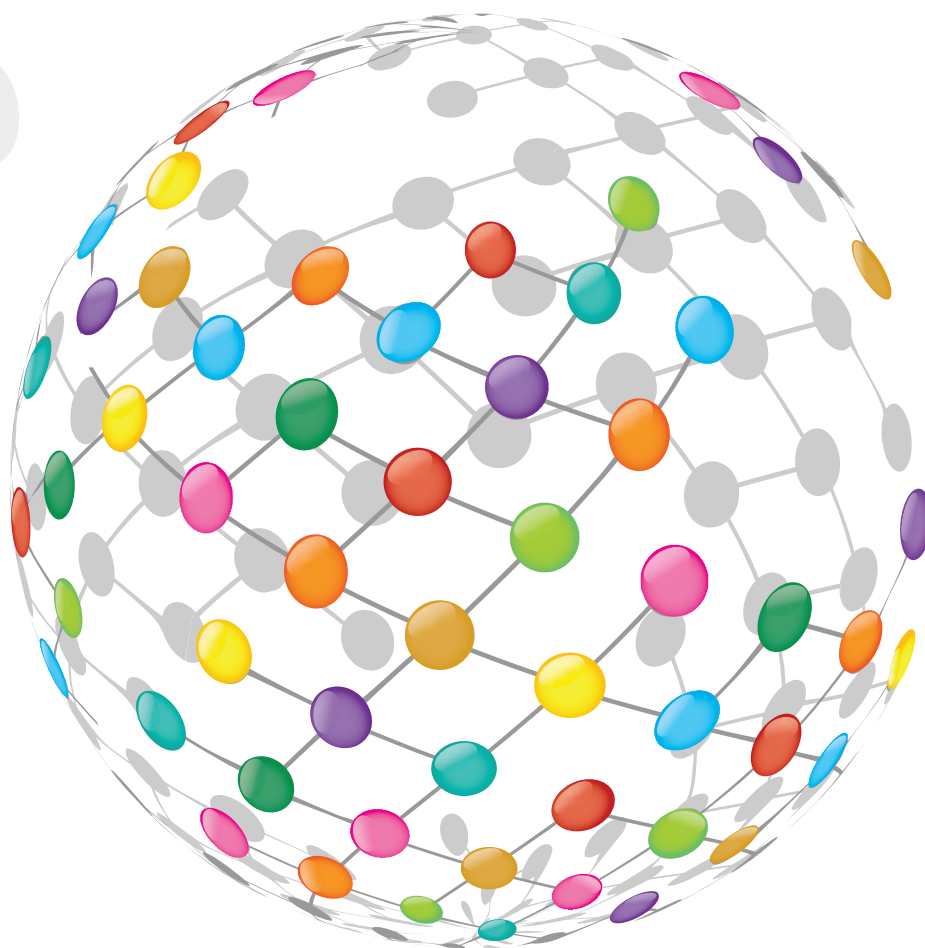




annual report

april 2014



a connected world

ETSI's Vision of a Connected World



Our 'clusters' (above) provide a simplified, yet comprehensive, way of identifying our different areas of expertise based on business relevance or application domain rather than our committee structure. Each cluster represents a major component of the global Information and Communications Technologies (ICT) architecture and brings together the work of those Technical Committees (TCs) and other groups which share a common technological scope and vision. It is this joint scope and vision that gives each cluster its own identity; collectively the clusters represent the totality of ETSI's work, and demonstrate the way that technologies are converging into a connected world.

ETSI is a producer of globally applicable standards for ICT, including fixed, mobile, radio, converged, broadcast and Internet technologies. The high quality of our work and our open approach to standardisation has seen our influence extend from our European roots to impact the world.

ETSI is officially recognised by the European Union as a European Standards Organisation. Our activities are driven by time to market and our standards help ensure the free movement of goods within the single European market, allowing enterprises in the EU to be more competitive.

ETSI is a not-for-profit organisation with more than 700 member organisations worldwide, drawn from 63 countries and five continents. Members include the world's leading companies and innovative R&D organisations.

ETSI is at the forefront of emerging technologies. We are building close relationships with research bodies and addressing the technical issues that will drive the economy of the future and improve life for the next generation.

ETSI is a world-renowned organisation with a solid reputation for technical excellence. We make our expertise available to our members and customers through a range of services for growing ideas and enabling technology.



Dirk Weiler
Chairman of the
General Assembly

In March we celebrated 25 years of ETSI! But I do not want to dwell here on the achievements of the past; in this report, you can read about exciting developments in the last 12 months through which ETSI is helping to build the future. With these in mind, in 2013 we enhanced our Intellectual Property Rights (IPR) policy, particularly in relation to obligations in case of a patent transfer.

The new European Regulation on standardisation came into effect, emphasising ETSI's crucial role in Europe and the importance of standards to support legislation, regulation and public policies. We also entered a new phase of co-operation with CEN and CENELEC, updating our existing agreement to enable us to produce joint standards.

But our perspective is not limited to Europe, nor to traditional technologies. For example, the oneM2M Partnership Project, which we recently helped set up to bring about the global deployment of Machine-to-Machine (M2M) communications, approved its first specifications in 2013.

And, through closer co-operation, we are developing the opportunities offered by emerging markets in other regions of the world. So we appointed a new Seconded European Standardisation Expert for India (SESEI).

New horizons lie ahead. After 25 years, it seems our work is just beginning!



Jonas Sundborg
Chairman of the
Board

As well as celebrating ETSI's 25th anniversary, in 2013 we commemorated 15 years of the Third Generation Partnership Project (3GPP™). Mobile communications is one of our traditional strengths. Looking to the future, we are also developing LTE™ for use in critical communications and we hosted a Future Mobile Summit when we discussed 5G mobile communications.

In other well-established technologies, we published our first Technical Specification for Ultra Low Energy (ULE) DECT™ and the requirements specification for the 'embedded UICC'. We also continued to make good progress towards reducing the environmental impact of Information and Communications Technologies (ICT) equipment.

But we are also tackling new topics. For example, we have begun work on smart appliances and smart cities. Industry interest in our ground-breaking work in Network Functions Virtualisation (NFV) has exceeded expectations. We completed the first release of Intelligent Transport Systems (ITS) specifications to enable the deployment of Co-operative ITS. We established a new committee to address Smart Body Area Networks and refocused our eHealth activities on Telemedicine. We are initiating new work on the Smart Security Platform, particularly for mPayments.

By both building on our long-standing expertise and accepting new technological challenges, we will guarantee our place in global standardisation for the next 25 years.



Luis Jorge Romero
Director-General

ETSI's standards are highly regarded around the globe but we are constantly seeking to enhance our standards-making. So we are developing TDL, a new language for the specification of test descriptions, bridging the gap between the description of what is to be tested and the coding of the test cases. And we have produced a comprehensive, practical 'Guide to Writing World Class Standards'.

However, the most crucial factor in our success as a standards-maker over the last 25 years has been our members. To these companies and organisations, and the individuals delegated to our technical work, I say thank you. In 2013, we extended our efforts to draw closer to our members, to understand their needs and to help promote their interests. As a result, we are now better placed than ever to pick up on new standardisation opportunities.

To give just one example of the way we can kick-start new standardisation-related activities in ETSI, throughout 2013, at the request of the European Commission, we brought together more than 250 stakeholders in the Cloud Standards Co-ordination initiative, to identify the standards needed to support Cloud computing. Our final report provides conclusions regarding the status of Cloud standardisation as well as invaluable reference material, mapping use cases with standards available to exploit the Cloud.

Many more achievements are described in the following pages.

For what we plan to do next, please see our Work Programme 2014-15.

In 2013, we celebrated a quarter of a century of achievement. In that time we have produced standards with a worldwide impact – and we are still developing some of them today. But technology does not stand still – and nor does ETSI!

For example, we published our first specification for an innovative new use of Digital Enhanced Cordless Telecommunications (DECT™), Ultra Low Energy (ULE) DECT, which will be ideal for sensors, alarms, Machine-to-Machine (M2M) applications and industrial automation. We are looking to adapt the latest mobile telecommunications standard, LTE™, for public safety use, as a next generation radio system following on from Terrestrial Trunked Radio (TETRA). We considered the implications of 5G mobile communications at our Future Mobile Summit in November. And our Smart Card Platform committee achieved a breakthrough with the publication of the requirements specification for the ‘embedded UICC’ (eUICC).

While we are proud of our past, we are always looking ahead. So in 2013 we organised workshops to stimulate new activities, we strengthened our links with research and we embraced the challenge of exciting new technologies that will shape the future.

Connecting Things

M2M communications will form the basis for tomorrow’s world. In 2013, our committee for Smart M2M Communications published its second release of specifications, expanding the M2M configuration towards inter-operator communications, and we began new work on smart appliances. We are also addressing smart metering, the security of smart energy infrastructures and smart grids, and we have begun to look at the Smart Security Platform, particularly in relation to mobile payments (mPayments). The oneM2M Partnership Project, which we helped to found in 2012 to bring about the global deployment of M2M communications systems, approved its first reports and specifications.

Smart Cities

We have adopted smart cities as a new strategic topic, holding a Hell’s Kitchen session in February and our first workshop on the topic in June. We are developing a roadmap for future activities and we have started a report on the impact of smart city activity on the Internet of Things.

Cloud

We successfully completed our work on the Cloud Standards Co-ordination (CSC) initiative, identifying the standards needed to support European Commission (EC) policy objectives and providing invaluable material with which to develop Cloud computing.

Network Functions Virtualisation (NFV)

Our NFV Industry Specification Group (ISG) achieved a significant milestone in less than 10 months when it published its first specifications for Network Functions Virtualisation, proving the effectiveness of our ISGs as a means of developing urgently needed specifications to kick-start standardisation in new technological areas.

Maximising the use of Radio Spectrum

This continual growth in the use of the Internet and mobile

communications makes increasing demands on network resources. So we are looking into new ways to improve the efficiency of spectrum usage, for example through Reconfigurable Radio Systems and Television White Spaces. We are also developing the 5 GHz band, investing considerable effort in 2013 on a wide range of applications including industrial automation, broadband links to ships, Intelligent Transport Systems (ITS), direct-air-to-ground communications for airline passengers and Radio Local Area Networks (RLANs).

Intelligent Transport Systems

In 2013 we finalised the first consistent set of standards which will enable the initial deployment of Co-operative ITS, on target by 2015, opening up the enormous potential of vehicle-to-vehicle and vehicle-to-roadside communication. Work on electric vehicle charging also progressed well.

eHealth

Our work in eHealth was revitalised. We are addressing Telemedicine and the Internet Clinic and we have established a new committee specifically to support the development of Smart Body Area Networks.

Greener Living

At the same time, we are working to reduce the environmental impact of Information and Communications Technologies (ICT) equipment. In particular we published the first ‘Global Key Performance Indicators’ with which to monitor the energy management of deployed broadband.

Mobile Communications

As a founding partner of the Third Generation Partnership Project (3GPP™), we are helping to develop specifications for advanced mobile communications technologies. In 2013 3GPP made good progress with its Release 12 specifications, freezing both the user requirements specifications and the functional architecture and data interchange.



Other Ongoing Activities

We provide Harmonised Standards by which manufacturers can demonstrate compliance with EC Directives. We support accessibility and ‘Design for All’, to ensure that everyone has the same access to goods and services, and we completed our work on accessibility in the public procurement of ICT. We are developing our highly regarded Intellectual Property Rights policy to support our work, and expanding our testing and interoperability services, in particular taking a leading role in the introduction of the new Test Description Language (TDL). We continue to address electronic signatures, public safety, digital broadcasting, satellite communications and much more.

In 2013, we produced over 2 000 new world class standards in a wide range of areas, bringing the total produced since our establishment to over 34 600. The technologies may have changed or evolved over the last 25 years, but our position as a world leader in standardisation remains the same.

New Beginnings

We are constantly looking for new ways to extend our activities and to keep up to date with the latest developments in Information and Communications Technologies (ICT). In this way we are able to provide our members with the standards they need to develop their businesses with innovative services and equipment.

Industry Specification Groups

By establishing standards early in the development of a technology, we can help ensure that products are

We had 11 ISGs in 2013:

- AFI – Autonomic network engineering for the self-managing Future Internet
- INS – Identity and access management for Networks and Services
- ISI – Information Security Indicators
- LIS – Localisation Industry Standards
- LTN – Low Throughput Networks
- MOI – Measurement Ontology for IP traffic
- NFV – Network Functions Virtualisation
- OEU – Operational energy Efficiency for Users
- ORI – Open Radio equipment Interface
- QKD – Quantum Key Distribution
- SMT – Surface Mount Technique

commercialised faster and reach global markets. Standardisation also contributes to customer confidence and enables interoperability. From time to time, we set up Industry Specification Groups (ISGs) in specific innovative areas, to operate alongside our traditional standards development process. By their nature, ISGs can produce specifications quickly, offering an effective alternative to the creation of industry fora.

