

The 3rd Generation Partnership Project (3GPP) unites six telecommunications standards bodies, known as "Organizational Partners" and provides their members with a stable environment to produce the highly successful Reports and Specifications that define third and fourth generation mobile technologies. ETSI is a founding partner of 3GPP.

3GPP was originally the standards partnership evolving GSM systems towards the 3rd Generation. However, since the completion of the first LTE and the Evolved Packet Core specifications, 3GPP has become the focal point for mobile systems beyond 3G.

3GPP standards are typically developed several years ahead of network deployments, and the technical groups are currently considering the future beyond the existing requirements of IMT-Advanced systems.

From time to time there is a need for a more general review of the evolution of 3GPP standards and 2012 is set to be such a year, just as in 2004 a similar review launched the development of LTE.

In June 2012, during the 56th plenary meeting of 3GPP in Ljubljana, a workshop will identify the key requirements for new features beyond 3GPP Release 12 to deal with the increase in data traffic.

Meanwhile, to ensure the continued success of HSPA, LTE and legacy mobile networks, work on Release 11 and Release 12 is set to continue throughout the year. The core network and services groups will focus on support of the growing number of radio access technologies in networks, while the radio access networks group will continue development of these radio technologies. 3GPP will also study the rise of multimedia content and the impact of small cells on the network.

Two items to look out for in the next release of LTE are:

• Policy Control Framework: this will give operators a range of control tools for QoS and Charging for IP traffic, with service awareness, deep packet inspection, sponsored data connectivity and privacy policy handling;

• Proximity-based services: these are set to represent a socio-technological advance, where applications and services can be based on the awareness that two devices are close to each other. This provides value to the user and to the operator, enabling the direct exchange of traffic between devices. It is also hoped that direct device-to-device communication will lead to improved public safety services particularly where network infrastructure may no longer be operational.

The next 3GPP Plenary meeting (TSG#55) takes place in Xiamen, China in March 2012. Details of the work and the schedule of meetings can be found at www.3gpp.org.

ETSI at ATGlobal 2012
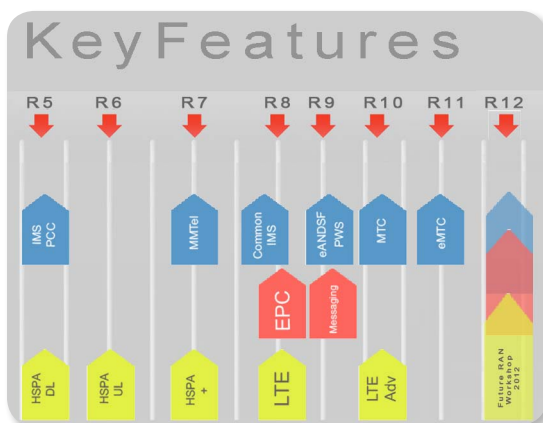
We look forward to seeing you at ATC Global 2012 in Hall 10 ("Delta" Hall), stand D130!

For the fourth year running, ETSI will be exhibiting at ATC Global at the RAI Exhibition Centre in Amsterdam from 6 to 8 March 2012. ATC Global is the world's largest exhibition and conference on Air Traffic Management. At this event we will be promoting our work in the aeronautical sector, notably our mandated activities in support of the European Commission's Single European Sky initiative. Also featured will be our Plugtests™ events in this domain, plus our broader role in radio communications and intelligent transport standards.

Whilst Air Traffic Management remains a somewhat specialised sector for ETSI, it is an expanding area and one in which our expertise in supporting European regulation and in providing testing services is being effectively applied. There is also growing synergy between 'traditional' telecommunications and Air Traffic Management technologies. Exhibiting at ATC Global exposes ETSI to the wider ATM community and offers a good opportunity for meeting potential new Members.

Thanks to our presence, ETSI Members are entitled to attend the exhibition free of charge. Please go to www.atcglobalhub.com for full details and registration.

Introducing the **Interoperability** Cluster

One of the underlying motives for the development of communications standards is to facilitate interoperability between products in a multi-vendor, multi-network and multi-service environment. Interoperability ensures that users have a much greater choice of products and that manufacturers can benefit from the economies of scale that a wider market makes possible. Consequently, market demands have ensured that interoperability has maintained its prominence in standardization. In their efforts to deliver interoperable standards, ETSI's Technical Committees follow the principles of applying best practice specification techniques, validating standards and developing test specifications related to key ETSI technologies.

ETSI Test Specifications

For over 20 years ETSI has been a pioneer among standardization bodies in recognizing the importance of achieving interoperability through testing. Many key ETSI technologies have an accompanying set of standardized test specifications that may be used by ETSI

Members and other organizations in a variety of contexts, ranging from in-house product development to industrial certification schemes.

Validation through ETSI Interoperability Events

One well-proven and cost-effective approach to validate standards for interoperability, and subsequently interoperable products, is through interoperability events or Plugtests. These events, which may involve just a few or many hundreds of participants, collect engineers and equipment in a neutral environment where they can execute a large variety of real-life scenarios in various combinations and with different equipment.

Interoperability events have the additional advantages of optimizing the development of implementations and providing an open forum for resolving issues of non-interoperability and other technical aspects related to standards development and validation. They allow engineers to meet and discuss in a very practical environment and to provide feedback to the standardization groups.

ETSI has two important horizontal activities that support the production of interoperable standards, namely TC MTS (Technical Committee for Methods for Testing and Specification) and the ETSI CTI (Centre for Testing and Interoperability). TC MTS creates standards related to testing and specification languages (such as TTCN-3) and provides frameworks, guidelines and methodologies for use by other ETSI Technical Committees. Of particular interest is the ongoing work on Model Based Testing (MBT). Much of the work done by TC MTS has also been adapted and used beyond ETSI by other organizations, fora, and industry bodies globally.

