HOUSEHOLD EQUIPMENT

INDUSTRY & TECHNOLOGY

CES
The latest on electronics for the consumer

NEWS & DEVELOPMENTS

Technology
Wireless charging

e-publications and e-readers

FAMILY

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IEC President at World Electronics Forum
Focus of the month: Household electronics

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Wireless transmission is now firmly part of the everyday household. It’s one of the major developing areas for consumer electronics in 2011 and includes not only traditional networked systems to transmit and receive information over Wi-Fi, but also new charging devices that use inductive pads with an approach rather like that of the stove tops that heat saucepans without generating finger-burning surfaces.

Increasingly, TVs connect to the Internet and are reliant on wirelessly transmitted digital signals for their content as opposed to the former cable connection, satellite or land-transmitted means. Getting the Internet and traditional TV services to converge involves tremendous standardization efforts to ensure that all parties can interconnect and maintain compatibility between software, hardware and the necessary intermediary controlling devices.

New developments in the computer-like TV market are also resulting in a transformation from the traditional handheld pointing device to a more tablet-like approach, similar to that of smartphones with additional graphics and menus to control the various functions.

This month e-tech concentrates on household equipment and some of the aspects of IEC work seen in the many CES exhibits, including information technology and home electronics, energy efficiency and consumption controls.
The IEC's Immediate Past President addressed electronics leaders from 22 countries during the WEF (World Electronics Forum), underlining the importance of International Standards for innovation and global trade in electronics. WEF was hosted by CEA (Consumer Electronics Association) and took place in parallel to CES® (Consumer Electronics Show) in Las Vegas.

More than 65 leaders representing electronics associations from all continents attended the 16th Annual WEF on 8-10 January 2011 in Las Vegas, Nevada, US (United States). Hosted by the CEA (Consumer Electronics Association®), WEF coincided with the 2011 International CES, the world’s largest tradeshow for consumer technology, which ran 6-9 January 2011.

WEF delegates, representing 30 associations from 22 countries, participated in a breakfast session on Sunday, 9 January, featuring addresses from Jacques Régis, IEC Immediate Past President; Noel Lee, founder and president Monster Cable; and CEA Chief Economist Shawn DuBravac.

In his presentation, Régis outlined how globally relevant specifications and metrics, combined with consistent CA (Conformity Assessment), allow electronics manufacturers to reach many more markets, including major development markets, faster and at lesser cost.

He explained how the IEC was founded in 1906 to stimulate the development of the electrical industry through common terminology, metrics and symbols. Today, most of the 164 countries that participate in the WTO (World Trade Organization) rely on IEC International Standards as the basis for their technical laws and regulations. He concluded that CEOs should have more than a passing interest in international standards as these increasingly dictate access to global markets and allow them to build products that are accepted worldwide.

Delegates learnt that any company can provide comments on any IEC International Standard provided they are scientifically or technically sound. They also heard that any company, however big or small, may participate in IEC standardization through the auspices of its NC (National Committee).

Following the breakfast session, delegates toured the International CES show floor to experience the innovative products on display from more than 2,700 global technology companies. The 2011 WEF Forum concluded on Monday, 10 January, following a day-long session focused on doing business in the ever-changing global economy.

About WEF
Founded in 1995, WEF is an informal gathering of CEOs and directors from global electronics associations that meet annually to discuss major topics of interest to the worldwide electronics industry. Key topics discussed during the 2011 WEF included environmentally sustainable technology practices, social responsibility and free trade policies.

The 2012 World Electronics Forum will take place in the Philippines in spring 2012 and will be hosted by SEIPI (the Semiconductor and Electronics Industries in the Philippines Inc.).

For more information about the World Electronics Forum, visit www.WEFonline.org.
At CES (Consumer Electronics Show) 6-9 January 2011 in Las Vegas, US (United States), smart appliances took centre stage. Many manufacturers displayed appliances that not only add a lot of convenience but also can be turned on and off safely and remotely. This feature may seem trivial, but until the Smart Grid is a reality everywhere, “cycling” appliances during peak hours may represent a green solution for load control. During the Smart Grid Homes conference that was held at CES, experts from manufacturers and utilities discussed the potential of appliances for load control.

At CES, manufacturers from GE to Kenwood to LG Electronics and Samsung displayed smart appliances that chat, text, tweet, communicate with smartphones, stream music from the Internet, and more. In case of fault, they alert the service centre and know which part needs replacement.