Network Functions Virtualisation (NFV)

A highlight of the year was the publication by our ISG NFV of the first five specifications on NFV. Demonstrating the effectiveness of the ISG mechanism, this work was achieved in less than a year. The group attracted broad industry support and participation rose rapidly to over 170 companies of all sizes from all over the world.

Collaborative Research

Sometimes participation in collaborative research triggers new standardisation activities in ETSI; in other cases it contributes to our ongoing work.

During 2013, we participated in a number of European Commission (EC) funded projects. Our role in these projects varies. For example, our Centre for Testing and Interoperability (CTI) developed test specifications for the PowerUp project, which aimed to smooth the integration of electric vehicles into emerging smart grid networks. Project SUNRISE aims to ensure the successful implementation and evolution of the European Union's Galileo Global Navigation Satellite System (GNSS) programmes by involving future users. Through our Forapolis™ service, we set up the Open GNSS User Forum to reach users of Location Based Services and Intelligent Transport Systems (ITS). With project SAGITER, we are developing GNSS standards under the EC's 'Space Mandate' (M/415).

In 2013 we became a partner in the new Electronic Simple European Networked Services (e-SENS) Pilot Project, in which we expect our Electronic Signatures and Infrastructures committee (TC ESI) to play a key role. The goal is to develop an interoperable European solution for electronic public services,

comprising eJustice, eID, eDelivery, and eSignatures, to make cross-border government services a reality and to support the mobility of citizens and businesses.

Workshops

We regularly organise workshops to facilitate early consensus-building, to stimulate new standardisation activities and to fertilise ongoing technical work. Highlights of 2013 included the third ETSI Workshop on Future Networks in April, which was dedicated to NFV and Software Defined Networking (SDN), and the Quantum-Safe-Crypto Workshop in September. Following a Hell's Kitchen session in February, we held our first workshop on smart cities in June, which has kick-started new standardisation work. The 8th annual ETSI Security Workshop took place in January, and record numbers attended our fourth Machine-to-Machine Communications (M2M) workshop and the 5th ETSI ITS Workshop.

Other Emerging Topics

Following a presentation by EC DG Connect on M2M semantics for smart energy efficient appliances, we set up an ad hoc team on the interoperability of home appliances. Its first task is to prepare an ETSI roadmap for future action to support the EC's target of instigating a 'plug & play' EC label to certify the interoperability and energy efficiency of home appliances by the end of 2015.

We have also begun to address the Smart Security Platform for secure eIdentity. One of the first applications addressed will be mobile payments (mPayments).



Connecting Things

Integrating Objects to Create New Networked Services

An ever increasing number of everyday machines and objects are now embedded with sensors or actuators and have the ability to communicate over the Internet. These 'smart' objects can sense and even influence the real world. Collectively they make up what is known as the 'Internet of Things' (IoT). The IoT draws together various technologies including Radio Frequency Identification (RFID), Machine-to-Machine (M2M) service platforms and Wireless Sensor Networks (WSNs). Potential applications and services include the Smart Grid, the connected car, eHealth, home automation and energy management, public safety and remote industrial process control.

Machine-to-Machine Communications

In 2013, much of our work in this area, including the development of the core M2M specifications, was transferred to the new oneM2M Partnership Project. We then refocused on services and applications, especially aspects of the IoT and smart cities. We will also support relevant European policy and regulatory requirements, and handle the conversion of oneM2M specifications into ETSI standards and specifications.

Our SmartM2M committee completed its second release of specifications, which expands the M2M configuration towards inter-operator communications. Release 2 includes specifications governing device-to-device and multi-platform communications, as well as guidelines for semantic interworking. Other new features include charging, inter-domain communications between service platforms and 'M2M Light' (which supports devices connecting directly to the network platform). Release 2 also includes a number of Technical Reports (TRs) describing use cases, such as the connected consumer, eHealth and automotive applications.

We approved a TR on interworking with M2M Area Networks and began new work on a common language and abstraction layer to manage different vertical data models.

We are addressing the security of smart energy infrastructures, preparing a TR on existing security methods provided by standards currently used in the smart energy industry or mandated by regulation, as well as gaps previously identified, to pinpoint areas where we could provide solutions.

In response to a proposal from the European Commission (EC), we began work on smart appliances – energy using and producing products, such as white goods and heating, ventilation and air conditioning systems, which are able to communicate as part of a home automation system.

In 2013, a Hell's Kitchen session and an open workshop helped us to clarify some of the issues involved in smart cities and the contribution which ICT standards can make to their development. As a result, we began work on a TR on the impact of smart city activity on the IoT environment.

We are collaborating with the European Committee for Standardisation (CEN) and the European Committee for Electrotechnical Standardisation (CENELEC) in response to EC Mandates on smart metering (M/441), smart grids (M/490) and electric vehicle charging (M/468 and M/490).

In November, we hosted our fourth, highly successful M2M workshop.

We are also working with the European Conference of Postal and Telecommunications Administrations (CEPT) to find additional spectrum for RFID, short range devices (SRDs) and smart metering.

oneM2M Partnership Project

By creating a standardised service platform, oneM2M will help multiple industries to exploit the potential of M2M while at the same time lowering their operating costs and capital expenses, shortening time-to-market, creating mass-market economies of scale and simplifying the development of applications.

The initial goal is to confront the critical need for a common M2M Service Layer, which can be readily embedded within different hardware and software, connecting the devices in the field with M2M application servers worldwide. In 2013, oneM2M made good progress towards its initial release of specifications which will provide the first deployable M2M solution. The Project approved a TR on use cases and the benefits of oneM2M technology, a Technical Specification (TS) defining the requirements, an analysis of the architectures for transfer to oneM2M and a study into merging the architectures proposed for transfer to oneM2M. A TS on the architecture was almost finalised and good progress was made with protocols, security, and management, abstraction and semantics.

Work on Release 2 began in parallel during 2013, with the aim of adding new functionality, particularly by expanding management, abstraction and semantics. At the end of the year, oneM2M also took a significant step forward in its requirements work, beginning to update its TR on use cases with the addition of other cases, allowing new input for the next phase of work.

ETSI and oneM2M

ETSI is one of the founding partners in oneM2M, the Machine-to-Machine Communications Partnership Project, which was launched as a global organisation to ensure the most efficient deployment of M2M communications systems. oneM2M brings together eleven partners including seven of the world's leading Information and Communications Technologies (ICT) Standards Development Organisations (SDOs), as well as representatives of different industry sectors. oneM2M involves players from many diverse business domains including telematics and intelligent transportation, healthcare, utilities, industrial automation and smart homes. oneM2M will help ensure the global functionality of M2M and prevent the duplication of standardisation effort. Each partner SDO will publish oneM2M's specifications under its own numbering system.

ETSI provides two full-time members of staff and a large part of the IT infrastructure to support oneM2M.

Further information at: www.oneM2M.org



Wireless Industrial Automation

We produced a System Reference Document on the possible allocation of additional spectrum in the 5,8 GHz band for wireless industrial applications and began work on a new Harmonised Standard for radio equipment to be used in the 5,8 GHz band for industrial automation.

We are also revising the Harmonised Standard for 2,4 GHz wideband transmission systems in response to issues raised by the wireless automation industry over the use of SRDs in factories, for example in robotic arms, where high reliability and accurate response are required. Recognising the growth in wireless industrial applications, in 2013 our Electromagnetic Compatibility and Radio Spectrum Matters committee (TC ERM) set up a new Task Group to deal specifically with this area of work.

Reducing Energy Consumption

We published a new two-part TS on the smart metering wireless access protocol which harmonises protocols for devices supporting M2M applications. Drawing on this work, we began to develop a European Standard (EN) for SRDs in the 870 - 876 MHz frequency range. This will have applications in smart metering, smart grids and smart cities.

Smart Grids

In response to M/490, our members were active in the Smart Grid Co-ordination Group, which brings us together with CEN and CENELEC to develop standards to accelerate the deployment of the next generation of electricity networks, known as 'smart grids'. In January, together with CEN and CENELEC, we presented the latest results of this work at a European Conference on Smart Grid Standardisation Achievements, in Brussels, Belgium.

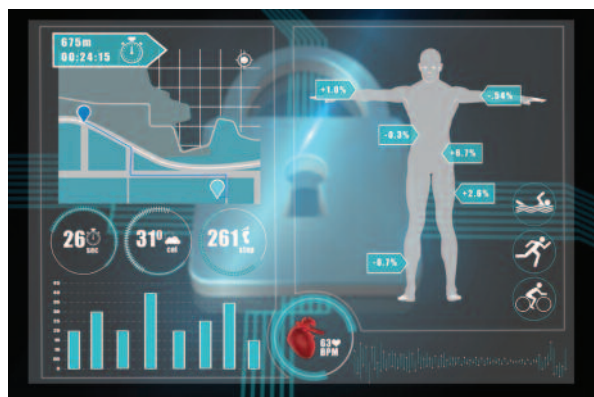
Low Throughput Networks (LTN)

Many of the connecting objects in M2M and the IoT need only low throughput connectivity. Our Industry Specification Group (ISG) on LTN is specifying a new ultra narrowband radio technology for very low data rates for ultra long autonomy devices, which will provide an efficient connection that is both cost effective and low in energy consumption. In 2013 the group made good progress with the definition of relevant use cases and a dedicated architecture. New work began on interfaces and protocols.

eHealth

Successful implementation of eHealth could improve the quality of healthcare, reduce medical costs and foster independent living. But there is a serious lack of interoperability and standards are therefore needed to exploit the full potential on offer. In 2013, after consulting widely, we drew up a new strategy for future work in our eHealth project (EP eHEALTH), which will take on a co-ordinating role within ETSI to help drive developments.

We have initiated new work on use cases for eHealth, Telemedicine and the Internet Clinic. In countries with scattered populations, health services are looking to home medicine and Telemedicine to help provide a comprehensive healthcare system and to reduce the growing costs of healthcare. The Digital Agenda for Europe aims to achieve the widespread deployment of Telemedicine services by 2020 but,



according to the World Health Organisation, still only 8% of patients today enjoy access to services such as telecare and telemonitoring. Our aim is to create the standards necessary for the confidential transmission of medical data by wireless signals from individual measuring equipment, via a PC and video-link. We are also looking at the security of systems and data, the quality of services, interoperability, validation by testing and usability.

In addition, we began to plan a new ETSI Guide which will provide a glossary of eHealth terms.

Body Area Networks

Body Area Network (BAN) technology, using small, low power devices, is a growing market. Applications include health and wellness monitoring, sports training, personalised medicine (e.g. heart monitors) and personal safety, such as fall detection. However, there is need for a more specific and dedicated technology, optimised for BAN. So in 2013 we created a new committee to deal specifically with this topic (TC SmartBAN); interest in its work was high from the outset.

We are developing a TR which will define service and application enablers, data representation and transfer formats, and identify the required management and control information. A second TR will describe measurements and modelling of the SmartBAN RF environment to assist the development of optimised and reliable BAN radio solutions. A TS will focus on low complexity Medium Access Control (MAC) and routing requirements for SmartBAN. Existing solutions, not tailored to the requirements of health and medical BAN, tend to be overly complex and consume unnecessarily high levels of power. So we are looking at simpler – and also possibly lower cost – alternatives with longer battery life.

In the closing weeks of 2013, we initiated new work to provide a system description for SmartBANs, including an overview and use cases, and a TS defining an ultra low power Physical Layer (PHY) for on-body communications between a hub and sensor nodes.

Low Power Active Medical Implants

In July, we published a System Reference Document seeking a change in the regulatory requirements to allow the 2 483,5 - 2 500 MHz band to be used by SRDs for low power cochlear implant systems. We began work on an EN on Medical BAN Systems (MBANs) in that range, to improve their compatibility with low power active medical implants and to ensure adequate spectrum sharing mechanisms.

Radio technology is an integral part of our daily lives. We use it for our mobile phones, for broadcast radio and television, in Wireless Local Area Network (WLAN) and cordless technology, Global Navigation Satellite Systems (GNSS), Radio Frequency Identification (RFID) and short range devices (SRDs). All of these technologies and applications compete for use of limited radio spectrum resources. ETSI creates the standards which define many of these radio technologies and systems. We also provide the standards which the regulatory authorities in Europe – and elsewhere – use to manage the radio spectrum environment and to ensure safe co-existence between all these systems.

Supporting the European Regulatory Environment

ETSI plays a key role, co-operating with the European Commission (EC) and the Electronic Communications Committee (ECC) of the European Conference of Postal and Telecommunications Administrations (CEPT) on aspects of the regulatory environment for radio equipment and spectrum, both at the European Union (EU) level and at the wider intergovernmental level across Europe.

We provide a broad range of Harmonised Standards by which manufacturers are able to demonstrate that their products comply with an EC Directive, allowing them to be placed on the market or put into service. Our standards also enable Administrations to take action against non-compliant equipment, ensuring that legitimate users can use spectrum without interference. We assist the CEPT and the EC in the development of measures to harmonise the use of spectrum throughout the EU (usually by producing System Reference Documents (SRdocs)). These measures and our Harmonised Standards together form a powerful tool to provide a large, unified market, giving users products at reasonable prices.