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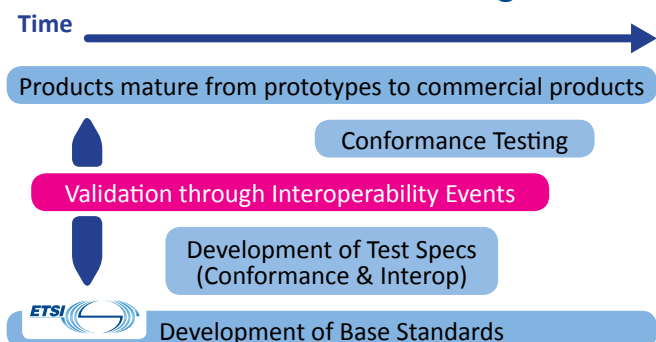
SCOPE
Enabling interoperability in a multi-vendor, multi-network, multi-service environment

VISION
The Centre of Excellence for interoperability in a multi-polar interconnected world

Relationship Between Standards, Validation and Testing

Time ➝

Products mature from prototypes to commercial products

Conformance Testing

Validation through Interoperability Events

Development of Test Specs
(Conformance & Interop)

Development of Base Standards

PLUGTESTS™
INTEROP EVENTS

Since starting the service in the year 2000, ETSI has organized over 150 Plugtests events in Europe and Asia covering more than 30 different technologies and involving at least 4000 engineers. The service is provided by ETSI's Centre for Testing and Interoperability (CTI) which delivers full organizational, logistical and technical support.

Many interoperability events are supported by the European Commission.

ETSI's Vision of a Connected World

ETSI's cluster concept aims to provide a simplified, yet comprehensive, introduction to our activities in ICT standardization. Clusters facilitate access to ETSI's diverse work enabling the identification of areas of interest based on business relevance or application domain rather than purely on technical work areas.

Each cluster represents a major component of a global ICT architecture and encapsulates the work of a number of Technical Committees (TCs) and associated Working Groups (WGs) that share a common technological scope and vision.

Security
Home & Office
Better Living with ICT
Public Safety
Content Delivery
Interoperability
Fixed Networks
Connecting Things
Wireless Systems
Transportation

A Connected World

Standards for Smart Grids

Recommendations for smart grid standardization in Europe, extracted from the Final Report of the CEN/CENELEC/ETSI Joint Working Group on Standards for Smart Grids.

The European Commission's mandate to the European Standards Organizations for smart meter standards was issued in March 2009 and for electric vehicles standards in June 2010. Building on the consensus achieved among all stakeholders participating in the Smart Grids Task Force, the Commission issued a mandate for standardization of smart grids in March 2011. The standardization process for smart grids will benefit from the ongoing work on smart meters and on charging interfaces for electric vehicles. The reference architecture for smart grids in Europe and an accompanying essential set of standards is expected to be issued by the end of 2012. This report provides guidelines for identifying existing and needed standards as well as directions to meet the mandate's objectives.

An interactive version is available at:
www.etsi.org/e-brochure/smartgrids

ETSI is progressively launching its brochures in e-book format. This attractive presentation tool reproduces the physical brochure format on screen. The e-book application also offers you the choice of directly downloading a PDF version of each brochure.
Hardcopies are available from the ETSI Secretariat upon request at info@etsi.org.
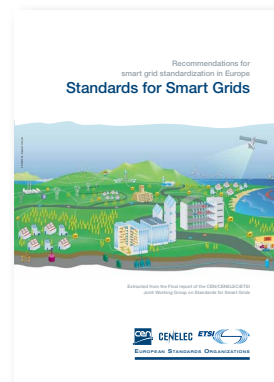
Testing ePassport Readers using TTCN-3

From January 2010 to August 2011 ETSI conducted a project, co-financed by the European Union (EU) and European Free Trade Association (EFTA), to develop a Test System Prototype for Conformance Testing of ePassport readers. The objective of this project was to design, build and test a TTCN-3 based Test System Prototype for ePassport Reader Conformance Testing.

The project was a joint effort between the EC Joint Research Centre (JRC) and ETSI.

The ETSI-standardized test language TTCN-3 has already been widely used in many testing projects across different technologies. However, to date it has not been applied in the area of contactless smart card testing.

The White Paper, authored by Jean-Marc Chareau of the Joint Research Centre of the European Commission, Laurent Velez of ETSI and Zdenek Riha of Masaryk University, and published in November 2011, provides an overview of the approach taken in the project, demonstrating the expertise which ETSI can bring to such a task, and presents a summary of the experience gained from this novel application of TTCN-3.
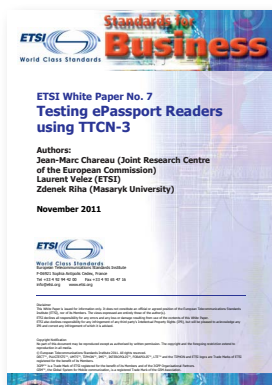
The Whitepaper can be downloaded from the ETSI Website:
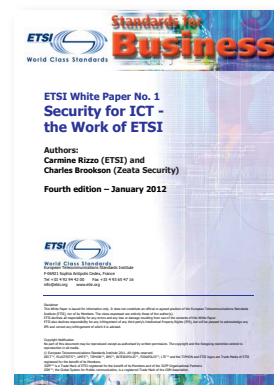www.etsi.org/WebSite/document/whitepapers/WP7_ePassport_Interoperability_FINAL.pdf

Security for ICT - the Work of ETSI

This White Paper, authored by Carmine Rizzo of ETSI and Charles Brookson of Zeata Security, offers an overview of ETSI's work on security in Information and Communications Technologies (ICT).