Today’s smart refrigerator or oven comes with the capability to download recipes; it lets its owner keep up with the news, create task and shopping lists, upload photos and download apps. The smart fridge knows when the milk is over date and how many eggs are left.

**Extra value while waiting for the smarter grid**
The smart appliance market is expected to grow by 50% over the next four years and reach a market value in the tens of billions of dollars. But manufacturers all agree that to woo consumers smart appliances need to offer a whole lot more than energy efficiency and the ability to communicate with other appliances in the home. Smart appliances need to become a mainstream product, priced accordingly. Consumers want appliances that give them a lot of extra value, even if the Smart Grid is not yet at their door step. The appliances must be very, very easy to manage; consumers shouldn’t have to configure or set up anything. A smart appliance needs to work straight out of the box.

**Right now: appliances can help manage the grid**
Meanwhile, appliances, and even more so smart appliances, may already represent a great tool to better manage the grid, even without a single smart meter signal around.

Rob Pratt of Pacific Northwest National Lab in Richland, Washington, US, explained that appliances can help significantly reduce the cost for managing “intermittent renewables”, such as wind energy. Rather than bringing on a power plant to balance the grid, it is possible to shut down appliances for 10 minutes or so, doubling the operating reserve to cope with peak demand. Edison Power is already taking advantage of this: it has more than 350,000 customers, with 450,000 appliances signed up, and cycles appliances for 10-minute intervals when needed. This gives it 750 MW to “play with”, roughly the generation of one nuclear power station.

**Stop and start, safely**
But some appliances can’t be shut off indiscriminately. Manufacturers are now adding functionalities to their appliances that allow them to be safely stopped and started. Charlie Smith from GE (General Electric), who is also active in IEC TC (Technical Committee) 59 MT (Maintenance Team) 9: Household electrical appliances – Measurement of standby power, which has just issued its new International Standard IEC 62301, *Household electrical appliances - Measurement of standby...
power, explained: “Almost 85 % of the energy used in a household can contribute to balancing the grid. Many devices can be cycled to optimize energy consumption. GE appliances have a built-in ability to delay start, which allows dropping the load for 10 minutes or so.”

He gave the example of a dryer that draws almost 5 000W to dry a pair of jeans in 30 minutes. However, when the owner doesn’t need the jeans immediately, he can select a reduced energy mode where the consumption can be trimmed down significantly. In addition, when needed, the dryer can go into fluffing mode, where it simply continues to turn to keep the laundry from wrinkling but where energy consumption is nearly halted.

But reaching in and doing direct load control is complex for utilities. With the Smart Grid, utilities will be able to provide event or prize alerts and customers can determine, via their home area network, how they want to react to the alert. This will avoid that utilities need to reach into the home, micro-managing devices and energy consumption for them.

Not waiting for tomorrow
In the meantime, life must go on. Rather than waiting for the future, all participants agreed that partial solutions can be achieved already today. The question then remains: How can all these different appliances and other devices communicate with each other now?

While manufacturers don’t expect to have one standard that fits all any time soon, there are solutions available to overcome this problem. The idea is to create a hub approach, using a simple, low-cost device that connects to the home energy management system. This hub allows different devices and appliances to communicate in their language via Wi-Fi, Zigbee or over the electric wire. This is a first step towards a connected home.

And while the connected home is important, LG Electronics projects a future that will be based on the home-to-grid scenario where all devices will be able to communicate with each other, taking into account all distributed energy resources around the home (solar, wind, storage) and all devices that consume energy. LG is working on a solution that will allow running individual devices and appliances so as to optimize household energy use throughout the day.
A giant step for EVs
IEC and e8 organize first international meeting uniting all EV stakeholders

For the very first time all EV (Electric Vehicle) stakeholders, including utilities, car and equipment manufacturers and key industry and standardization bodies participated in a high-level strategic round table event organized by the IEC and e8. This event took place on January 19, 2011 in Washington DC, USA.

Until now, little communication took place at the international level between automotive manufacturers, electric equipment suppliers and utilities to coordinate work around EVs. For the very first time, the IEC, in cooperation with e8 has provided them with a global platform to discuss mutual needs and requirements.

The objective of the round table was to determine priorities for the development of EV-related standards, to define future needs, and to accelerate the broad adoption of the relevant international standards that will enable global interoperability and connectivity.