Throughout 2013 we studied the development of proposals to replace the Radio and Telecommunications Terminal Equipment (R&TTE) Directive with a new Radio Equipment Directive. The EMC Directive and Low-Voltage Directives were also revised. When these new Directives are published, we will need to review our standards and specifications in the light of the changes.

The EU is also developing a longer-term policy for spectrum use. In 2013 we contributed to studies within the Radio Spectrum Policy Group (RSPG), including a report on interference management (some of the principles of which were considered in the development of the Radio Equipment Directive), policy documents on Licensed Shared Access (LSA) and spectrum requirements for specific sectors.

Maximising the Use of Radio Spectrum

Network resources are struggling to accommodate the continual growth in the use of the Internet and mobile communications. Increasing the efficiency of spectrum usage is one possible solution. We are developing a Technical Report (TR) which will be a valuable reference tool, providing detailed

information on spectrum use and an overview of ETSI standards, reports and specifications, together with their applications and frequency bands.

The growing number of applications using SRDs has created increased complexity and co-existence problems with existing systems and services operating in the same bands. In 2013 we completed a Technical Specification (TS) on ways of improving spectrum efficiency. We also developed a Duty Cycle Template to be used as a passive mitigation technique.

Reconfigurable Radio Systems (RRS)

We are working in response to EC Mandate 512 on RRS – the intelligent radio devices which can characterise, and act upon, their environment.

In 2013, we completed an SRdoc on mobile broadband services in the 2,3 - 2,4 GHz range using LSA, the new technology which allows for the co-existence of the original incumbent with a new cellular operator in the same frequency band. We began work on the relevant system requirements and the system architecture.

We published a TR on use cases for the building and exploitation of Radio Environment Maps (REM) for intra-operator scenarios, which will provide operators with a better picture of available radio systems in specific areas, and we began work on the requirements.

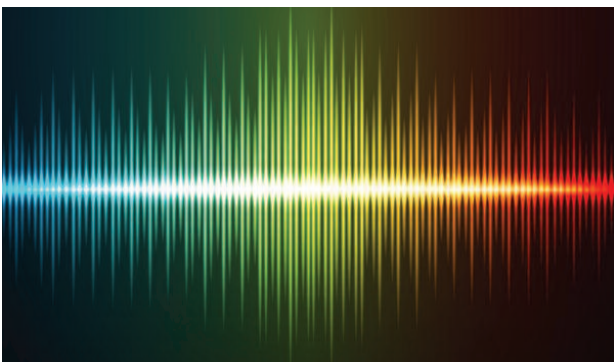
Among other things, the new Radio Equipment Directive will allow, for the first time in Europe, the use of RRS that affect device certification. To enable the future enforcement of this directive, we are developing standards for dynamic Declaration of Conformity, which is a crucial factor in the introduction of new features. A TR describing use cases for dynamic equipment reconfiguration was completed in December. Work continues on the related system requirements.

TV White Spaces (TVWS)

Good progress was made in 2013 on UHF TVWS (the areas of spectrum between allocated frequency bands that are unused by the spectrum owner over a given time in a given location). A feasibility study into RF performance for Cognitive Radio Systems operating in TVWS, which addresses concerns about interference, was published in May. We are also working on the co-existence architecture for Cognitive Radio Networks in UHF White Space frequency bands and the system requirements for operation in UHF TVWS. We are undertaking a feasibility study into co-existence between Cognitive Radio Systems and RF cable networks.

We began work on TVWS related to Geo-location Databases (GLDBs), the operation of White Space Devices (WSDs) and the operation of Cognitive Radio Systems dependent for their use of radio spectrum on information obtained from GLDBs.

We completed the final draft of the first ever Harmonised Standard outlining the essential requirements for RRS operating in TVWS spectrum and began new work aimed at providing information on weblistsings of TVWS databases.



Broadband Radio Access Networks

In 2013, our work on Broadband Radio Access Networks focused on Wireless Access Systems including Radio Local Area Networks (RLANs). We also continued to work on Ultra-Broadband Wireless Systems, completing a TR describing the system architecture and an economic model and the technical requirements for a Broadband Wireless Access system providing 1 Gbit/s per km².

RFID

We updated our European Standard (EN) for SRD radio equipment in the 9 kHz - 25 MHz band. As a result, wireless chargers will be covered and data rates up to 6,8 Mbit/sec will be enabled, for applications such as national ID cards, passports and Near Field Communications (NFC) technology.

Satellite Communications

We extended our TS on the SL satellite radio interface (Mobile Satellite Service terminals for geostationary systems operating in the L band) and began work on several new GNSS specifications. In addition, we refined the TS for the air interface for S-band Mobile Interactive Multimedia (S-MIM) and we revised the Internet Protocol over Satellite (IPoS) TS (the Fixed Satellite Service terminal specification) to reflect Telecommunications Industry Association (TIA) updates.

Work continued on cognitive radio techniques applied to satellite communications systems, the environmental impact of satellite broadband networks, a hybrid satellite/terrestrial network architecture for high speed broadband access and the use of LTE™ in satellite networks.

We are contributing to the EC 'Space Mandate' (M/496).

Advanced Mobile Communications Technologies – 3GPP™

In 2013 3GPP made good progress with its Release 12 specifications. Stage 1 (user requirements specifications) was frozen in March and stage 2 (functional architecture and data interchange) in December. Stage 3 (physical architecture and protocols) is expected to be completed in mid-2014.

Release 12 encompasses around 100 new top-level 'Features', organised into a total of 560 individual work items. A number of these build on the IP Multimedia Subsystem (IMS), for example, simplifying the transport and delivery of the Short Message Service (SMS) without using the mobile station's integrated services digital network number (MSISDN). This will

also open the way for non-E.164 numbering schemes for machine-type communications, where the number of terminal devices is expected to far exceed the capacity of traditional telephone numbering ranges.

Obtaining the maximum use of the relatively scarce bandwidth available to individual operators is of paramount importance. As a result, carrier aggregation now accounts for one third of 3GPP's entire work programme as it seeks to exploit the almost limitless possibilities of aggregating two or more carriers, uplink and/or downlink, within the same band or across two or more bands.

The sharing of infrastructure between operators is receiving close attention. The notion of offloading data transmission to wireless Local Area Networks (LANs) has led to the innovation of extending the available 3G/4G bandwidth by running those services, using 3GPP standards, in unlicensed bands, just as Wi-Fi currently does. Discussions about 'LTE-unlicensed' are ongoing. Meanwhile, further studies continue into congestion mitigation, both in the radio access network and in the core network.

Release 12 also includes around 80 top-level studies, most of which will lead to new or revised specifications in Release 13. Around half of these studies were completed by the end of 2013.

3GPP also still works to improve the third generation Universal Terrestrial Radio Access (UTRA), High Speed Packet Access (HSPA) and even second generation GSM, often using spin-off from work in later generation radio access technologies, such as the 2G work on multi-user Multiple Input Multiple Output (MIMO) uplink.

Mobile Standards Group

Our Mobile Standards Group (TC MSG) provides the regulatory standards needed to support the deployment of GSM, UMTS and LTE networks in Europe. In 2013 we revised the EN on GSM base stations to introduce changes included in 3GPP Releases 10 and 11, especially to support the Medium Range and Local Area multicarrier Base Transceiver Station (BTS) features in Release 11. In addition, the essential requirements for GSM base stations were aligned with those of International Mobile Telecommunications (IMT) technologies. We also finalised our work on the sixth release of the Harmonised Standards for base stations and user equipment for IMT, and began work on the seventh release.

In September we began work on a TR on the technical framework for the separate sale of roaming services in the European Union.

New Generation DECT

Digital Enhanced Cordless Telecommunications (DECT™) is the number 1 cordless system in Europe and the USA and DECT products now account for more than 80% of the world market. We are now developing 'New Generation DECT'.

New Technologies

In May, our Industry Specification Group on the Open Radio Equipment Interface (ISG ORI) completed its second release of specifications for an interface between remote radio heads and base band units of mobile base stations. It then made good progress on Release 3.

Our ISG on Surface Mount Technique (ISG SMT) continued its work on common electrical and mechanical aspects of SMT modules.

ETSI and 3GPP

ETSI is one of the founding partners of the Third Generation Partnership Project (3GPP), in which we come together with five other regional standardisation organisations worldwide, plus market associations and several hundred individual companies, to develop specifications for advanced mobile communications technologies. Based on the evolution of GSM™, which was defined by ETSI, 3GPP has developed UMTS™, LTE and LTE-Advanced technologies. A derivative of GSM, GSM-R, which was developed by ETSI's Railway Telecommunications committee (TC RT), is used in the rail industry.

3GPP is supported by ETSI's Mobile Competence Centre (MCC).

Further information at: www.3gpp.org



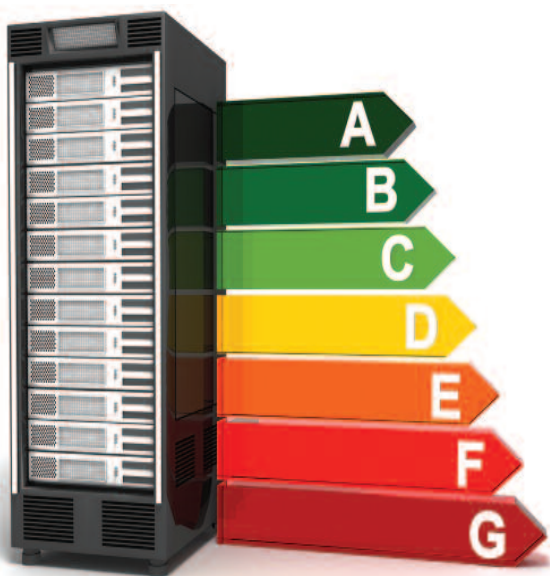
Better Living with ICT

Technologies for a Better Life

While technological progress has improved the way we communicate for both social and business purposes and opened up exciting new opportunities, we are careful to minimise any adverse social consequences. Part of our work therefore involves making products and services simpler to use, safer and more efficient. We are also committed to identifying energy efficiency solutions that mitigate the impact on climate change of the growing use of Information and Communications Technologies (ICT). The ultimate goal is to ensure that ICT improve the quality of life for all.

Energy Efficiency for ICT

In 2013 the main focus of work in our Environmental Engineering committee (TC EE) was on reducing the environmental impact of ICT equipment. We revised three European Standards (ENs) and began to update seven others on the climatic and mechanical requirements for telecommunication equipment. We also updated our Technical Report (TR) which provides guidelines on thermal management in central offices and in telecom equipment. We produced a new TR containing guidelines on environmental classes in outdoor cabinets and a new ETSI Standard (ES) on thermal management requirements in outdoor enclosures.



Throughout the year we continued to work on the requirements for the control and monitoring of power and cooling systems used in telecommunication and data infrastructures, with the aim of monitoring and reducing power consumption.

An EN on high voltage DC power supply interface requirements up to 400V was published, which will help reduce energy consumption in central offices and data centres. We also produced an EN on the grounding and bonding of telecommunication equipment connected to the 400V DC power source.

Work began on a TR providing guidelines on power supplies for customers' ICT devices which use renewable energy sources.

In support of European Commission (EC) Mandate 462, we completed a set of standards for measuring the energy efficiency of ICT equipment. We also continued to work on an ES which will define a methodology to determine energy efficiency and the key performance indicators for an entire telecommunication network.

In collaboration with the Telecommunications Standardisation sector of the International Telecommunication Union (ITU), we began to revise the ES for the Life Cycle Assessment (LCA) of ICT products, networks and services, with the objective of producing a common ETSI-ITU methodology. This methodology will allow manufacturers and operators to determine the environmental impact of a telecommunication product from the raw material or components until the end of its life, as well as to measure the environmental impact of a complete telecommunication network or service.

We continued to collaborate with various European research projects on energy efficiency and, in co-operation with ECONET (Low Energy CONsumption NETworks), developed a new ES on the power management capabilities of fixed network nodes.

In 2013 we contributed to the EC Joint Research Centre (JRC) in its revision of the Code of Conduct on the energy consumption of broadband equipment and data centres. Some of TC EE's publications were adopted as reference methodologies to determine the energy efficiency of network and wireless access equipment.

In October we organised a workshop on Environmental Impact Assessment and Energy Efficiency at the University of Athens, Greece.

Our Access, Terminals, Transmission and Multiplexing committee (TC ATTM) continued its development of 'Global Key Performance Indicators' (KPIs), to monitor the energy management of deployed broadband, and in 2013 published the first of these new ESs. Complementing this work, our Industry Specification Group (ISG) on Operational energy Efficiency for Users (OEU) is developing performance indicators for environmentally efficient ICT. In 2013, the group published its first specifications, definitions of global KPIs for data centres and other ICT nodes. When completed, these standards and specifications will together describe the best practices, most efficient equipment and solutions to build sustainable operational networks, sites and data centres (commonly known as 'green' data centres). These KPIs will provide ICT users with tools to monitor the energy management of networks and sites in full compliance with the Kyoto Protocol on climate change and the reduction of greenhouse gas emissions.