Each section introduces a specific technology and outlines ETSI's involvement in the standardization of security in that area. Some of our major achievements are then highlighted and ongoing activities are described. At the end of the paper, all ETSI's specifications and standards for security are listed.

This fourth edition of the ETSI Security White Paper updates all areas as necessary. New publications have been added, while a large number of previously referenced publications have undergone revision and now have updated versions. New areas of work which have, or will have, security aspects have been included: Machine-to-Machine (M2M) Communications, Identity and Access Management for Networks and Services (INS) and new developments in 3GPP. Some details on Plugtests™ events related to security matters have been added.

The Whitepaper can be downloaded from the ETSI Website:
www.etsi.org/WebSite/document/whitepapers/WP1_Security_Edition_4.pdf

CEN, CENELEC and ETSI exhibit at Innovation Convention in Brussels

On 5 & 6 December 2011, the European Commission DG Research and Innovation hosted the inaugural Innovation Convention in Brussels, attracting over 1800 high-level delegates. Speakers at the event included the President of the European Commission Mr. Josè Manuel Barroso; Mrs. Maire Geoghegan Quinn, European Commissioner for Research, Innovation and Science; Mr Eric Schmidt, Executive Chairman of Google; Mr Michael O'Leary, Chief Executive of Ryanair; and German Chancellor Dr. Angela Merkel, who spoke by video message.

The three European Standards Organisations - CEN, CENELEC and ETSI - joined forces for a common stand. Visitors to the stand were interested to learn more about the role of European Standardization Organisations in the European Research Area and the benefits of standardization for knowledge transfer.

The role of standardization for innovation and knowledge transfer is increasingly recognized by the European institutions. On 30 November, the European Commission adopted a proposal for HORIZON 2020, the next EU programme for research and innovation which will follow the 7th Framework Programme from 2014 onwards. In all three pillars of HORIZON 2020, standardization is expected to become a key component. CEN, CENELEC and ETSI are working closely with DG Research and Innovation and DG Enterprise in order to prepare this future programme.

Common environmental impact assessment standard for ICT Industry

Protecting the environment is a global concern, and one which involves whole industries, as well as individuals. Reducing energy consumption is important, but the processes of manufacture, transport and end of life disposal can also have a significant environmental impact which is easily ignored.

ETSI has now published a new standard which will help manufacturers and operators of information and communications technology (ICT) equipment, networks and services to determine the complete environmental impact of a product, by specifying a common life cycle assessment method.

> Environmental Life Cycle Assessment (LCA) is an analytical method assessing the environmental impact of a product over its whole life. LCA has a cradle-to-grave scope where material extraction, manufacturing, transport, usage and scrapping processes are included.

ISO has standardized an LCA methodology in the ISO 14040 and ISO 14044 standards. The European Commission has also recently published a handbook providing detailed guidance on the steps required to conduct a life cycle assessment, in its International Reference Life Cycle Data System (ILCD) handbook. This new ETSI standard, TS 103 199, was developed by industry in ETSI's Technical Committee for Environmental Engineering (TC EE) and applies these ISO standards and the European Commission handbook to ICT by introducing specific measures.

The new standard, aimed at the whole ICT supply chain, will be used to assess the environmental impact of any ICT product or service; to evaluate the amount of greenhouse gas emissions and other environmental impact categories as well as to estimate total energy usage. It provides a harmonized assessment and reporting method which will increase the quality of life cycle assessments, facilitate their comparison, and improve their credibility. The standard also forms part of the industry response to the call for reduced ICT greenhouse gas emissions in the European Commission's Digital Agenda for Europe.

ETSI's TC EE has developed a standardized method for the cradle-to-grave life cycle assessment of the environmental impact of ICT equipment and services, providing an industry-agreed method to evaluate greenhouse gas emissions.

Making mobile networks more energy efficient

Telecommunications network operators are very interested in improving the energy efficiency of their networks. Besides the obvious environmental benefits, reducing energy consumption makes good business sense. In a mobile telecoms network, the access network and in particular the Radio Base Station (RBS) is the largest consumer of energy, and this is where most energy efficiency improvements are focused.

In order to improve energy efficiency, one must be able to measure and compare levels of efficiency. This requires standardized measurement methods used across the industry. For this purpose, ETSI published the second edition of its technical specification TS 102 706 on the measurement method for energy efficiency of wireless access network equipment.

This specification, developed by ETSI's Technical Committee for Environmental Engineering (TC EE), standardizes the measurement method for energy efficiency for multiple mobile network technologies: GSM/EDGE, W-CDMA/HSPA, LTE and WiMAX networks. The initial version of the specification considered energy efficiency at three different static load levels (low, medium and busy-hour traffic). The second version of this specification adds the consideration of the dynamic behaviour of equipment in operation with a realistic load level.

Two energy efficiency indicators for wireless system are defined. One is based on the level of throughput compared with energy consumed and the other is based on the coverage area compared with energy consumed. This reflects the different demands placed on mobile network operators: higher performance networks and increased wide-area coverage.

The results can be used to assess and compare the efficiency of mobile radio network equipment from different vendors featuring the same mobile radio standard and frequency band.

Further development of this specification, which is supported by major telecoms equipment vendors and operators, will add other radio characteristics like fast fading to include more dynamic behaviour in the energy efficiency measurement method.

ETSI has published a Technical Specification on a standardized measurement method for energy efficiency of wireless access network equipment, helping mobile network operators improve the energy efficiency of their networks.