The stakes in EVs are high and growing. The car industry considers EVs as one of the key solutions for maintaining sustainable individual transportation. Governments increasingly push for electrified transportation to reduce CO2 emissions as one of the tools to fight climate change. In his recent talk, President Obama stated that he wants to see one million EVs on US roads by 2015. Many leaders around the world have similar ambitious targets. Today only approximately 1% of electricity produced is used in transportation while this sector contributes to roughly 20% of CO2 emissions.

While all parties work intensely on developing the technologies that will enable a more energy efficient future, utilities are simply expected to deliver the “fuel” that drives those electric cars. However, without significant investment into infrastructure, a broad EV roll-out will remain fiction.

Says Frank Kitzantides, former IEC Vice-President, who chaired the round table as IEC senior technology consultant: “To make mass charging possible, global solutions are needed.

e8

e8 was created in the wake of the 1992 Rio Summit and is a non-profit international organization, composed of 10 world leading electricity companies, whose mission is to play an active role in global electricity issues within the international framework and to promote sustainable energy development through electricity sector projects and human capacity building activities in developing and emerging nations worldwide. http://www.e8.org/

CHAdeMO coupler

High-level representatives of automotive and equipment manufacturers, utilities, industry association and standardization bodies meeting in Washington
Charging systems must be user-friendly, largely the same, and safe and easy to operate and use. To achieve this, all stakeholders need to cooperate to better understand each other’s role.

To ensure sufficient energy supply and to develop the necessary charging infrastructures, future e-mobility developments must be considered and to achieve this, all stakeholders need to be involved. Standardization must be quick and international to achieve global technology roll-out and durable infrastructure development without market fragmentation due to incompatible charging systems.

In Washington, the IEC offered a platform for high-level representatives of major car manufacturers, including BMW, Ford, Mitsubishi, Nissan, Renault and Toyota, and equipment manufacturers such as Eaton, General Electric, Hubbell and Schneider to sit together with utilities such as AEP, Duke, EDF, Electrobras, Hydro Quebec, Kansai Electric Power, State Grid Corporation of China and TEPCO. These organizations were joined by EPRI (Electric Power Research Institute) as well as ISO (International Organization for Standardization).

All stakeholders confirmed that the IEC’s existing and proposed International Standards for EV charging (on the charger side: plug, socket and cord; on the vehicle side: connector and inlet), satisfy their global needs. Four charging modes have been retained, covering AC and DC charging.

The good news: all participants underlined their preference for IEC, ISO and ITU international standards.

Finally, all parties underlined the importance and usefulness of this new joint platform initiated by the IEC and e8. Follow-up meetings are already being planned.

VDE-A-E 2623-2-2 charging system.

**IEC WORLD**

**Powering EVs – IEC work**

TC 69 *Electric road vehicles and electric industrial trucks* has developed - among others - the IEC 61851-1 conductive charging standard. This standard foresees four modes for the charging of EVs:

- **Mode 1 (AC)** – slow charging from a standard household-type socket-outlet
- **Mode 2 (AC)** – slow charging from a standard household-type socket-outlet with an in-cable protection device
- **Mode 3 (AC)** – slow or fast charging using a specific EV socket-outlet and plug with control and protection function permanently installed
- **Mode 4 (DC)** – fast charging using an external charger

SC 23H: *Industrial plugs and socket-outlets published IEC 62196-1* covering general requirements for EV connectors and is currently close to finalizing IEC 62196-2, which standardizes the following elements needed for AC charging:

- **Type 1** – single phase vehicle coupler (vehicle connector and inlet), for example Yazaki or SAE J1772 (Japan, North America)
- **Type 2** – single and three phase vehicle coupler and mains plug and socket-outlet without shutters, for example VDE-AR-E 2623-2-2

**Type 3** – single and three phase vehicle coupler and mains plug and socket-outlet with shutters, for example SCAME plug developed by the EV Plug Alliance.

SC 23H is also developing IEC 62196-3 (DC) on requirements for the vehicle coupler.

The work is still at an early stage and several proposals are on the table, including the DC quick charging CHAdeMO coupler as well as the possibility to use the same vehicle inlet both for DC and AC charging.
CONFORMITY ASSESSMENT

Reducing risks and injuries
IECEE tests essential in reducing risks

It is safe to assume that there is at least one electrical appliance in every room of your house or apartment. If nothing else, there is at least a lamp.

Modern household appliances are smarter, may also have a Wi-Fi connection or can be controlled from your smartphone. They make life easier, lighten the burden of household chores and offer more time for leisure. However, as smart as they can be, they still use electricity and may represent a serious potential hazard to children and adults alike.