Access for All

For many years we have championed the importance of ensuring that developments in technology are accessible to all in our society, including the elderly, the young and those with disabilities, and our Human Factors committee (TC HF) is internationally renowned for its expertise in this field. In 2013 we continued to focus on accessibility and 'Design for All'. A Design for All approach helps ensure that everyone has the same access to goods and services. By widening access, it also enables European industry to meet the needs of many more users, thus improving its competitive position in global markets.

We completed our work related to EC Mandate 376 on public procurement in ICT with the finalisation of a new EN. When published in 2014, it will be the most up-to-date standard globally providing an integrated and all-encompassing list of provisions for the identification and design of accessible ICT. The EN is accompanied by a set of TRs which provide background information on how to use the standard in the procurement of accessible ICT. Together these documents will ensure that accessibility is taken into account in public procurement processes and that the ICT environment of public organisations is accessible to all.

We published a TR with advice on the implementation of real-time text systems in several countries in Scandinavia and Northern Europe.

We also contributed to EC Mandate 473 which seeks to ensure Design for All is taken into account when establishing all new standardisation work. ETSI's procedures for the initiation of new work already include Design for All as a consideration wherever relevant.

Media Quality and the User Experience

In 2013, to meet growing market demand, our Speech and Multimedia Transmission Quality committee (TC STQ) completed the initial phase of its long-term project on terminals using 'super-wideband' (bandwidth up to 14 kHz) and full-band terminals for conversational services for teleconferences and audio-visual applications. We produced two new Technical Specifications (TSs), one for headset terminals and one for hands-free and conferencing terminals, as well as a TR which summarises the results of tests on using one of the new TSs. We continued to work on perceptually motivated parameters, defining the audio quality, the loudness and fidelity of speech, as perceived by the user, for wideband and super-wideband speech terminals. New work began on the transmission requirements for super-wideband handheld (handset and hands-free) terminals, with the aim of optimising the end-to-end quality perceived by users.

We also continued to revise the ESs on the transmission requirements for narrowband Voice over Internet Protocol (VoIP) terminals from a Quality of Service (QoS) perspective as perceived by the user.

Other highlights included the publication of a TR on the adaptation of the ETSI QoS model, which takes into account more effectively the results of field testing and will better reflect user perception. We also produced two TRs on, respectively, the QoS parameters and the related

measurement methodology for smartphones, and speech samples and their use in QoS testing.

We also addressed end-to-end transmission planning requirements for real-time services in a Next Generation Network (NGN) context, procedures for the identification and selection of common modes of de-jitter buffers and echo cancellers and user-related QoS parameter definitions and measurements.

We produced a TR on the frequency responses of different mouth simulators and Head And Torso Simulators (HATS). We continued to revise our ES on the background noise simulation technique and background noise database, and the TS on background noise transmission test methods was updated.

We co-operated with the European Committee for Electrotechnical Standardisation (CENELEC) on the revision of CENELEC's EN on personal music players (PMP) in mobile phones to include relevant measurement standards. The work is part of our response to EC Mandate 452 on the health and safety aspects of PMP and mobile phones with a music-playing function. We also updated the existing ETSI Guide (EG) on acoustic safety limits.



We started a number of new projects in 2013, including work related to the safety of headphone equipment used by call centre agents, and the handling of measurement uncertainties in the field of electro-acoustics. Other new work included a TS on reference, benchmarking methods and background traffic load profiles, to ensure proper comparability of test results, and a TS on a sound field reproduction method for terminal testing. We introduced new work on the possibility of using emotion detectors to improve the test sentences used for subjective testing.

To improve listening quality for users with hearing difficulties, we began a new TS on transmission quality and speech intelligibility for people with hearing impairments.

Our User Group works with our other committees to ensure the needs of users are considered. In 2013 the group focused particularly on the quality of telecommunication services and the collection of users' requirements from visually impaired people.

Safety

Our Safety committee (TC Safety) monitored developments in electromagnetic fields, electrical safety and safety in cable television systems.

Content Delivery

Facilitating Content Consumption across Different Business Areas

The Internet, mobile communications and broadcasting are converging. But the standardisation of these different areas has traditionally followed different paths, so they do not interoperate across the same platforms. Content providers therefore incur significant additional cost and customers' buy-in remains below expectations. We are addressing the urgent need to align these diverse specifications and to harmonise solutions, for the benefit of both the industry and the consumer.

Broadcasting

Our standardisation of broadcast systems, programme transmission and receiving equipment is dealt with in a Joint Technical Committee which brings us together with the European Broadcasting Union (EBU) and the European Committee for Electrotechnical Standardisation (CENELEC) – JTC Broadcast.

Traditionally, broadcasting standards have often been developed on a national or regional basis. Nevertheless, JTC Broadcast's outputs have become de facto standards in most parts of the world. For example, Hybrid Broadcast Broadband TV (HbbTV) is being deployed worldwide, Digital Radio Mondiale (DRM) has been adopted by the Indian market, most satellite TV services use the JTC's standards, even in the USA, and the Digital Multimedia Broadcasting (DMB) standard pioneered in Korea is an ETSI standard.

JTC Broadcast's current work is focused on digital broadcasting. In the interactive TV area, the JTC published a revised version of one of its Connected TV standards, the MHEG-5 broadcast profile. This will make the specification easier to understand and will promote the co-existence of MHEG with other connected TV Application Programming Interfaces (APIs) such as HbbTV.



In the radio area, a new Technical Specification (TS) on Digital Audio Broadcasting (DAB) filecasting was produced which will enable multimedia files such as Electronic Programme Guides (EPGs) and podcasts to be delivered to a device by broadcasting rather than via the Internet. A number of DAB specifications were also revised.

Two new TSs were published for Digital Video Broadcasting (DVB): the 'DVB-CID' specification, which describes the modulation, channel coding and signalling protocol for DVB Carrier Identification (DVB-CID) for satellite uplinks, and the 'DVB-IPTV Scrambler', which will help to limit the outages caused by interference from satellite links.

The 'DVB-S2 wideband' standard was extended with a description of time slicing for wideband transponders. Time slicing significantly reduces the complexity of consumer satellite broadband modems, making equipment cheaper to buy. The 'DVB-SI allocation' specification was also revised.

The JTC began new work to extend the Common Interface specification, making it easier to replace set-top boxes with a small module plugged into the TV.

Content Delivery

We continued work on a protocol specification to fulfil the requirements identified in the Content Delivery Network (CDN) functional architecture specification which was published in 2011. We completed a TS defining the CDN interconnection architecture.

We made good progress with a Technical Report (TR) which will analyse solutions for interoperable multimedia customer premises equipment for Conditional Access (CA) / Digital Rights Management (DRM).

Other Aspects

Our Electromagnetic Compatibility and Radio Spectrum Matters committee (TC ERM) is developing new ways to meet the spectrum needs of Programme Making and Special Events (PMSE) devices – the wireless microphones, in-ear monitors, talk-back links, audio links etc. which are used to support multimedia productions in TV broadcast, stage shows, theatre and sporting events. We are looking into the possibility of using cognitive interference mitigation techniques to allow usage of hitherto unavailable spectrum and to facilitate spectrum sharing.

At the request of the European Commission, we have been analysing co-existence issues stemming from its Digital Dividend Decision, including co-existence between cable television and new LTE™ mobile phones operating in the 800 MHz band. We are working in co-operation with CENELEC on the creation and revision of the standards to control LTE interference with short range devices and in 2013 we set up a joint working group to deal with this work.

There is a growing trend to integrate satellite access into next generation terrestrial network scenarios. In 2013 the Third Generation Partnership Project (3GPP™) defined the necessary protocol code points for DVB Return Channel by Satellite (DVB RCS) integration with the IP Multimedia Subsystem (IMS), which will be used, among other things, for the differentiation of tariff setting.

Our Industry Specification Group (ISG) on Localisation Industry Standards (ISG LIS) continued to produce Group Specifications to recreate and maintain the localisation standards of the Localisation Industry Standards Association (LISA) and offer a platform for future localisation standards.

Today's consumers expect communications services to be easily accessible and available everywhere, on whatever devices they are using. Technically, this means networks must converge. ETSI provides a comprehensive set of standards for access network technologies, from Digital Subscriber Line technologies (xDSL), fibre and cable, through to the latest developments with Internet Protocol (IP) networking technology and the Cloud.

Cloud

The main focus of our Cloud activities in 2013 was the Cloud Standards Co-ordination (CSC) initiative. At the request of the European Commission (EC), we brought together more than 250 stakeholders, including non-members of ETSI, for a series of brainstorming sessions to identify the standards required to support the EC's policy objectives.

The final report of the CSC was published in December. It provides a wealth of reference material including a collection and classification of over 100 Cloud computing use cases. The document also describes activities that need to be undertaken to further Cloud computing, it maps available standards on to these activities, offers recommendations on the way forward and identifies important gaps in Cloud standardisation.

Network Functions Virtualisation

In 2013 we published the first specifications on Network Functions Virtualisation (NFV), aimed at simplifying the roll-out of network services, reducing deployment and operational costs and encouraging innovation. Our aim is to use standard IT virtualisation technology to consolidate different network equipment types onto industry standard high volume servers, switches and storage.

Four of these new specifications are designed to align understanding about NFV across the industry and cover NFV use cases, requirements, the architectural framework and terminology; the fifth was a Proof of Concept (PoC) framework to co-ordinate and promote multi-vendor PoCs. Achieved in just 10 months by our NFV Industry Specification Group (ISG), this was a major milestone for the industry.

We also began to draw up a roadmap for future work and a gap analysis.

Network Access

Our Access, Terminals, Transmission and Multiplexing committee (TC ATTM) made good progress with the use of single mode optical fibre systems for home cabling to enable interoperability among different suppliers.

We completed a major revision of the European Standard (EN) on the characteristics and requirements of point-to-point equipment and antennas in fixed radio systems. Work on energy efficiency metrics for point-to-point radio systems continued. We began work on a Technical Report (TR) on 'Small-cells backhauling' in LTE™ networks and on the use of Multiple Input Multiple Output (MIMO) techniques applied to point-to-point radio systems.

The Telecommunications Standardisation sector of the International Telecommunication Union (ITU-T) and the Broadband Forum (BBF) have asked ETSI to take the lead in reverse power feeding standardisation. We are developing a Technical Specification (TS) on the requirements for reverse power feeding for Fibre to the Distribution Point (FTTdP).

We also made improvements to our xDSL standards.

Cable

Our Integrated Broadband Cable Telecommunication Networks committee (TC CABLE) is responding to EC Mandate 462, developing an ETSI Standard (ES) which will define global Key Performance Indicators (KPIs) for Hybrid Fibre Coaxial (HFC) access networks and describe their application. We are also working on energy efficiency and KPIs for cable access networks.

We began work on an ES on the Converged Cable Access Platform Operational Support System Interface (CCAP-OSSI), which will define the management interface into key HFC access platforms for high speed data services and narrowcast digital video. We are also addressing the operation of cable equipment and the evolving electromagnetic environment. We published a new TS on the equipment and end-to-end system requirements for broadband cable networks to enable the transition from IPv4 to IPv6.

Numbering, naming, addressing and routing

Our Network Technologies committee (TC NTECH) is developing guidance on the use of Domain Name System (DNS) protocol in managed networks and how to increase the reliability and scalability of a DNS infrastructure. We are also analysing scenarios for implementing ENUM-based mechanisms to enable number portability when telephony services are provided using Voice over Internet Protocol (VoIP) technology.

End-to-End Network Architectures

Our End-to-End Network Architectures Project (EP E2NA), which brings together all the relevant ETSI players involved in the development and maintenance of a global end-to-end system view of Information and Communications Technologies (ICT) networks, is focusing particularly on the fixed segment and interconnection to other networks. Our plans include the compilation of various use cases reflecting various deployment scenarios, followed by the production of technical requirements. In 2013, we began work on the first use case, on the location of transcoders for voice and video communications inside and across networks.

Autonomic Future Internet (AFI)

In April our ISG on Autonomic network engineering for the self-managing Future Internet published its second specification on the Generic Autonomic Network Architecture (GANA), which is expected to be used as a reference model for engineering the Future Internet. Having successfully completed its tasks, the group was then closed and responsibility for this work was transferred to TC NTECH. We have now begun to create standards for the management of autonomic services and networks and are developing ISG AFI's work on the GANA reference model.

Measurement Ontologies

Our ISG on Measurement Ontology for IP traffic (ISG MOI) published its third specification, on the IP traffic measurement ontologies architecture.