Jonas Sundborg of Ericsson appointed as new ETSI Board Chairman

ETSI Members have appointed Jonas Sundborg of Ericsson as the Chairman of the new ETSI Board, elected at the 58th ETSI General Assembly in Cannes

During the 58th General Assembly in Cannes at the end of November 2011, ETSI members elected a new 28 person ETSI Board and appointed Jonas Sundborg of Ericsson to the position of Board Chairman.

The ETSI Board is elected for a three-year term of office and has overall responsibility for ETSI's Technical Committees and the work programme of standards under development. Members of the Board are directly elected by the ETSI General Assembly, and the chairman of the Board is chosen by the GA from among the elected Board members.

Sundborg, who is responsible for Standardization and Technical Regulation at Ericsson, will be assisted by three Vice-Chairmen: Emmanuel Darmois of Alcatel-Lucent, Simon Hicks of the United Kingdom Department for Business, Innovation & Skills and Philippe Lucas of Orange.

The General Assembly also appointed Klaus Yongden Tillmann of NORMAPME, the European Office of Crafts, Trades and Small and Medium sized Enterprises for Standardization, as a Vice-Chairman of the General Assembly representing user interests.

dPMR for Transport

The ETSI standard moves forward with sophisticated applications, enhanced functionality and coverage benefits.

by Pete Hizzey

The latest generation of digital Private Mobile Radio (dPMR) hasn't lost sight of the fact the M stands for mobile. The functionality of analog PMR radios has been extended by the possibilities of a digital format. System developers have exploited this enhanced functionality to offer applications that specifically target the truly mobile users of the transport industry.

Automatic vehicle location (AVL) is a commonplace application for transport. Previous generations of analog radios with digital signaling, such as BIIS1200, supported AVL functions. Other proprietary technologies offered data systems such as mobile credit card terminals. A new technology was needed that could package all the common requirements into one open standard and then back it up with further standards to ensure equipment from different manufacturers would interoperate without issues. This has been achieved by the European Telecommunications Standards Institute (ETSI) dPMR protocol.

Because dPMR radios can offer simultaneous voice and data traffic, it is simple to embed the GPS position of a vehicle inside a voice call. However, the dPMR protocol offers more. Imagine you want to add an extra drop off point to a driver's route. Just send the address as a data text message, and it will be displayed to the driver, with confirmation of display as well if needed. Vehicles can be polled for position or status.

Because dPMR radios are fully digital it would have been a mistake not to include Internet Protocol (IP) connectivity. A transport radio network can now be fully IP connected with dPMR, and old-style telephone patching hasn't been forgotten either. Transport managers can log in to the system in real time anywhere. The radio network can be fully integrated into a corporate operating system, and the result is a total communications package beyond what was possible in the past. As well as offering the ability to interface data and control applications to the radio network via IP, the voice traffic can also be connected via IP. Multiple radio networks can be easily interconnected. Because all the radio network activity is available via IP, it can be routed to a central processor that compiles a complete daily log of all events and traffic. This log would be accessible from workstations in all departments of a company for the purposes of validation, tracking queries and missed delivery claims.

Mobile services where the routing is fixed are available for users, such as security guards, on a large area plant. In these cases, the real-time AVL operation is useful but does not offer an adequate picture of what is happening on the ground. A typical solution would be to establish the critical areas and buildings within the zone and install proximity transponders at each location. Security guards would then have to stop at each location and place the handheld radio against the transponder. The radio then automatically reports back to the controller. Transponders are numbered, calls are time and date stamped, and a record shows that every critical zone was physically checked. If the level of security warrants it, the system can include GPS location, man-down alerting and panic buttons.

Other types of wireless transponders are also available that offer a proximity detection solution to the same problem. These wireless transponders also find applications in the field of high value items. Where justified, the dispatched item can have a wireless transponder included in the packing. Provided the package remains within the same zone as the dPMR radio of the driver, all is well. As soon as the package is out of that zone, it is automatically reported to the system. This would be analyzed in terms of AVL data — delivery status messages to ensure that a valid delivery occurred — otherwise the system could automatically generate alerts to all responsible personnel that an unexpected incident happened.

For operators where security is a concern, the dPMR protocol allows for remote activation of the radio in a covert manner. Radios can be commanded to transmit without any indication that they are doing so. Such monitoring can be vital in cases of theft or hijack.

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>
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Coverage and Other Considerations

The coverage area is one detail that separates radio solutions for the transport industry from other uses. The major players in global shipping are obliged to opt for satellite-based solutions, but a great number of smaller companies have operations that are city or county based.

The only solution in many of these cases is to use a multiple repeater network to provide radio coverage in the required area. dPMR has several ways of addressing the issue of area coverage.

For large users with a significant number of vehicles, dPMR offers trunked radio solutions in single-channel multisite or multichannel, multisite configurations. This solution is probably not the most cost effective for smaller companies that may have only a few vehicles covering a wide area. For this type of user, dPMR offers a second solution whereby co-channel repeaters are used to cover the area required without the need for trunking controllers. Where the system is required to cover multiple zones rather than a single large area, the IP connectivity of the data, control and voice traffic allows for easy integration.

A mobile radio network represents a considerable investment, especially for a wide-area network with multiple repeaters. If you then have to also change all existing radios to digital, finance requires careful planning. To this end, dPMR was designed to offer the most cost-effective upgrade path.

Because dPMR uses the same FDMA technology as almost all analog PMR radio systems, it is possible to offer repeaters and controllers that support systems on an existing radio channel. Once such a system repeater is installed, the user can operate either radio type. A user can add new digital radios to the network when old equipment needs replacing. There is no need to tear out the old system and replace everything at once just because the technology is different. The migration path possible with dPMR is user friendly.