Electricity cannot be heard, seen or smelled. It can, however, be felt. Faulty appliances can cause hazards such as electrical, mechanical and thermal fire and radiation. They can overheat. It’s crucial to be aware of the risks of using electrical appliances.

Poor maintenance is risky
Many electrical fires can be traced to faulty components such as cords, outlets and switches. Overloading extension cords or running several fixtures from a single outlet can also cause short circuits and fires.

Any switch or outlet that sparks or gives a shock when touched in the normal course of operation should be repaired or replaced immediately by an authorized competent technician using compatible components with the appropriate characteristics and ratings.

Negligence in the servicing and maintenance of electrical appliances is one of the major causes of accidents. It doesn’t take much to provoke an electrical hazard. Therefore, it is essential to keep all electrical and electronic equipment in good working condition.

Burn hazards
Surface walls of many appliances can constitute serious burn hazards due to ineffective thermal insulation. Low-quality products normally have less insulation material. Their surfaces can cause serious burns, especially to babies and children. Hot oven doors are a typical example of a child hazard.

Products that cannot show third party certification may malfunction if, for example, a pendel-switch is of poor quality.

Electric shock
Electric shocks can come about as a consequence of heating, undue mechanical stress, humidity and moisture. Different environments can change how current travels through and over the surfaces of appliances. In warmer climates many cases of electrocution are due to fans that are badly earthed. People also get electrocuted because there are insufficient distances between live parts and accessible conductive parts such as touchable metallic surfaces.

Avoid counterfeit items
Counterfeit has reached the electrical and electronic sector and can have disastrous consequences because counterfeiters often use low-quality materials and avoid important manufacturing steps, thus drastically reducing the cost of their products. This allows counterfeiters to sell their products at prices that no genuine brand manufacturer can match. The use of such products can provoke overheat or short circuits and lead to fire, shock or explosion, ultimately causing injuries or deaths and property losses in the home and workplace.

Counterfeit products often look like very good copies of the original, thus making detection based on appearance extremely difficult. Inspecting suspicious products and performing the relevant safety tests is the only way to show that these fake products have failed to pass safety requirements and may cause serious accidents.

Proper testing of equipment, installations and components cuts risks of injuries and accidents.
IECEE tests reduce risks
IECEE, the IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components, tests all touchable surfaces of appliances, including those that are meant to be held, such as handles, knobs or grips. It also tests those parts that are held for short periods of time, such as switches or the outer walls of a given appliance. The tests are carried out to ensure that specified temperature limits are not exceeded.

Abnormal operation
Abnormal operation of an appliance can produce electric shocks, burns or fire hazards. Conditions of abnormal use form a part of IECEE tests.

Tests also take into account temperature controls that malfunction, moving parts, such as rotors, motors or contacts of a relay that block, and failure of electronic components or software. Sometimes, such abnormal operation requires a protective electronic circuit to mitigate the effects.

Dangerous parts
Not all hazards of operating electrical or electronic systems are obvious. The IECEE also looks at the accessibility of dangerous parts, such as rotors and blades. This is particularly important when small children, curious about everything, are keen to touch anything within reach.

The tests evaluate the crushing forces of doors and gates and the pinch points in playground equipment, for example. Many of these hazards can be reduced with sensors, such as infrared detectors, and pressure pads. The IECEE verifies the dimensions of these sensors, where they are placed and how they function.

The interaction of hazardous liquids and gases with electric systems, especially within non-conforming appliances, is the cause of many explosions every year. And then there are the mechanical hazards linked to the design of an appliance. Children can get trapped in refrigerators or tumble dryers. The danger needs to be identified and intuitive escape mechanisms applied.

Hazardous substances
The IECEE also tests for hazardous substances, radiation and toxicity that may harm users. Many hazardous substances are controlled by legislation, but low-quality products may not take into account such legislation. Appliances can produce toxic substances that will make them unsafe to operate in certain enclosed environments.

IEC standards
Many countries legislate with regard to household appliances to protect the health and safety of their citizens. IEC International Standards, in conjunction with IECEE, can help them to do so.

The core standard for domestic products is IEC 60335-1, Household and similar electrical appliances - Safety - Part 1: General requirements, covering generic hazards. Given the many domestic products on the market, IEC 60335-2, Household and similar electrical appliances - Safety, addresses safety requirements for specific appliances, taking account of the particular hazards related to that equipment. There are currently more than 100 publications in the IEC 60335-2 series.