Home and Office

Connecting Devices in the Home and Office

The variety of devices that need to be interconnected is growing rapidly and most require broadband. The new services being developed are creating a 'Connected Home' and a 'Connected Office'. Our standardisation for home and office focuses on three aspects: home and office wireless, home and office interconnection, and home and office requirements, including Quality of Service (QoS) and security.

Cordless Voice and Broadband Communication

Our Digital Enhanced Cordless Telecommunications (DECT™) specification is the leading standard around the world for digital cordless telecommunications. We are now developing New Generation DECT, which builds upon the convergence of the Internet and telecommunications. In 2013 we made good progress with Release 2013 of the DECT standard, adding new features such as phone book handling, answering machine control, handset capability enquiry, security enhancements and an energy-saving 'ECO mode'. We also continued to draft the corresponding test specifications.

In 2013 we achieved a major milestone with the publication of the first ETSI Technical Specification (TS) for Ultra Low Energy (ULE) DECT. The main characteristics of DECT ULE are low power consumption, good QoS (a unique feature compared with other low power wireless standards) and wider coverage than competing technologies. The technology is ideal for sensors, alarms, Machine-to-Machine (M2M) applications and industrial automation. ULE technology may also be applied to utility meters and related devices and therefore has implications for the operation of smart grids.

We produced a System Reference Document on the operation of DECT in the 1 900 - 1 920 MHz band. If accepted, this would provide additional capacity for various M2M applications, smart appliances and streaming audio.



The initial phase of development of DECT ULE is for home automation. Following the publication of the first TS, which provides a specification for ULE applications, the first commercial DECT ULE Phase 1 products went on sale and we initiated work on Phase 2, which will introduce additional features. Eventually application of the technology will extend

to industrial automation. The DECT base standard is being updated at the same time, to include the necessary new protocol elements and procedures.

Market acceptance of DECT ULE technology depends very much on the interoperability of different implementations and the focus has therefore shifted to the development of test specifications. We began work on a test specification for the DECT ULE transport layer.

Powerline Communications

Smart Metering

In 2013, work by our Powerline Telecommunications committee (TC PLT), in response to European Commission Mandate 441, highlighted available powerline technologies and feature sets that could be used for smart metering, both in the home and in outdoor networks, using low and medium voltage electricity grids between the utilities and meters in the home.

PLT and Premium TV services

We have also been addressing the transportation of video over powerlines. We are responding to demand from TV broadcasters and programmers seeking to embrace the advent of 4K video streaming and video on demand services for ultra high definition television (UHDTV) and new advances in technology such as High Efficiency Video Coding (HEVC), which rely on high performance powerline telecommunication (PLT) modems.

The introduction of UHD video as a premium service is particularly challenging because of the volume of data required not only to deliver four times the spatial resolution of high definition (HD) video but also for increased frame rate and enhanced colour coding (GAMUT).

By the end of 2013 we were nearing completion of a new TS on the requirements for very high bitrate services such as 4K video, which focuses on the transportation of 4K video streams over powerline networks, using the latest compression technology such as the new video codec, HEVC/H.265, and Multiple Input Multiple Output (MIMO)-PLT modems. We began work on the effect of video compression on powerline network coverage for video services.

Mitigation of interference

New work started on the co-existence of Very high bit rate Digital Subscriber Line 2 (VDSL2) and PLT modems on customer premises using Dynamic Spectral Management (DSM). DSM has already proved useful for the mitigation of interference caused by networks co-existing in the same building.

Teleconferencing

In the Third Generation Partnership Project (3GPP™) we are specifying IP Multimedia Subsystem (IMS) Telepresence to improve the sense of realism in telepresence conference rooms.

Transportation

Bringing the Power of ICT to People on the Move

ETSI supports various transportation domains – road, railways, aviation and maritime services – with activities which are carried out by key industry players and therefore reflect true market demand.

Intelligent Transport Systems

As a world leader in Intelligent Transport Systems (ITS), we are helping to increase travel safety, minimise environmental impact (in terms of CO₂ emissions and fuel consumption) and improve traffic management.

In 2013 we finalised the first consistent set of standards which will enable the initial deployment of Co-operative ITS, on target by 2015, unleashing the enormous potential of vehicle-to-vehicle and vehicle-to-roadside communication. Release 1 is based on the standards produced under European Commission (EC) Mandate 453. A Technical Report (TR) describing the release process and identifying the contents of Release 1 was also published. We then began to consult widely as to the content of the next release of specifications.



We produced conformance test specifications for different services and began work on related European Standards (ENs). We addressed Local Dynamic Maps, and are developing an EN on cross layer Decentralised Congestion Control (DCC), co-ordinating with similar activities in the US.

We published two Technical Specifications (TSs) in support of the EC's policies for safety on the roads, on Road Hazard Signalling (RHS) and on Longitudinal Collision Risk Warning (LCRW). By the end of the year, a third specification, on Intersection Collision Risk Warning (ICRW), was almost complete.

In the network and transport area, we focused on ENs to enable Geo-Networking, and we revised the access layer specification for ITS. An important milestone was achieved with the updating of our EN for ITS equipment in the 5 855 - 5 925 MHz frequency band. We completed a new System Reference Document (SRdoc) aimed at revising the co-existence conditions between ITS and adjacent radio services in the 5 GHz range, to enable the practical implementation of ITS equipment.

Work in response to EC Mandate 468 on electric vehicle charging progressed well.

Automotive Radar

We made good progress with Ultra Wide Band (UWB) automotive radar, updating our standards to take recent developments into account. We are amending our existing EN to cover surveillance equipment operating in the 76 - 77 GHz range, one practical application of which will be the detection of road traffic stopped on level crossings. We also started a new TR on Short-Range Radar equipment to be used in the 76 -

77 GHz band, fitted on fixed transport infrastructures. This has applications for traffic safety such as in the detection of stoppages in tunnels or the presence of pedestrians or cyclists.

Aviation

In 2013 our Aeronautics committee (TC AERO) completed work on the ENs required under the EC's Single European Sky (SES) Mandates 390 and 438. In response to Mandate 524 on the SES Air Traffic Management (ATM) Master Plan, we submitted a work plan to the EC for the development of 14 Community Specifications (CSs). At the invitation of the Director of DG MOVE, we have begun to define the necessary standards for a Pilot Common Project to improve the performance of the EU's ATM system.

We completed an SRdoc on the use of radar to increase a pilot's field of vision, to prevent accidents involving helicopters, for example, colliding with overhead power lines.

We also published a TR on broadband direct-air-to-ground communications systems operating in the 5 855 - 5 875 MHz band using 3G technology. This is intended to enable airline passengers to connect to the Internet and send and receive email during flight.

Railways

In 2013 we completed the specifications to incorporate the additional 3 MHz of spectrum allocated to GSM™ for Railways (GSM-R) into the Third Generation Partnership Project (3GPP™) radio access standard, to extend applications to urban and suburban transport. We delivered a provisional work programme for standards required by the EC Directive on the interoperability of the European rail system and produced a TR on GSM-R on urban rail. We published a TS defining the function of core network redundancy. Work to incorporate Internet Protocol (IP) into the core network and interface specifications is ongoing, and we began new work to extend the use of GSM-R to the 1 800 MHz range. We addressed the problems of co-existence between UHF Radio Frequency Identification (RFID) and Extended GSM-R.

Maritime

We made good progress with the standardisation of maritime equipment including the development of a new EN for man overboard devices using Digital Selective Calling (DSC), and a two-part EN on Alarm Indication Signal (AIS) protocols. We completed an EN on maritime personal locating devices for search and rescue, updated a number of our standards for Safety of Life At Sea (SOLAS) equipment and finalised a new EN for coastal surveillance, vessel traffic systems and harbour radars. We began a revision of our EN on DSC equipment. We also completed an SRdoc on broadband communication links in the 5 - 8 GHz range for ships and fixed installations engaged in off-shore activities.

Satellite

We published an EN on Earth Stations on Mobile Platforms (ESOMPs) operating with geostationary satellites in the Ka band. This will facilitate the introduction of new equipment for satellite broadband access on board aircraft and vessels.

Standards provide the means for protecting the user and creating a more secure and profitable environment for industry and commerce. Our security work addresses numerous aspects including mobile/wireless communications, information technology infrastructure, lawful interception and data retention, electronic signatures, smart cards, fixed communications and security algorithms.

Smart Cards



In 2013 our Smart Card Platform committee (TC SCP) achieved a breakthrough with the publication of the requirements specification for the 'embedded UICC' (eUICC). This was achieved by consensus amongst all parties with an interest in the topic, including device manufacturers, chipset manufacturers, smart card manufacturers and mobile network operators. The result is that it will now be possible to change subscription-related data in the UICC without its physical removal and replacement in the end-device.

The requirements specification also contains various use cases, including the requirements of the automotive industry, where car communications and telematics devices are an increasingly popular topic, and devices in which the UICC is installed during production, at a time when it is not known in which network – or even country – the device will eventually be used.

Based on this work, we then began to elaborate the technical realisation of the use of embedded UICCs.

We also completed the definition of the requirements for environmental information to be stored in the UICC and the specification of a mechanism that allows the application on the UICC to use the network-based configuration mechanism of Domain Name System (DNS) servers. The latter provides better integration of, for instance, Internet Protocol (IP)-based SIM services into the infrastructure of a mobile network operator.

In 2013, we began work on a new topic – test environment integrity and test case execution. We are developing a Technical Report (TR) which will define the most effective way to set up the test environment to execute test case implementations based on our test specifications.

Work continued on UICC access optimisation to provide mechanisms to support a better user experience when the UICC is used as a platform for several applications, in particular for Near Field Communications (NFC) applications. We are looking into new uses of the UICC in contactless environments, which will result in a number of enhancements to the respective UICC specifications. To increase interoperability and avoid proprietary implementations where other secure elements use the Host Controller Interface (HCI) as an interface to the NFC controller, we are standardising the interaction between the NFC controller, the UICC and these other secure elements.

Electronic Signatures

In 2013, our Electronic Signatures and Infrastructures committee (TC ESI) continued to work on the second phase of our response to the European Commission (EC) Mandate on Electronic Signature Standardisation (M/460). The goal is to achieve mutual recognition and the cross-border interoperability of electronic signatures throughout Europe, by providing a rationalised framework for electronic signature standardisation. In April, in collaboration with the European Committee for Standardisation (CEN), we began to revise the rationalised standardisation framework, by adding a list of the latest specifications. We also produced a Special Report (SR) on the M/460 testing work plan, with full details of the compliance testing and interoperability activities to be run during the implementation and promotion of the rationalised framework.

During 2013, a large number of draft European Standards (ENs) and specifications, covering the major part of the standardisation needs foreseen in the rationalised framework, were prepared and made public for comments in two sets. Feedback on the first set was addressed.

As one objective of M/460 is to raise awareness, in December we held a second workshop on eSignature standardisation in Sophia Antipolis, France. The event, which attracted some 90 participants, outlined activities related to the rationalised framework and allowed the various stakeholders to provide feedback on progress to date.

In addition, we published updated versions of the three Advanced Electronic Signatures (AdES) basic baseline profiles: for PDF (PAdES), Cryptographic Message Syntax (CAAdES) and Associated Signature Containers (ASiC). We also revised the main specifications for ASiC and CAAdES, including a new archive timestamp in the CAAdES specification.

We published a set of three new ENs. One provides general policy requirements for trust service providers supporting electronic signatures. This is complemented by a multipart EN on policy requirements specific to certification authorities (CAs) issuing either qualified certificates or public key certificates. The third EN defines the Qualified Certificate profile. In June we produced a new Technical Specification (TS) on Trusted Lists.

ETSI Security Workshop

The 8th annual ETSI Security Workshop took place in January at ETSI headquarters, focusing on security as a business opportunity and the need to increase confidence and trust among end-users to ensure the success of technology. As well as covering security standardisation initiatives in a number of standards bodies, the workshop looked at security in specific application areas: Machine-to-Machine, smart grids, ITS and Cloud.

Lawful Interception and Data Retention

We are pioneering the development of standards for Lawful Interception (LI) and Data Retention (DR) for the investigation of terrorism and serious criminal activity, and our LI standards are being adopted around the world.

In 2013 our main focus was on LI and DR in Cloud and virtual services. But we also made good progress with specifications for the dynamic triggering of interception and for a warrant electronic interface between two systems for the exchange of information relating to the establishment and management of LI.

As well as updating existing LI and DR standards and specifications by adding new services, we continued to maintain the TS on the handover interface for the request and delivery of Retained Data, which enables governments to implement the requirements of the European Directive on Data Retention, and we revised the TS on the handover interface for the LI of telecommunications traffic. We began work on new specifications for an internal network interface for LI, and for security for LI and DR systems.

Security Algorithms

Our Security Algorithms Group of Experts (SAGE) is highly regarded worldwide for producing authentication and encryption mechanisms for different technologies, thus protecting user privacy and preventing fraud and unauthorised access to public and private telecommunications networks.