There are other reasons for this dual-role upgrade route. Most mobile radio systems are extremely mission critical, 24 hours a day and seven days a week. Unavailability is a word that doesn't exist because corporate activity would stop dead should that happen. dPMR allows for the possibility to hot switch to a dual-role repeater and controller to avoid any dead time. Because it is most unlikely that all mobile radios can be replaced instantly, it is now possible to schedule such replacement to cause the absolute minimum disruption.

One area where digital can make a difference is at the edge of the radio coverage. Most mobile radio users are familiar with the scratchy and noisy received audio when they get to maximum range. The audio is usually made worse by the flutter effect as the signal goes up and down. With digital, the effect is different. In true digital fashion, either the receiver can decode the signal or it can't. This means the signal to noise remains just about constant right to the limit of radio coverage and is then lost completely. The concept of marginal quality near the coverage limits can be forgotten.

dPMR then goes one step further because it is a new narrowband technology that operates with less than half the bandwidth of normal PMR. Being only 6.25 kilohertz, a typical dPMR receiver is more sensitive than other PMR technologies. So not only do you get increased usable range from the fact that the transmission is digital but also extended range because of the narrowband receivers. Users of handheld dPMR radios have the choice of using the extra range possible or, if battery life is important, reducing the transmit power to give normal range and get longer battery life.

The fact that dPMR is based on FDMA technology is not only important from the point of view of migration from analog systems but also from the ease of having direct-mode subsystems in a radio network. A good example would be an emergency service that has a repeater network with statewide coverage. Once responders are onsite at an incident, there is often the demand for local peer-to-peer operation that does not use the main repeater network. With dPMR, the radios always operate in 6.25-kilohertz channels, both on the repeater network and in the local direct mode.

dPMR is an open, nonproprietary standard published by ETSI. The European standards organization also publishes standards for interoperability and conformance testing of all dPMR products.

This complete set of standards is to ensure that users of dPMR can buy from different manufacturers without operational problems. Better still, by ensuring interoperability, the result is likely to be increased competition in terms of pricing and functionality, making dPMR an even more cost-effective solution.

dPMR is further reinforced by a memorandum of understanding (MoU) group comprised of manufacturers and support industries working together to ensure the successful development of dPMR equipment and systems. The MoU companies have also agreed to fully adopt the ETSI standards for interoperability and conformance testing as the basis of granting a specific dPMR "approved" trademark. The first dPMR interoperability tests between different manufacturers took place nearly two years ago.

dPMR has come a long way since the first-generation products that were low-power, license-free radios (similar to Family Radio Service (FRS) types) more than three years ago. The dPMR protocol has since been enhanced and now covers every type of PMR application for any typical PMR frequency band and any RF power. These latest dPMR radios have been available since early 2010, and trunking versions appeared late 2011.

About the author
Pete Hizzey

Pete Hizzey is one of the co-authors of the ETSI dPMR standards, TS 102 490 and TS 102 658, as well as chairman of the dPMR MoU group since it was formed in 2007. Hizzey is also research manager for Icom and is responsible for all technical, regulatory and legislative issues for Europe. He has been involved in European standardization since 1988 and is responsible for many radio standards including professional mobile radio (PMR), maritime and amateur radio.

ETSI approves Open Smart Grid Protocol for grid technologies

As the smart grid evolves, it will become commonplace for utilities to cooperate with grid-aware systems and devices to reduce power usage intelligently, giving commercial, industrial and municipal users reduced rates in exchange for lower consumption while increasing grid reliability and the use of renewable energy sources. Automated demand response, peak load management, and other programs can mean significant cost savings for commercial and residential customers. This is why it is important that vendors work together through open standards to increase the market for compatible products and technologies. Standards-based smart grid devices and systems can monitor and save energy, lower costs, improve productivity, enhance service quality, safety and convenience, and help in the transformation to a more energy efficient future and smarter electricity grid.

Two recent specifications that originated with ESNA (European Services Network Association) were published by ETSI for global use:

• Group Specification GS OSG 001: Open Smart Grid Protocol. Produced by the ETSI Open Smart Grid Industry Specification Group, this application layer protocol can be used with multiple communication media;

• Technical Specification TS 103 908: Powerline Telecommunications (PLT); BPSK Narrow Band Power Line Channel for Smart Metering Applications. This specification defines a high-performance narrow band powerline channel for control networking in the smart grid that can be used with multiple smart grid devices. It was produced by the ETSI Technical Committee for Powerline Telecommunications (TC PLT).

> **ETSI has recently published two specifications for Smart Grid that will help drive the development and deployment of open, interoperable smart grid technologies internationally.**

> "Industry's involvement in standards development is critical as standards contribute to innovation, enable interoperability, provide investment security to clients and contribute to fostering global markets, and moreover provide choice and investment security for our customers. Oracle is uniquely positioned to deliver mission-critical smart grid software applications that have been engineered to work together in collaboration with our partners. ESNA's success with ETSI will help ensure that Oracle and the smart grid ecosystem will provide reliable solutions to utilities that are complete, future proof, open, and cost-effective."
>
> *Bastian Fischer, Oracle, ESNA Board Member and Vice-Chairman of the ETSI OSG Industry Specification Group.*

Multi-Protocol Label Switching over satellite networks

> **Recently published ETSI specification TS 102 856 describes how to support transport of Multi-Protocol Label Switching (MPLS) data and signalling flows over a Broadband Satellite Multimedia (BSM) network.**

Multi-Protocol Label Switching (MPLS) is widely employed today as a solution for delivering reliable Quality of Service (QoS) on IP-based networks by providing QoS-based routing of IP traffic and other advanced capabilities. As a result, MPLS compatibility between satellite networks and terrestrial networks is an essential feature, for example to provide extensions and interconnectivity to terrestrial MPLS networks or to provide a satellite back-up for terrestrial MPLS networks.