IEC 60335-1, Household and similar electrical appliances - Safety - Part 1: General requirements
IEC 60335-2, Household and similar electrical appliances – Safety
the United Kingdom’s highest system of chivalrous Order of the British Empire is Create by the late King George V, the atmosphere.

directives for equipment for use in explosive ATEX refers to the EU (European Union) Equipment for Use in Explosive Atmospheres. for Certification to Standards Relating to Baseefa Ltd. in 2001. IECEx is the IEC System committees. He was instrumental in setting up national and international IECEx, and ATEX certification engineers, serves on many Sinclair, one of the UK’s most widely-respected Certification and Standards.

Year’s Honours List for his services to the UK’s (United Kingdom’s) 2011 New Year’s Honours List for his services to Certification and Standards.

Ron Sinclair, Managing Director of the private certification body Baseefa Ltd., was awarded an MBE (Member of the Order of the British Empire) in the UK’s (United Kingdom’s) 2011 New Year’s Honours List for his services to Certification and Standards.

Sinclair, one of the UK’s most widely-respected certification engineers, serves on many national and international IECEx, and ATEX committees. He was instrumental in setting up Baseefa Ltd. in 2001. IECEx is the IEC System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres. ATEX refers to the EU (European Union) directives for equipment for use in explosive atmosphere.

MBE
IECEx ExTAG Chairman and Baseefa leader honoured

“I was gobsmacked when I received the letter from the [UK] Cabinet Office,” Sinclair admitted. “I see the honour as recognition for all the work we did in rescuing the service from the threat of closure in 2001, and the way that since then, we have seen it grow into a world leader in its field.

Following the [UK] HSE (Health and Safety Executive) announcement of the closure of its EECS (Electrical Equipment Certification Service) and the enforced retirement or redundancy of all the technical staff, Sinclair led the new management team and the formation of Baseefa in the private sector.

“The decision to carry on with the business was done with the wholehearted support of our customers, who insisted that we should keep it going,” he said. “But our type of business is nothing without the depth of knowledge and the application of the people in it, and the support of the staff and of my wife to the venture was tremendous. I would say that leading the formation of Baseefa and seeing it grow into the internationally respected company that it is today has been my greatest achievement.”

Founder of one of the leading Ex certification companies in the world, in under 10 years Ron Sinclair has grown Baseefa into a true success story. The modern headquarters are fully equipped to offer training and a full range of services to manufacturers and users of hazardous equipment. Today, Baseefa’s reputation extends well beyond the British frontiers. The international credibility Baseefa has gained in the past decade has resulted in their IECEx reports now being immediately acceptable by UL, FM or CSA as the basis for obtaining local certification for use in North America. Since it was established, Baseefa has always been among the first of the Ex certification bodies to obtain accreditation and be granted the right to deliver all types of IECEx certification, whether for Ex equipment, repair and overhaul facilities, or personnel competencies.

Sinclair’s many international responsibilities include chairmanship of ExTAG, the IECEx Test and Assessment Group, and chairmanship of the committee responsible for the UK’s input to both European and International Standards for electrical equipment for use in potentially explosive atmospheres. He is also chairman of the CENELEC, European Committee for Electrotechnical Standardization, TC 31: Electrical apparatus for potentially explosive atmospheres, and is responsible for representing electrical standardization interests on ATEX’s Standing Committee.

About the MBE

Created by the late King George V, the chivalrous Order of the British Empire is the United Kingdom’s highest system of honour. In addition to the MBE (Member of the Order of the British Empire), there are four other distinguished classes: the GBE (Knight Grand Cross of the Order of the British Empire); KBE (Knight Commander of the Order of the British Empire); CBE (Commander of the Order of the British Empire); and OBE (Officer of the Order of the British Empire).