In 2013, SAGE completed the design and specification of a second set of 3G authentication and key generation algorithms, as an alternative to the existing Milenage algorithm. 3G algorithms can also be used for both LTE™ and GSM™/General Packet Radio Service (GPRS). This work was particularly motivated by the growing interest in the development of embedded UICCs, where the SIM application

can be delivered to the UICC after manufacture, either over the air or over a wire. Pre-installing a second algorithm set alongside Milenage will allow operators who use Milenage initially in their SIM applications to switch to the second algorithm if Milenage is ever compromised. This will help future-proof the application and give users greater confidence in devices with embedded UICCs. The new alternative algorithm will also be useful for regular SIMs, in case any attacks on Milenage occur in the future.

Other Aspects of Security

Other ongoing security work includes a major study into the possible replacement of the Terrestrial Trunked Radio (TETRA) air interface encryption algorithm, algorithms for Digital Enhanced Cordless Telecommunications (DECT™) and Intelligent Transport Systems (ITS). We are also addressing security issues across the whole range of Reconfigurable Radio Systems (RRS) work with a TR on security-related use cases and threats in RRS.

Our Industry Specification Group (ISG) on Quantum Key Distribution (QKD) is developing specifications for integration within standard optical networks and an ontology, vocabulary and terms of reference.

Our ISG on Information Security Indicators (ISG ISI) published four Group Specifications in 2013: a full set of operational indicators for organisations to benchmark their security, along with a guide to their use, a security event classification model and taxonomy and guidelines for event detection implementation. The group continued to address Key Performance Security Indicators and guidelines for event testing.

Our ISG on Identity and access management for Networks and Services (ISG INS) made good progress with the requirements for a globally distributed discovery mechanism of identifiers, providers and capabilities.



Interoperability

Interconnection in a Multi-vendor, Multi-network, Multi-service Environment

Interoperability is driven by market demand. It is crucial in a multi-vendor, multi-network and multi-service environment and is one of the reasons why we develop standards. Interoperability gives users much greater choice of products, and allows manufacturers to benefit from the economies of scale of a wider market.

A Unique Approach to Interoperability

Our technical committees apply best practice specification techniques and our standards undergo rigorous validation and testing. Unique among Standards Development Organisations, ETSI has pioneered the combined use of these best practices to ensure we deliver interoperable standards.

Well-specified, unambiguous requirements contribute to the overall technical quality of a standard, thus minimising the potential for non-interoperable products. Adherence to the ETSI editing rules, the application of good protocol specification practices and the use of specialised languages are all essential to the making of a well-engineered and interoperable standard. All this is described in a new 'Guide to Writing World Class Standards' which we published in 2013, and which has formed the basis of new training to enhance our standards-making processes.

Our Centre for Testing and Interoperability (CTI) provides hands-on expertise in standards validation through the organisation of our world-renowned Plugtests™ interoperability events, the development of test specifications, the application of protocol specification techniques and the use of 'best practice' methodologies.

Test Specifications

In 2013 we continued our development of conformance test specifications for LTE™, Intelligent Transport Systems (ITS), Digital Enhanced Cordless Telecommunications (DECT™), the Internet Protocol Multimedia Subsystem (IMS) and security protocols such as Diameter.

Working with Partners in Industry

Interoperability events require close co-operation with industrial fora and other organisations and our Plugtests events are often supported by the European Commission (EC).

For example, along with a number of fora, research projects and other groups, in October we co-organised a Cloud Interoperability Week in Madrid, Spain. The week combined a Cloud Plugfest and a workshop, providing an insight into the current state of Cloud standards and an opportunity to test the interoperability of different client and server implementations of various specifications, as well as multi-standards interworking.

Other highlights of 2013 included a Co-operative Mobility Services (CMS) Plugtests event, organised in co-operation with ERTICO-ITS Europe. The aim was to validate the ITS communication layer base standards to support the standardisation process, and also to help suppliers prepare Co-operative ITS equipment for deployment, in line with the EC's Roadmap for a Single European Transport Area.

We organised the Small Cell LTE Plugfest in June in partnership with the Small Cell Forum. Hosted by the SINTESIO test lab in Slovenia, this event verified the interoperability between LTE small cells and Evolved Packet Core (EPC) equipment from different vendors, with the aim of cultivating an effective ecosystem of standardised small cells (3G, LTE and Wi-Fi).

Over four days in November we held the third Internet of Things Constrained Application Protocol (CoAP) Plugtests event in Las Vegas, USA, in support of the work of the oneM2M Partnership Project. The event was organised jointly by ETSI, the IPSO Alliance and the Open Mobile Alliance (OMA), and was collocated with major OMA meetings. Participating companies tested CoAP security using Datagram Transport Layer Security (DTLS) as well as the brand new OMA Lightweight M2M (LWM2M) protocol, which is based on CoAP. CoAP, DTLS and OMA LWM2M are considered to be key components of the future global standardised M2M architecture.

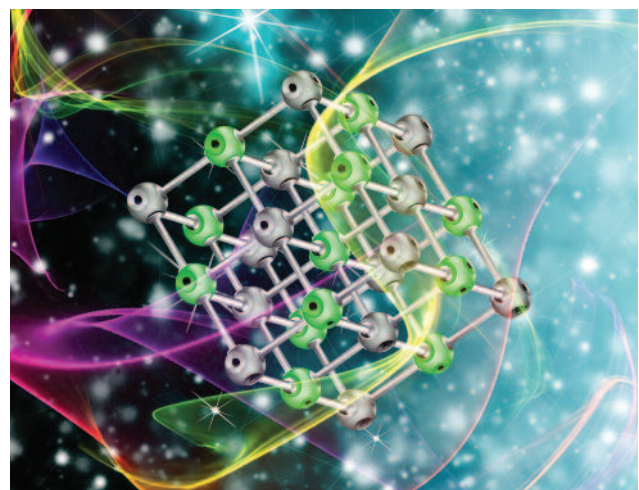
Beyond Interoperability

The CTI is constantly looking for new ways to support ETSI's standardisation activities and to meet the needs of its members.

For example, in 2013 our Plugtests events were extended to include evaluations of developing standards solutions and the assessment of co-existence between different technologies. In May we organised a four-day Radio Frequency Identification (RFID) event in Campinas, Brazil, which combined interoperability testing, technology evaluation and co-existence aspects of RFID tags and readers. Events such as this, held outside the borders of Europe, are increasingly common and demonstrate the high regard in which our interoperability events are held around the world.

High Quality of Service (QoS) is essential to providing a satisfactory user experience, and interoperability is a key to the provision of good QoS, particularly in complex end-to-end systems such as IMS running over LTE. So in November we organised a Plugtests event to validate and evaluate the different methodologies described in our Technical Specification (TS) on the assessment of the speech quality of Voice over LTE (VoLTE) calls.

A Proof of Concept can be invaluable in assessing the viability of new technologies. In 2013 the CTI helped our Networks Functions Virtualisation Industry Specification Group (ISG NFV) to establish a framework to set up Proofs of Concept to demonstrate NFV as a viable technology.



Innovative Approach and Infrastructure and Tool Support

In our efforts to improve the efficiency of Plugtests events and to obtain the best possible synergy and feedback to standards, we made improvements to tools support, in particular by updating our test scheduling and results reporting tools. Advances were also made in the use of event wikis and blogs.

We improved our Virtual Private Network (VPN) support to allow the remote connection of equipment and participants to events, thus reducing the need for and cost of travelling with essential equipment. This facility, known as HIVE, was successfully used at several events and for the remote validation of ETSI conformance tests. The HIVE concept is now being extended to allow a portable version, HIVE-NOMAD.

Remote Testing of Electronic Signatures

A major success of 2013 was the continued testing of electronic signatures in support of EC Mandate 460. As a result of this work, we were awarded an EC grant to carry out eight more remote electronic signatures and infrastructures events over the next two years. For each event, the electronic signature Plugtests portal is specially tailored to provide remote participants with all the necessary information and tools to conduct the testing, including the test scenarios, the cryptographic materials and the Public Key Infrastructure (PKI)-related online services needed to create and verify electronic signatures.

Methods for Testing and Specification

Our Methods for Testing and Specification committee (TC MTS) produces standards for testing and specification languages, and provides frameworks and methodologies to enable our committees to produce documents that are easy to understand and easy to use. Its contribution is therefore crucial to the market success of many technologies.

Model-Based Testing

In 2013, the main focus of TC MTS's work was Test Description Language (TDL), a new language for the specification of test descriptions and the presentation of test execution results based on sequence charts, primarily for functional testing, but also potentially for other types of testing. TDL exploits the benefits of model-based software engineering and, in effect, represents the next generation of testing languages. Its use will accelerate test development and offer higher quality tests through better design and by making them easier to review by non-testing experts.

The introduction of TDL is being driven by industry, which is looking to us to take a strong leadership role in its development. We began work in February on an ETSI Standard (ES) to define TDL and, by the end of the year, a stable draft had been produced.

In March, we published a Technical Report (TR) describing various case studies on the application of Model-Based Testing (MBT). This is the result of experiments into the use of commercial MBT tools to generate tests from standards related to IMS and ITS. An ETSI Guide (EG) on the use of MBT in standardised test development was also published. Both documents were well received.

ETSI wins prestigious Chinese award

The Beijing Municipal Science and Technology Commission awarded ETSI its 'Excellent International Partner' Award, in recognition of the work done by the CTI in managing the development of Third Generation Partnership Project (3GPP™) test specifications for the Time-Division variant of LTE (TD-LTE).

TTCN-3

At the same time, we continued to maintain Testing and Test Control Notation version 3 (TTCN-3) and in June we published version 4.5.1. This was subsequently forwarded to the International Telecommunication Union (ITU) for endorsement. The revision includes a new set of base standards to resolve and implement some 100 Change Requests (CRs). We then began work on the next revision.

We completed the upgrading of the conformance test suite for the TTCN-3 core language, to take account of the evolution of TTCN-3 (as far as version 4.4.1) and to extend the coverage of the suite. The core language is outlined in 260 pages which contain about 5 000 requirements. As well as updating the test suite, we also extended coverage to over 80% of the core language clauses. In October, we began work on the next upgrade and to extend the coverage still further. The ultimate goal is to extend coverage of the core language to 100% to synchronise updating the test suite with evolution of the core language.

Security

Our security work includes development of a new TR describing case studies where security testing has been used in industry, a TS on security testing terminology and an EG on security design. This work is being co-ordinated with various European projects, including the ITEA2 – Diamonds project. We began work on a new EG to provide guidance on the security assurance lifecycle.



Major international user conferences

In October, we organised the first User Conference on Advanced Automated Testing (UCAAT) in Paris, France, with the theme 'MBT in the testing eco-system'. This event replaced two popular annual user conferences which we had organised for many years, the TTCN-3 User Conference and the MBT User Conference. The success of the new, combined format exceeded all expectations, attracting 200 delegates – double the usual number – and feedback was very positive.

Public Safety

Mission-Critical Communications to Rely on

Communication is a key factor in an emergency situation, whether it be a small incident such as a man overboard or a major natural disaster.

TETRA

Terrestrial Trunked Radio (TETRA) is still the dominant technology choice for critical communications users, and in 2013 sales of TETRA terminals rose again by 12%.



The 'Future Vision' for TETRA is an evolution towards a fully integrated and seamless Information and Communications Technologies (ICT) solution, providing narrowband/wideband/broadband wireless communications for 'mission-critical' and 'business-critical' Professional Mobile Radio (PMR) applications. With standards successfully established now for narrowband and wideband, we are focusing increasingly on a broadband extension to the TETRA standard. This will be a key factor in providing the high data speeds required for applications such as streaming video and other services from the scene of an incident or major event. We are working closely with European regulators in an attempt to find the additional spectrum that will be needed.

The plan is to enhance existing standards for technologies, such as LTE™, with the development of interfaces and applications, to make them suitable for mission-critical applications.

We also updated the spectrum requirements calculations for Public Protection and Disaster Relief (PPDR) broadband, which include details of each particular service and function and the amount of bandwidth required.

Several key standards were updated in 2013 including the Technical Specification (TS) to extend the TETRA frequency bands down to 138 MHz. This increased capability is expected to be especially important in areas of the world which need a more economical solution than can be provided in the UHF bands. The designers' guides were also revised to include the change in frequency.

Good progress was made with the addition of Voice to the TETRA Enhanced Data Service (TEDS) channels to improve spectral efficiency. We also produced a new User Requirement Specification (URS) for TETRA Direct Mode Operation (DMO), and a URS for mission-critical broadband communications.

Emergency Calling

We are addressing 'Total Conversation' for the handling of emergency calls. Total Conversation uses a combination of video, real-time text and audio in a conversational call, to give people with hearing or speaking disabilities the same level of access to emergency services as able-bodied people, in accordance with the Citizens' Rights Directive. We published a TS which will enable, for example, a deaf person to make a three-way video call involving the public safety answering point (PSAP) and a sign language interpreter, using video and real-time text. We also began work on implementation guidelines.

We published an updated version of our Technical Report (TR) which lists European regulatory texts and orientations, taking account of new regulations, including eCall, the European in-vehicle emergency call service.