In Q4/2011 a new technical specification was issued by ETSI's Technical Committee for Satellite Earth Stations and Systems (TC SES) that explores the technical challenges for satellite networks to provide interworking and interoperability with standard terrestrial LSRs (label switching routers). This new specification defines the functional adaptations that are needed to enable satellite networks to support MPLS efficiently and in a standardized manner.

One of the main motives for using MPLS is to provide end-to-end quality-of-service guarantees over IP-based networks. Successful integration and interworking of satellite networks requires taking into account the specific features of satellite networks compared to terrestrial networks.

The new specification is in two parts. Part 1 defines the main architectural concepts, including the network architecture and the protocol stacks, and outlines the key QoS, traffic engineering and resiliency provisions. Several architecture variants are defined and their main characteristics are analysed, also taking into account three different broadband satellite multimedia network architectures. Part 2 of the specification defines the detailed procedures and the related signalling issues, with a particular focus on the fully integrated MPLS architecture defined in Part 1.

This 2-part specification, ETSI TS 102 856, 'Multi-Protocol Label Switching (MPLS) interworking over satellite', was developed by the TC SES Working Group on Broadband Satellite Multimedia (BSM) with funding provided by the EC and EFTA.

> "Guaranteed Quality-of-Service remains a major challenge for satellite network operators, and this specification is the latest in a series of ETSI specifications which focus on this challenge. This new work on MPLS is an important addition to the earlier published QoS specifications by defining a standardized framework that can be used to plan new satellite MPLS deployments. I would like to thank the European Commission and the European Free Trade Association for their support of the project team experts that were responsible for this work."
>
> *Rupert Goodings, Vice-Chairman of TC SES and Chair of the BSM working group*

Standardization and Testing of GeoNetworking

By Dr. Andreas Festag, Chief Researcher at NEC Laboratories Europe and Chairman ETSI TC ITS WG3, and Sebastian Müller, Testing Expert at ETSI CTI

Working Group 3 of ETSI's Technical Committee for Intelligent Transport Systems (TC ITS) is concerned with Networking and Transport. It is currently developing a series of standards for GeoNetworking that provides ad-hoc communication in vehicular networks based on short-range radio. The work is carried out in close cooperation with the Working Group COM of the Car-2-Car Communication Consortium (C2C-CC). Several R&D projects have also contributed, such as GEONET, INTERSAFE-2, PRE-DRIVE C2X, DRIVE C2X and simTD. It took over two years for the first versions of the base standards for GeoNetworking to be produced. In parallel, test specifications were developed and activities to enable testing of real implementations have started.

The base standard for GeoNetworking is the multi-part standard TS 102 636. It covers specifications for requirements and scenarios as well as the network architecture. The core of the base standard is the specification of the network protocol, which is split into a media-independent and a media-dependent part. The media-dependent part is focused on ITS G5/IEEE 802.11p media, whilst the media-independent part can be applied to other short-range wireless access technologies in the future. Additional parts of the base standard cover a UDP-like transport protocol named Basic Transport Protocol (BTP) and the transmission of IPv6 packets over GeoNetworking.

In order to enable interoperability, test specifications were developed to verify the conformance of implementations to the base standard. In accordance with ETSI testing methodology, these conformance test specifications use the test specification language TTCN-3 and follow the scheme of test standards for Protocol Implementation Conformance Statements (PICS), the Test Suite Structure and Test Purposes (TSS&TP) and the Abstract Test Suite (ATS). The development work was carried out by an ETSI Special Task Force (STF 405) and led by ETSI's Centre for Testing and Interoperability (CTI). Another Special Task Force (STF 424), also coordinated by ETSI CTI, is currently developing a platform to conduct conformance tests in a real environment. STF 424 will validate the test specifications and the TS 102 636 standard family thus supporting the ITS standardization process. Vendors who join these projects have the opportunity to assess the level of compliance of their equipment.

Conformance and interoperability testing are complementary to each other and together they can provide the best assurance that future products will interoperate. Subsequently, ETSI TC ITS and ERTICO organized the first Cooperative Mobility Services Plugtests™ in November 2011 in Helmond, The Netherlands. The interoperability event offered vendors the opportunity to assess the level of interoperability and the correct understanding of the base standard requirements by conducting face-to-face test sessions with other vendors. The event was also attended by various C2C-CC members.

The GeoNetworking standard series is now in its final stages, particularly the media-dependent part of GeoNetworking for ITS-G5/IEEE 802.11p. The parts of the base standard already published by ETSI are being revised to harmonize them with the standard progressed in other TC ITS Working Groups and to take change requests into consideration. The base standards will then be converted into European Standards (EN), in accordance with the EC mandate M/453, to develop a minimum set of standards for deployment of cooperative ITS systems. As a consequence, test specifications need to be constantly updated and a new series of interoperability events organized.

> **ETSI TC ITS and ERTICO organized the first Cooperative Mobility Services Plugtests™ in November 2011. The interoperability event offered vendors the opportunity to assess the level of interoperability by conducting face-to-face test sessions with other vendors.**

Dr. Andreas Festag

Sebastian Müller

Links:

Cooperative Mobility Services Plugtests™:
www.etsi.org/plugtests/ITS_CMS/Home.htm

Conformance Test Platform:
http:// portal.etsi.org/STFs/STF_HomePages/STF424/STF424.asp

DRIVE C2X project:
www.drive-c2x.eu

Improved meeting facilities at ETSI

ETSI has decided to perform a major upgrade to its meeting facilities. Following a decision in the ETSI General Assembly on 19th and 20th of April 2011, preparatory work has commenced on a restructuring and improvement of the meeting facilities at the ETSI headquarters building in Sophia Antipolis.