Past recipients include celebrities such as The Beatles (1965). The vast majority of those honoured however are ‘ordinary’ people who, in their own way, have made a difference to the lives of others around them. These special individuals include nurses and teachers, industrialists and economists, sportsmen and artists who have made a contribution to British society; people such as Lance and Lucy Appleby who, with their calico-bound unpasteurised Cheshire cheese, revived British tradition and were awarded MBE’s for their services to Cheesemaking in Shropshire in 2001, and Anthony Denis Kennan, Chairman, Multiple Sclerosis Society, who was awarded an OBE in 2011 for his services to Health care. There are teachers like Marie Erwood who have inspired generations of pupils; volunteers such as Joyce Andrews for voluntary service to Wimbledon and Merton Swimming Club; eco-champions such as swarm-collecting beekeeper Anne Buckingham; local community workers like sub-postmistress Kathleen White from the Claverley post office in Wolverhampton, visionaries and pioneers, all of whom have left their mark on British society.
Smarter, safer, greener appliances
IECQ: the best tool for electronic component certification

Your 15-year-old washing machine just broke down and you need to buy a new one? You’re in for a big surprise...the simple washing machine that you switch on by turning the operating dial and pressing the start button is gone. The new machines all use advanced technologies, taking modern lifestyles and environmental issues into consideration.

Advanced technologies
Today’s washing machines are quieter, more energy efficient and smarter. They communicate with your smart phone, are connected to the Internet, meaning they can be controlled from afar. Load sensing technology measures the exact dosage of detergent to be used for one specific load and optimizes laundry time, water and energy consumption – they can be instructed to run at off-peak times for cheaper rates. They propose a multiplicity of programmes, including “hand wash” and crease care, to accommodate even the most delicate garments.

The same can be said of many if not all appliances today: ovens that download recipes, fridges that monitor their stock and create shopping list while streaming music from the Internet. They are smarter, safer, greener devices that make your life much easier.

Electronics inside
Sensors, connectors, resistors, capacitors, semiconductors, diodes, LEDs are just some of the numerous components that are widely used in modern appliances. For those to work smoothly, they have to have high-quality electronics inside. One faulty component can have disastrous causes.

IECQ: a powerful tool
Electronic component manufacturers and suppliers have a very powerful tool at their disposal to make sure their products are safe and reliable, meeting the strictest requirements: IECQ testing and certification.

As a worldwide approval and certification system covering the supply of electronic components, assemblies and associated materials and processes, IECQ tests and certifies components using quality assessment specifications based on IEC International Standards.

The wide range of electronic components covered by IECQ is used in all kinds of technologies, from the smallest device to the very complex equipment. At present there are eight families of components certified by IECQ:

- active components, including integrated circuits
- electromagnetic components
- electromechanical components
- electro-optic components
- hybrid integrated circuits
- passive components
- printed boards
- wires and cables

Green components
Concern for the environment and the need to eliminate hazardous waste prompted IECQ to devise a new scheme to help electronic component suppliers prove that their products comply with requirements to be free of hazardous substances.

Since the launch of the programme in 2005, the IECQ HSPM (Hazardous Substances Process Management) has grown tremendously. Many countries have passed legislation restricting the use of hazardous substances in electrical and electronic products. The European Union RoHS (Restrictions of Hazardous Substances) in electrical and electronic equipment and WEEE (Waste Electrical and Electronic Equipment) Directives took effect in July 2006 and are currently being revised.

Through IECQ HSPM certification, electronic component manufacturers and suppliers can demonstrate that their electrical and electronic components and assemblies meet hazardous-substance-free specific local, national and international requirements.

In the same way, manufacturers of household appliances who use electronic components that bear the IECQ HSPM certification can advertise their products as free of all hazardous materials.

Competitive edge
All IECQ certificates are recognized in all IECQ member countries and beyond, thus helping to reduce costs and time to market and eliminating the need for multiple testing.
Getting ahead
Leading Young Professionals

The first IEC Young Professionals’ workshop was held during the IEC General Meeting in Seattle, US. Participants were selected by IEC National Committees from a pool of promising young expert engineers, technicians and managers from their national industries and organizations. The aim was to increase the involvement of young professionals in the IEC and to engage them in shaping the future of international electrotechnical standardization and conformity assessment.

The Young Professionals’ Programme increases participation by young people in their twenties and thirties in international standardization. It provides participants with possibilities to network with their peers from all over the world as well as opportunities for them to express their opinion and help shape the future of global standardization and conformity assessment. The programme aims to develop greater awareness of IEC work and the benefits of international standardization while ensuring the future of technology transfer.

To spread their message and be the voice of the programme, the Young Professionals nominated three participants as Leaders of the programme. We have interviewed them to gather what they took away from Seattle and how they plan to work with the other Young Professionals, so as to shape the future of the programme:

German researcher
Janette Kothe

Janette Kothe is an academic who, after completing her Master’s degree in micro mechatronics and sensor technology, started a PhD in optical biosensors for industrial applications. Currently, she is carrying out her research in the solid states electronics laboratory at the Technical University of Dresden in Germany.