We began a number of new projects related to the next generation of emergency calling and alerting. We have started to develop good practice guidelines for the design of mobile handsets, to minimise the number of false and accidental emergency calls, and for emergency calls made from private networks operated by large companies, hotels etc. We began a new study on the transportation of GPS co-ordinates from smartphones to the PSAP to help pinpoint callers, particularly in unpopulated areas.

We are working on enhancements to our TS for EU-Alert, the European public warning system (PWS) which uses the Cell Broadcast Service, adding rich media alerts using eMBMS (the Multimedia Broadcast Multicast Services offered over LTE). This could be used, for example, to broadcast pictures of missing children to smartphones. We are co-ordinating our efforts with the US with the aim of facilitating roaming between the US and Europe.

We made good progress in 2013 with the functional architecture for emergency caller location determination and transport in support of European Commission (EC) Mandate 493 on the Location Enhanced Emergency Call Service.

We began new work to add eCall to LTE.

Other Aspects of Public Safety Standardisation

We continued to work on a TR on the use of Multiple Alert Message Encapsulation over Satellite (MAMES) emergency communications and made good progress with a TS on devices to provide Emergency Communication Cell over Satellite (ECCS) to help those involved in the procurement of communications systems.

Our Reconfigurable Radio Systems committee (TC RRS) began a feasibility study into synergies between PPDR/civil PMR, military and commercial domains. A TR defining use cases for spectrum sharing and network usage for public safety communications was approved.

We are also creating standards for maritime safety equipment and working on various mechanisms for road safety through the use of Intelligent Transport Systems.

Working in Partnership

Working with Europe

We place a high value on our partnership with the European Commission (EC) and the European Free Trade Association (EFTA) and welcomed the new Regulation on European Standardisation which came into force on 1 January 2013. As a European Standardisation Organisation (ESO), we provide world-class standards and specifications to support European Union (EU) legislation and public policies. We have continued to make efforts to establish and maintain good relations with relevant EC departments including the Directorates-General (DGs) for Enterprise and Industry (ENTR) and Communications Networks, Content & Technology (CNECT), as well as Mobility and Transport (MOVE), Research and Innovation (RTD) and the Joint Research Centre (JRC).



In 2013 we worked on a number of existing EC mandates and commented on the draft being prepared in relation to climate change. ETSI members continued to work actively in the further phase of the smart grids mandate (M/490) and we followed up issues under the smart metering mandate (M/441). We were heavily committed in mandated areas such as Co-operative Intelligent Transport Systems (M/453), electronic signatures (M/460), and in response to the space standardisation mandate (M/496) and Mandate 493 on enhanced emergency calls. In many of these areas, we co-operated closely with our sister ESOs, the European Committee for Standardisation (CEN) and the European Committee for Electrotechnical Standardisation (CENELEC).

A particular highlight of 2013 was our work on the Cloud Standards Co-ordination initiative, in support of the EC's Cloud strategy.

We participated in the three meetings of the EC's Committee on Standards that took place during the year and all four meetings of the Information and Communications Technologies (ICT) Multi-Stakeholder Platform. We also regularly took part in meetings of the Task Force on the Rolling Plan for ICT Standardisation and contributed to the final outcome published by the EC at the end of the year. We participated in working groups set up to evaluate specifications submitted by public authorities for consideration as Common Technical Specifications for ICT public procurement. We welcomed the Annual Union Work Programme for European Standardisation that was issued in June. We were an observer at various Member State committees and their working groups (including

the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM) Expert Group, the Communications Committee (COCOM) and the Radio Spectrum Committee (RSCOM)). We also participated in the Radio Spectrum Policy Group (RSPG) and assisted in the development of radio spectrum policy in the EU.

Throughout 2013 we continued to develop Harmonised European Standards (ENs) in support of the Radio and Telecommunications Terminal Equipment (R&TTE) and Electromagnetic Compatibility (EMC) Directives, as well as ENs listed in the Official Journal of the EU (OJEU) in support of the Single European Sky (SES) Interoperability Regulation.

Partnership Agreements

Over the years we have built up a portfolio of partnership agreements with fora, consortia and international and regional Standards Development Organisations (SDOs) around the world. Experience has shown that working with others is the best way to achieve alignment between our standards and those produced by others, to avoid the duplication of effort and to ensure that our work is widely accepted and implemented. Co-operation reduces fragmentation in standardisation and is a key factor when dealing with the convergence of technologies. Our investment in partnerships is also an important means by which we ensure our activities keep abreast of market needs.

By the end of 2013, we had over 80 such partnership agreements. During the year, we entered into new Memoranda of Understanding (MoUs) with the Radio Technical Commission for Maritime Services (RTCM), the European Maritime Safety Agency (EMSA), the Cellular Operators Association of India (COAI) and the ULE Alliance. In addition, Letters of Intent (LoIs) were signed with DIGITALEUROPE, the World Intellectual Property Organization (WIPO), the Colegio Oficial de Ingenieros de Telecomunicación (COIT) and the Telecommunications Standards Development Society, India (TSDSI).

Partnerships were renewed with the European Smart Metering Industry Group (ESMIG), the Telecommunications Technology Association (TTA) of Korea, the Open IPTV Forum (OIPF), Next Generation Mobile Networks (NGMN), the GSM Association, the Open Mobile Alliance (OMA) and the IPv6 Forum.

Increased collaboration between the ESOs

In May 2013, we entered a new phase of co-operation with CEN and CENELEC when we updated our existing co-operation agreement. This will enable, for the first time, the creation of joint technical committees to produce joint standards which will be published by all three ESOs.

We have had a three-way co-operation agreement in place since 1990 and have collaborated continuously since then to co-ordinate our work and exchange information. In addition, a Joint Presidents' Group ensures management level co-ordination between the standards bodies, and informal exchanges take place between our technical committees. For example, we work closely together in areas such as Intelligent Transport Systems, smart grids, smart metering and electronic signatures to ensure that together we develop a coherent set of standards and avoid overlapping work.

Now, however, with ICT pervasive in many non-ICT industries, we need to take our co-operation to a new level. We plan to work jointly on some topics, especially those which are the subject of an EC standardisation mandate. As a result, industry will benefit from a better integrated European standardisation system.

Working with NSOs and SMEs

National Standards Organisations (NSOs) play an important part in our standards-making process and are well placed to pick up on innovation and trends in Small and Medium-sized Enterprises (SMEs). SMEs have a key role in employment, economic growth and innovation, for which their involvement in standardisation has been shown to be one of the drivers. Liaison with NSOs and SMEs therefore gives us an opportunity to be involved in new standardisation work at the earliest opportunity.

In 2013 we explored further ways to develop our relationship with NSOs and to encourage the participation of SMEs. In particular, in May, together with CEN and CENELEC, we organised a European Conference on SMEs and Standardisation in Brussels, Belgium. The event was attended by 200 delegates including representatives of the EC, business and industry, as well as other key stakeholders.

Dialogue with Emerging Markets

Major economic, political and social changes around the world are shaping new markets and creating new opportunities for trade and investment with Europe. Recognising the importance of these developments, in partnership with CEN and CENELEC and the EC and EFTA, we have intensified co-operation on standardisation issues with these regions by appointing 'Seconded Experts'.

In January 2013, a new Seconded European Standardisation Expert for India (SESEI) began a three-year posting, with the task of increasing the visibility of European standardisation and promoting co-operation between Europe and India on standards-related issues. Under the day-to-day management of ETSI, the Expert has begun to open up channels of communication and increase co-operation with Indian decision-makers and stakeholders in the standardisation and regulatory system, both at the policy-making level as well as in a number of industrial sectors including telecoms and ICT. With the SESEI Expert active in India, we have been able to formalise

relations and build new partnerships. In particular, we were able to offer assistance with the establishment of the new Indian SDO, TSDSI, and in 2013 we signed a formal Letter of Intent with the organisation.

The EC, EFTA and the three ESOs have run a similar project in China (the Seconded European Standardisation Expert for China, SESEC) for the last six years. This project has been particularly successful in enabling us to develop our contacts with Chinese institutions. At the end of 2013 applications were invited for another three-year phase.

Education about Standardisation

In June we hosted the 'International Co-operation for Education about Standardisation' (ICES) and the 'World Standards Co-operation' (WSC) Academic Day, bringing together delegates from all continents, including organisations and countries which had never before had their voices heard at ETSI. The events highlighted the varying standardisation requirements of different parts of the world, and the strategic role of standardisation in business development, particularly in ICT.

We also hosted the 8th Conference on Standardisation and Innovation in Information Technology (SIIT).

Forapolis™ Support Services

Drawing on over two decades of ETSI experience, Forapolis offers personalised support services to various standardisation and partnership initiatives. We provide these services, on a cost-recovery basis, for the benefit of ETSI members by delivering high quality support to third party organisations where our members are involved.

We continued to support six partners in 2013, however, at the end of the year our contract with the OMA came to an end.

During 2013, the Forapolis Portal Platform was used extensively by partners and two ETSI groups (the Cloud Standards Co-ordination initiative and the oneM2M Partnership Project). The Platform proved to be well adapted to the needs of standardisation work and is widely regarded as an essential time-saving forum management tool for documentation, meetings, voting, working groups and membership.

Intellectual Property Rights

Our Intellectual Property Rights (IPR) Policy is highly respected around the world. But we work constantly to improve it, consulting widely with our members, the European Patent Organisation (EPO), the EC, the United States Department of Justice and relevant partner organisations, in order to meet the needs of our members, public authorities and the ICT industry in general. In particular, in 2013 we updated the policy to ensure that the FRAND (fair, reasonable and non-discriminatory) terms are binding to new patent-holders when essential IPRs change ownership.

Our members hold very diverse views on IPR issues, but discussions will continue in 2014 with the aim of clarifying and agreeing new statements and positions on a number of controversial points.



Specialist Task Forces and Other Funded Projects

Specialist Task Forces (STFs) are groups of highly skilled experts sent by ETSI members to work together for limited periods to perform specific technical work under the direction of an ETSI committee. A similar mechanism has been adopted to support 'funded projects' for the Third Generation Partnership Project (3GPP™) partners and for the R&D projects funded by the European Commission (EC) and the European Free Trade Association (EFTA).

Altogether, 46 STFs and other funded projects were active during 2013, involving 147 experts of 25 different nationalities, for an equivalent of about 23 man/years.

The financial investment was about 2,5 M€. In addition, a voluntary contribution equivalent to 600 k€ was provided by voluntary funding and/or experts working free of charge.

EC/EFTA Funding

We continued to collaborate effectively with the EC and EFTA during 2013, with the successful negotiation of an increased Operating Grant for 2013 as well as the acceptance and finalisation of the payments of the 2012 Operating Grant. The EC/EFTA contribution to the ETSI standardisation infrastructure for 2013 was set at 3,385 M€ via the Operating Grant. However, with the 25% cut announced for the EC standardisation budget in 2014 (22 M€ to 17 M€), it is anticipated that the 2014 Operating Grant with the EC will be concluded for a maximum of 3 M€.

Much will also depend upon the successful conclusion of a new Framework Partnership Agreement (FPA) which has proved to be a more complex task due to the new Financial Regulations and the inclusion of new elements that have required clarification. Negotiations have moved ahead but the introduction of the lump sum financing concept for standardisation actions will not be resolved until later in 2014. The goal is to sign an FPA to allow the conclusion of the Operating Grant for 2014 and of certain proposals for action grants that do not cover European Standards or Technical Specifications.

We managed and invoiced the action grants received from the EC/EFTA efficiently, and finalised and closed actions started in 2009 onwards. 2013 saw a lower level of EC/EFTA financing of standardisation actions as fewer requests were made, compared with 2012. The actions covered mandated work, especially for space standardisation and Co-operative Intelligent Transport Systems, while further grants were made for Plugtests™ interoperability events.

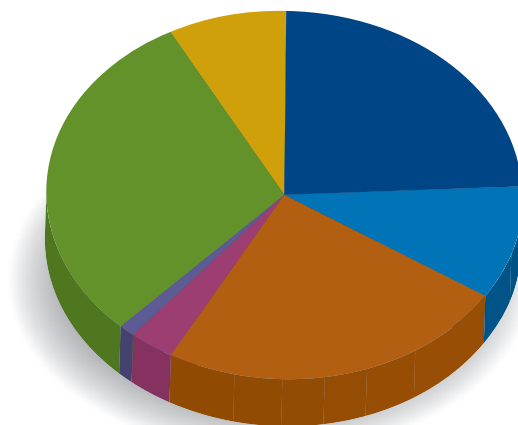
Technical areas in which funded resources were invested in 2013

Technical area	Spent (k€)
3GPP TTCN test specifications	780
3GPP partners funding	127
Intelligent Transport Systems (ITS)	378
Electronic Signatures & Infrastructures (ESI)	343
IMS Network Testing (INT)	185
Methods for Testing & Specification (MTS)	176
Digital Enhanced Cordless Telecommunications (DECT™)	137
Mobile Standards Group (MSG)	127
R&D projects – EC/EFTA funding	94
Broadband Cable Telecommunication Networks (CABLE)	60
Human Factors (HF)	38
EMC and Radio Spectrum Matters (ERM)	21
Speech and Multimedia Transmission Quality (STQ)	8
Powerline Telecommunications (PLT)	4

Figures are rounded to the nearest k€.