Each year ETSI Technical Bodies organize some 300-400 meetings at ETSI, with some 5000-7000 delegates annually passing through our doors. Recent trends indicate a need for larger meeting rooms to cater for growing standardization groups, and improved audiovisual facilities due to increased use of web-conferencing at physical meetings.

All ETSI meeting rooms will be regrouped in the ETSI main building, which will improve contact between delegates and the provision of meeting support services. As well as increasing the capacity to host larger groups, the upgrade will provide an overall increase in the number of delegates which can be hosted at any one time. The improved audiovisual facilities will include widespread deployment of delegate microphones. Variable sized rooms will provide greater flexibility, with a combination of classroom and boardroom style available.

Accessibility for all has been a major design criteria from the outset. ETSI's new meeting facilities will comply with the latest French legislation on accessibility, ensuring that all delegates can access all meeting rooms and participate in ETSI meetings in comfort.

The major part of the building work will take place from late spring 2012 for approximately one year. Through careful management of existing meeting facilities and occasional use of nearby premises during this period, ETSI will continue to host its regular standardization meetings with minimal disruption to its delegates.

M2M World gathers at ETSI and demonstrates M2M standards success

Machine-to-Machine (M2M) communications may appear to be simply another hyped topic, but for the experts who gathered at the ETSI M2M workshop the subject is very real and developing rapidly. Meeting in Sophia Antipolis, France, on 26 and 27 October 2011, participants at ETSI's 2nd M2M workshop looked beyond the standards produced by ETSI Technical Committee for Machine-to-Machine communications (TC M2M) to see how these standards can be applied to real life applications. The focus of the workshop was on implementation and deployment of standards-based solutions, because M2M technology promises to integrate many aspects of our daily lives and numerous applications of M2M are already available.

Participants heard how ETSI's M2M service capabilities based architecture helps federate current and emerging M2M communication technologies into a single harmonized service platform. Numerous major network operators presented their requirements, equipment vendors offered commitments and technology roadmaps, and results from pilot implementations gave clarity and confidence to those who are still wondering how and when to invest.

Participants at ETSI's 2nd M2M workshop looked beyond the standards to see how these standards can be applied to real life applications.

For those who could not participate in the workshop, the workshop programme and copies of the presentations are available to the public from the ETSI website at www.etsi.org/M2MWORKSHOP

Leading M2M firms demonstrate interoperability of standards at ETSI Machine-to-Machine Workshop in France

During the event, ETSI successfully demonstrated the interoperability of products based on its new M2M standards. Five comprehensive demonstrations, organized by ETSI's TC M2M, showcased how the interoperability of standards-based solutions in M2M products is key to market success.

ETSI's 2nd workshop on M2M communication gathered leading experts from all over the world to hear how ETSI M2M technology standards are being deployed. With over 270 registered delegates from four continents, 25 speakers, five live demonstrations of ETSI M2M-based applications and two days of intense discussion, the 2011 event was even more successful than that of the previous year.

The demonstrations covered architectural components specified in the ETSI M2M standard, including M2M devices, gateways with associated interfaces, applications, access technologies as well as the M2M Service Capabilities Layer. The demonstration, the first in a series of ETSI activities focused on M2M interoperability, included thirteen diverse organizations and covered a wide cross-section of M2M applications. These included smart energy, environmental sensing, mhealth, intelligent transport, ambient assisted living, personal robots, home automation, medical appliances and smart metering.

Planning for the 2012 workshop, which will take place in October, is underway, making ETSI's M2M workshop the primary technical conference on the subject and a 'must-attend' event for anyone developing or deploying standards-based M2M solutions.

M2M Communications

A Systems Approach

David Boswarthick, Olivier Hersent & Omar Elloumi

Focusing on the latest technological developments, *Machine to Machine (M2M) Communications: A systems and market approach* is an advanced introduction to this popular and rapidly evolving topic. It provides a global perspective on M2M services and the major telecommunications relevant technologies, with a focus on standards currently in progress by IETF, ETSI and 3GPP, the leading standards entities in telecommunication networks and solutions. The structure of the book is inspired by ongoing standards developments and uses a systems based approach for describing the problems which may be encountered, as well as offering some initial solutions. It follows a logical sequence beginning with an general introduction and then looking to the business of M2M, before moving to technology summary, standards overview and analysis as well as looking at service opportunities.

The authors provide comprehensive technical information on M2M architecture, protocols and applications, especially in M2M service architecture, access and core network optimizations, M2M area networks technologies. The book addresses the end to end landscape for M2M including: M2M Devices (constrained and non constrained), M2M area networks (Home Area Networks, Body Area Networks, etc.), access and core network optimizations for M2M, the M2M Service Delivery Platform and M2M network applications. Providing an advanced introduction to this complex technical field, the book will provide an essential end to end overview of M2M and details on key areas for professionals working in the industry and advanced students.

WILEY-BLACKWELL

Hardback 280 pages 2012 ISBN 978-1-119-99475-6
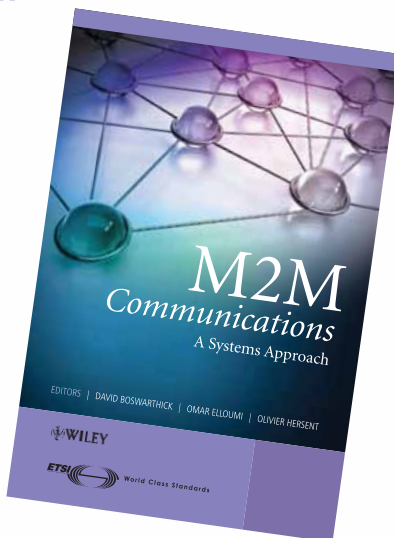
> *"* The growth of M2M applications will have a profound impact on the standards which define our networks. I am certain that this book will help us to better understand the issues we need to tackle in order to create an M2M-enabled world.*"*
>
> *Luis Jorge Romero, ETSI Director General*

Order your copy of 'M2M Communications: A Systems Approach' at:

http://eu.wiley.com/WileyCDA/WileyTitle/productCd-1119994756.html

and receive a 20% discount when quoting code: VB769

ETSI's algorithms and codes service

ETSI's Editing Document Management (EDM) team is responsible for the processing of deliverables following their approval. In addition to its core work of editing and managing the publication of standards, ETSI's EDM team has various other responsibilities - one of these is the Algorithms and Codes service.