Kothe explains that because the field of optics and optical biosensors is relatively new and undeveloped, it has had little actual directly related standardization involvement. However, five years of being a student representative with VDE, the German Association for Electrical, Electronic & Information Technologies, which, with its 35 000 representatives, extends well beyond the German NC (National Committee) to include many German scientific groups with some 8 000 electrical engineering student members, has provided her with a strong connection with and awareness of the benefit of standards, if not of the standardization process itself.

The starting point of that ultimate point began with the first Young Professionals’ Programme event which was held at the IEC GM (General Meeting) in Seattle. “We arrived in Seattle with no real idea of what was in store for us”, says Kothe. Standardization is a hidden world. Most people don’t know about the standards-making process, so it was really interesting to witness it, especially on an international basis.

“People like me”, says Kothe, “who are carrying out research have to be aware of standards. They’re part of the real world and have significant importance when it comes to security and so on. As a result, we need to be careful in our development so as not to develop new rules, but use standardization knowledge from the beginning and orient
ourselves accordingly. When we have the opportunity, we should develop standards right from the beginning.

“In Seattle, we got to know about the standardization process, saw the people working on the standards and taking the decisions. We all know about standards, but few of us actually know how they come about. We were able to see the problems, the process and witness also how consortia with their de facto standards fit in the picture. We realized too that there was a generation gap between the participants in the Young Professionals’ Programme and the experts that are involved in the standardization process. The tagline for the programme is ‘Go ahead, Get ahead’. During the Seattle meetings we all felt we would like to be more involved.”

“We would now like to take part in TC (technical committee) work. We need more commitment from the NCs to set up support programmes for young professionals and give us further opportunity to work in standardization.

“I have spoken with nearly every one of the participants in the programme since we met and our idea is that we can establish a method for virtual contact throughout the year so that we can discuss current issues and keep the work going at distance.”

Canadian entrepreneur,
Stephanie McLarty

Stephanie McLarty is President of REfficient Inc., a Canadian professional services company that helps organizations manage technology turnover. She has been a member of IEC TC111: Environmental standardization for electrical and electronic products and systems, since 2008, where she is part of PT (Project Team) 62635: End of life recyclability calculation for electrotechnical equipment, and PT 62650: Communication formats on recycling for electrotechnical equipment between manufacturers and recyclers, concerning end-of-life information exchange and recyclability rate.

McLarty is a woman entrepreneur whose work involves technology turnover in companies. That consists of removal of old equipment, costing or redeployment internally of technology, or resale, donation or recycling of electrotechnical devices.

McLarty got involved in the IEC and the world of standardization because she felt it would be useful from a business perspective. “Being part of the standardization process and particularly in my case, IEC TC 111, allows me to network with professionals around the world and to have a sense of what others are doing elsewhere. That’s a big value that you can feed back to your customers and let them know what’s happening elsewhere as far as use of recycling technology is concerned.”

“Being part of something on a global level means you know who to call. It’s also a way of showing our customers that we’re involved fully. It provides us with credentials and them with the reassurance that we are totally informed. Although we don’t really apply IEC standards internally, they’re complementary to what we do and as a company, we could, in future, contribute to the world of sustainability and standardization when it comes to manners of reporting on electronics re-use and waste diversion.”

McLarty talks of the advantages of attending the Young Professionals’ Programme in Seattle. “It gave me the broader outlook in understanding the IEC and the importance of standards. That was a great takeaway. It was exciting and sparked my interest in considering other opportunities and the more fundamental aspects of why standards matter.”

“When you talk with companies, you think of the IEC. Anything we can do to foster the community is important. We do need to promote the benefits of standardization and work.”

She was particularly impressed by a particular figure she learnt. “You know that 30 % of global trade is affected by the IEC? That’s most impressive. It represents a lot of potential and a great opportunity to grow the IEC.”

Mexican household safety expert – Juan Rosales

A year before he graduated in Industrial Engineering in 2004, Juan became involved with ANCE, the Mexican National Standards Body where he worked for five years as Chief of Standards for Household and Similar Appliances and as Technical Secretary of the Mexican technical committee 61. He was responsible for the publication of over 50 national standards on appliances,

Juan Rosales (Mexico)
tools, batteries and toys which Mexico adopted from the IEC International Standards.