Funding sources in 2013

ETSI funding	24%
ETSI voluntary contribution	10%
EC/EFTA Mandates/ICT	24%
EC/EFTA R&D	3%
EC/EFTA voluntary contribution	1%
3GPP Partners funding	30%
3GPP voluntary contribution	8%



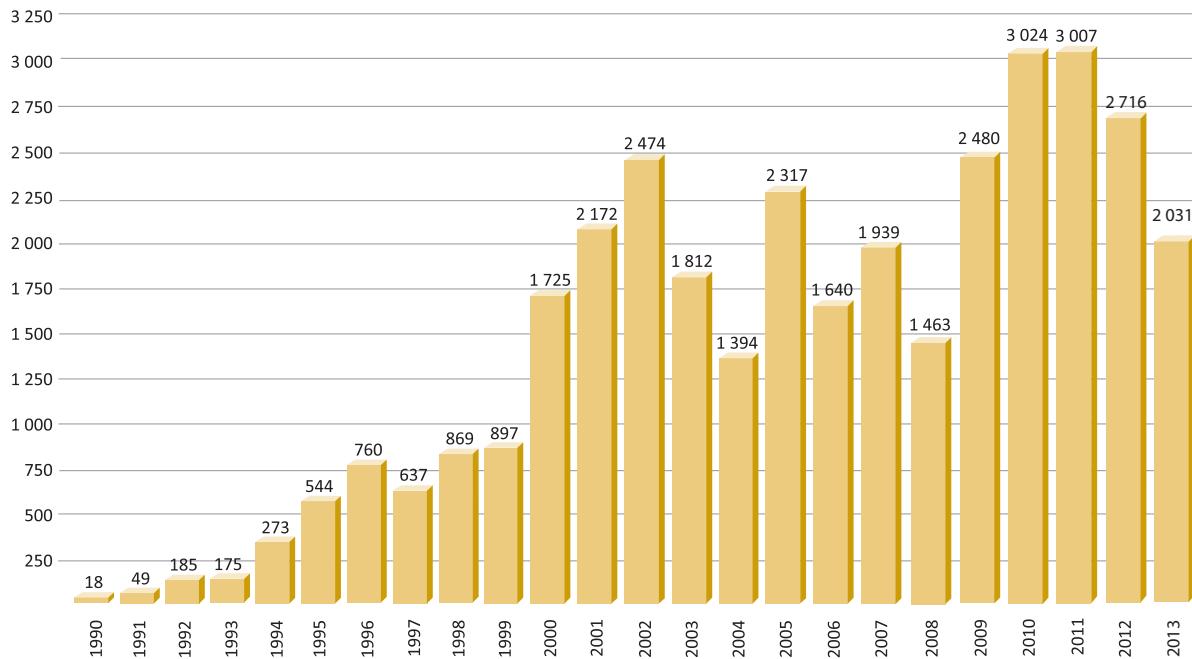
Standards Production

In 2013 we published over 2 000 standards and reports. By the end of the year, we had produced a total of over 34 600 standards, specifications, reports and guides since our establishment in 1988.

ETSI has a reputation for producing standards of the highest quality. To maintain this level of excellence, in 2013 we produced a guide to 'Writing World Class Standards', which has formed the basis of a new training programme.

We made further improvements to the standards-making process to reduce production time.

The number of deliverables published, for each of the years 1990 - 2013



Distribution by type of published document

	In 2013	Total since 1988
Technical Specification (TS) ¹	1 857	26 094
Technical Report (TR) ²	68	2 881
ETSI Standard (ES)	21	701
European Standard (telecommunications series) (EN) ³	56	4 559
ETSI Guide (EG)	2	237
Special Report (SR)	5	82
Group Specification (GS)	22	47
TOTAL	2 031	34 601

¹ Includes GSM™ Technical Specification (GTS)

² Includes old deliverable types: Technical Committee Reference Technical Report (TCR-TR), Technical Committee Technical Report (TC-TR) and ETSI Technical Report (ETR)

³ Includes amendments and old deliverable types: European Telecommunication Standard (ETS), Interim ETS (I-ETS) and Technical Basis for Regulation (TBR)

Membership

Membership numbers did not change significantly in 2013. We welcomed Saudi Arabia to ETSI and, by the end of the year, we had a total of 751 members, made up of 613 Full Members, drawn from 40 European countries, 115 Associate Members and 23 Observers. Overall membership (all categories) is drawn from 62 different countries and provinces, from across five continents. 177 of our members are Small and Medium-sized Enterprises (SMEs), of which 85 are Micro-Enterprises.

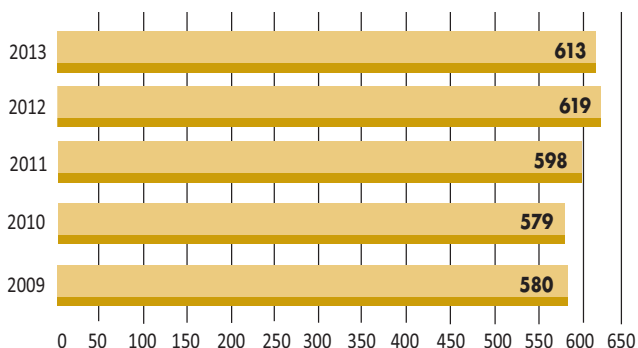
The European Commission and the European Free Trade Association Secretariat, which hold special roles as Counsellors, attend the General Assembly and the ETSI Board and continue to play an active part in our work.

Building developments

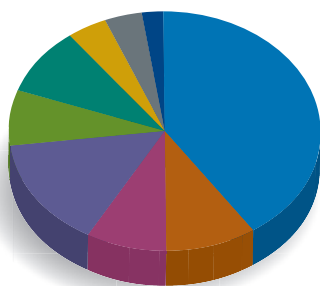
Each year we organise 300-400 technical meetings at ETSI, with 5 000 - 7 000 delegates annually passing through our doors. Work to upgrade and extend our meeting facilities was completed on schedule in 2013. The number of meeting rooms has doubled and all standards meetings hosted by ETSI will now take place in the main building. The rooms themselves have been designed for maximum flexibility, with variable sizes capable of being split or combined, according to need. During 2014 the Athena Amphitheatre will be extended from 170 to 240 seats to accommodate large workshops and other meetings.

Audio-visual equipment was also upgraded, and new lifts, emergency exits, air conditioning and a remodelled reception area all contribute to improved accessibility, security and comfort for delegates.

Evolution of ETSI Full Membership



Full and Associate Membership by category



Manufacturers	296	(41%)
Network operators	68	(9%)
Administrations	61	(8%)
Research bodies	108	(15%)
Service providers	55	(8%)
Consultancies	67	(9%)
Users	30	(4%)
Others	27	(4%)
Other Government bodies	16	(2%)

Overall membership by country/province

Albania	2
Andorra	1
Australia	4
Austria	14
Belgium	28
Bosnia Herzegovina	2
Brazil	1
Bulgaria	4
Canada	8
China	11
– Taiwan (Province of China)	11
Croatia	2
Cyprus	2
Czech Republic	6
Denmark	13
Egypt	1
Estonia	2
Finland	16
Former Yugoslav Republic of Macedonia	1
France	91
Georgia	1
Germany	117
Greece	6
Hungary	4
Iceland	1
India	5
Indonesia	1
Ireland	11
Israel	7
Italy	31
Japan	7
Jordan	1
Korea	3
Latvia	1
Lesotho	1
Lithuania	1
Luxembourg	7
Malaysia	1
Malta	2
Netherlands	32
Norway	13
Poland	9
Portugal	4
Qatar	2
Romania	4
Russian Federation	9
Saudi Arabia	1
Serbia	1
Singapore	1
Slovakia	2
Slovenia	4
South Africa	3
Spain	20
Sweden	23
Switzerland	21
Turkey	7
Ukraine	1
United Arab Emirates	3
United Kingdom	110
United States of America	51
Uzbekistan	1
Yemen	1
62 countries or provinces in total	751

Membership by type

	01-01-2013	31-12-2013
Full Members	619	613
Associate Members	116	115
Observers	24	23
Total	759	751

Financial Situation

The management of the finances of ETSI is described by

- the budget report
- the financial statements (balance sheet and income and expenditure statement) which are established according to French laws and regulations.

Mr Patrick Aumeras, whose auditor's mandate had been renewed by the 55th General Assembly, has audited the 2013 ETSI accounts and certified that the annual financial statements are true, sincere and give a fair view of the activities carried out during the past financial year.

Budget Maintenance

In total, compared with 2012, both income and expenditure increased by 7,6%, or roughly 1,8 M€. The result of the year is a surplus of 32 k€ compared with a surplus of 20 k€ in 2012.

The key points of the budget management are the following:

Expenditure – Secretariat costs were 0,7% under budget and higher by 7,6% compared with 2012, mainly due to legal fees for the defence costs related to a law suit in the US. We monitor and adjust the allocation of resources constantly to align with the level of members' contributions while maintaining the targets set by our Long Term Strategy. Partners' services are delivered on a cost recovery model. 3,3 M€ were spent on experts' costs for Specialist Task Forces and other standardisation related technical experts.

Income – Members' contributions increased by 1,5% compared with 2012. More than 56% of the budget was funded by members' contributions (14,2 M€). EC/EFTA payments amounted to 4,6 M€ to cover expenses related to the operation of the European standardisation platform and standardisation projects. Income generated by support services supplied to fora and consortia (Forapolis™) amounted to 1 M€ (a 24% decrease).

2013 Budget Statements

Income	k€
Members' contributions and Observer fees	14 235
EC/EFTA contracts	4 608
3GPP™ Partners	2 288
Voluntary contributions	350
Forapolis	1 012
European Friends of 3GPP	573
Sales	207
Plugtests™	4
Financial income	177
Other income	1 891
TOTAL INCOME	25 345
Expenditure	k€
Secretariat staff costs	11 829
Other Secretariat costs	7 232
Special Projects	313
European Friends of 3GPP	440
Provision and losses	2 237
Experts costs	3 262
TOTAL EXPENDITURE	25 313

In 2013, there was a surplus of 32 k€.

Financial Statements for the Year 2013

The final accounts and the balance sheet are summarised below. The fiscal accounting period is 1 January 2013 – 31 December 2013.

Statement of Income and Expenditure Year 2013

	Income (€)	Expenditure (€)
Income	25 178 494	
Purchases		10 348 545
Expenses		14 966 475
Financial income and expenses	176 932	7 667
Extraordinary income & expenses	2 478	2 858
TOTAL	25 357 904	25 325 544

There was a surplus of 32 360 € in 2013.

Summary of the Balance Sheet

Assets

Net amounts at:	31 Dec 2012 (€)	31 Dec 2013 (€)
Fixed Assets	6 778 218	7 263 080
Debtors	17 687 605	16 407 286
Securities/cash	5 330 430	7 556 008
Adjustment accounts	255 061	166 742
TOTAL ASSETS	30 051 314	31 393 116

Liabilities

Net amounts at:	31 Dec 2012 (€)	31 Dec 2013 (€)
Equity	8 278 661	8 278 661
Provisions	1 525 000	2 112 303
Balance carried forward	211 522	231 714
Result of the year	20 192	32 360
Creditors	5 013 305	5 187 891
Adjustments	15 002 634	15 550 187
TOTAL LIABILITIES	30 051 314	31 393 116

Figures are rounded to the nearest €.



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- Automotive Radar
- Autonomic Systems
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- Broadband Wireless Access
- Broadcasting
- Cable Networks
- Cloud Technology
- Cognitive Radio
- Cyber Security
- DECT™
- Digital Mobile Radio
- eHealth
- Electromagnetic Compatibility
- Electronic Signatures
- Emergency Communications
- Energy Saving
- Environmental Aspects
- Fixed-line Access
- Human Factors
- Identity Management
- IMS Network Testing
- Intelligent Transport
- Internet
- Interoperability
- Lawful Interception
- Machine-to-Machine Communications
- Maritime Communications
- Media Content Distribution
- Mobile Communications
- Network Virtualisation
- Next Generation Networks
- Powerline Communications
- Protocols
- Public Safety Systems
- Quality of Service
- Quantum Key Distribution
- Radio Regulations
- Radio Systems
- Railway Communications
- Safety
- Satellite Communications
- Security
- Security Algorithms
- Short-range radio
- Smart Cards
- Smart Grids
- Smart Metering
- Software Defined Radio
- Telemedicine
- Testing
- Terrestrial Trunked Radio (TETRA)
- Wireless Medical Devices

To find out about our plans for the future, see our Work Programme 2014-15.

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