An encryption algorithm is a mathematical procedure used to encrypt data. Through the use of an algorithm and a cryptographic key, information is encoded into cipher text and requires the use of a key to transform the data back into its original form.

Algorithms are an essential part of a technology to ensure effective and secure authentication, as well as to provide integrity and encryption. ETSI creates cryptographic algorithms and protocols to prevent fraud, unauthorized access to public and private telecommunications networks and for user data privacy.

The ETSI Secretariat is the custodian of these algorithms, as well as some produced by other organizations: this means that we are responsible for issuing them under controlled conditions to legitimate users - mainly manufacturers and network operators.

We are also the custodian of various codes and test suites. ETSI issues various Security Codes for DECT, TETRA and DMR to manufacturers under a confidentiality & restricted usage undertaking between the beneficiary and the provider. More details are available at www.etsi.org/algorithms.

ETSI enhances TETRA data service

ETSI Technical Committee TC TETRA has released a new version of the TETRA standard which incorporates the next development step in the TETRA Enhanced Data Service, TEDS. This development is known as Direct Access and is specified in ETSI TS 100 392 2.

TETRA is the ETSI standard for professional mobile radio communications, and is widely used by public safety, government and business users worldwide with over two million terminals in use across all continents.

Direct Access allows a TETRA terminal to use TEDS data cells independently of TETRA 1 voice and data cells. This allows the creation of more efficient data terminals, and also allows high speed data networks to be designed that are independent of networks carrying speech. It therefore broadens the scope for the use of TETRA and TEDS in building secure and resilient mission critical professional mobile data networks.

ETSI EVENTS CALENDAR 2012 - What's on?

7-8 February	CDN Asia	Hong Kong, HK
7-9 February	4th ETSI TC ITS Workshop	Doha, QA
9 February	Cloud Infrastructure Summit	(Webinar)
9 February	EU-US Electronic Signature workshop	McLean, VA, US
13-22 February	4th Femto Forum UMTS Femtocell Plugfest	Paris, FR
14-15 February	DECT World & CAT-iq	Amsterdam, NL
27 February - 1 March	MWC 2012	Barcelona, ES
6-8 March	ATC Global	Amsterdam, NL
8 March	M2M Zone @ Cebit 2012	Hanover, DE
14-28 March	XAdES Plugtests	Remote on the Electronic Signature Portal
15-16 March	NFCP Global Summit	London, UK
20-22 March	IP&TV World Forum	London, UK
20-21 March	GA#59	Cannes, FR
24-25 March	IoT CoAP Plugtests	Paris, FR
26-28 March	Telecom Network Security	Munich, DE
3-5 April	Salon M2M	Paris, FR
24-26 April	IMS World Forum	Barcelona, ES
15-16 May	Broadband IP&TV Asia	Kuala Lumpur, ML
22-23 May	Social TV World Summit	London, UK
6-7 June	Innovative City Convention	Nice, FR
11-14 June	TTCN-3 User Conference & MBT Workshop	Bangalore, IN
11-15 June	Cooperative Mobility Services Plugtests™	Versaille, FR
19-20 June	Digital Home World Summit	London, UK
21-22 June	ETSI Workshop on Energy Efficiency	Genoa, IT
7-11 September	IBC 2012	Amsterdam, NL
18-20 September	NFC World Congress	Nice, FR
24-27 September	Mobile Broadband World 2012	London, UK
October	3rd ETSI TC M2M Workshop	Sophia Antipolis, FR
2-4 October	CDN World Summit	London, UK
8-11 October	ICIN	Berlin, DE
9-10 October	IP&TV Forum EurAsia East Europe	Istanbul, TR
14 October	World Standards Day	Brussels, BE
16-17 October	IP Cable World Summit	London, UK
22-26 October	ITS World Congress	Vienna, AT
30-31 October	IP&TV Forum Middle East & North Africa	Dubai, AE
15-16 November	3rd FOKUS FUSECO Forum: Human-to-Human and Machine-to-Machine Communications within emerging open Smart City ICT infrastructures"	Berlin, DE
6-8 November	OTTtv World Summit	London, UK
14-15 November	AfricaCast	Cape Town, ZA

Please visit the events section of our website for further details

NGMN Industry Conference & Exhibition
June 13-15, 2012

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Yerba Buena Gardens, San Francisco, USA
www.ngmn.org/ice2012

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We are happy to consider contributions from ETSI Members, including 'Open letters to Members' to facilitate your communication with the ETSI community.

Please contact newsletter@etsi.org

About ETSI

ETSI produces globally-applicable standards for Information and Communication Technologies (ICT), including fixed, mobile, radio, converged, aeronautical, broadcast and internet technologies and is officially recognized by the European Union as a European Standards Organization. ETSI is an independent, not-for-profit association with more than 700 member companies and organizations, drawn from over 60 countries across 5 continents worldwide, who determine the work programme and participate directly in its work.

For further information, please visit: www.etsi.org

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