Since 2008 he has been working with MABE/GE, one of the leading appliance manufacturers in America, as Leader of Testing and Approvals, responsible for the validation of laundry equipment projects regarding the fields of safety, energy, performance and reliability. Rosales is also an industry representative in the Mexican standards committee and a Technical Expert for the Mexican Accreditation body. At present, he is completing a Master’s degree in administrative engineering.

Part of his job is that of letting standards work to open markets for electrical appliances under an equal basis of quality, safety and environmental aspects. “After some years”, he says, “I have come to realize that standards also open doors and perspectives to me as an engineer. Working with standards has given me the opportunity to improve my skills as an engineer. It has also given me the chance to meet many people from all over the world and visit places that I had never thought of. Standards have helped me see how the global economy moves around the world and how rules and standards are important to make markets, technology and society grow.”

**Stimulation from the Young Professionals’ Programme**

“There are many dimensions I could mention. I’m glad to be able to contribute to society by developing rules that provide us with a greater range of more eco-friendly, safer and better performance electrical products.

“As part of industry I’m pleased to be working towards generating fair trade which ultimately will help provide quality products and perhaps to contribute to the technical and economic development of my country.

“On a personal level, working in standardization is a great opportunity to grow up as a professional, and become a reference as far as what a young Mexican guy can do with a little bit of inspiration and consistency in sticking to his life’s objectives!”

**Leading the programme with objectives**

“My first objective is to contribute to growing the programme successfully, Rosales continues. “Being one of the first generation leaders is a big responsibility because I know that the future of this programme will be based on the results we are able to provide. I would like also to open doors for next IEC Young Professionals. It’s a unique opportunity to make friends and network, a way of finding information that is necessary in our daily life.”

“Standards open doors not only for products and services, but also for professionals. Obtaining a background as a regulator working with IEC International Standards in my country has given me the opportunity to get a better understanding of the global economy, to help develop my company with a clear view of what is right or wrong when we develop a new product and to anticipate certain situations that could affect users.

“My daily life is to verify that laundry equipment designed and manufactured for my company meets all applicable regulations so that it can move freely around the world on the basis of safety, performance, energy consumption and so on. I’m convinced”, says Rosales, “that would not be possible if IEC standards were not part of my daily life.”
IFAN winning posters
Standards make the world go round

As reported in the August 2010 e-tech, last year IFAN (the International Federation of Standards Users) invited all persons wishing to express their artistic vision of the importance and benefits of standards and standardization to take part in the second IFAN international contest by preparing a poster depicting the theme, “Standards make the world go round”. One hundred and twenty posters were received.

At the 13th IFAN International Conference held in Seattle, Washington, US (United States) on 12-13 October 2010 during the IEC General Meeting, the IFAN Board selected the winners.

First place went to Adi Bascoro of Indonesia with Barbara Gur and Edwina Michael of Israel respectively gaining 2nd and 3rd places.

The conference was opened by Ross Wraight, IFAN President, who welcomed delegates and thanked IEC CEO and General Secretary Ronnie Amit and the IEC for their invitation. Amit extended his warm welcome to IFAN members and delegates and said the IEC hoped that IFAN would continue to hold its annual conference side by side with IEC meetings. He underlined the importance of listening and communicating with standards users to better understand their needs.

Achieve understanding
Awareness without comprehension is nothing
Session 1 of the conference was dedicated to “Awareness of Standards”. The IEC was invited to talk by Vered Oren, IFAN Board Member and President of ISUS (Israeli Standards Users Society).

In her presentation, Gabriela Ehrlich, Head of Communications of the IEC, underlined the importance of not only raising the awareness but of increasing the overall understanding of the usefulness of standards.

“The problem starts at the simplest level,” she said. “Even though most people know the word ‘standard’, they rarely understand the crucial importance of standards for business, trade and consumer safety, convenience and comfort.”

The winning entry: Adi Bascoro (Indonesia)
Having joined the IEC from industry a little over one year ago, she vividly remembers her own distorted perception of standards, saying that the word “standard” generates images that are only marginally positive.

“Most people like to express their uniqueness and personality through personalized products and devices,” she said. “However, the word ‘standard’ conjures up connotations of ‘mass-produced’, ‘all-the-same’, ‘lowest common denominator’. Not something that is aspirational. It is therefore no wonder that standards, despite a high level of overall awareness, are not able to stimulate a similarly high level of interest in the general population.

“I find that when I pronounce the word ‘standard’ to individuals, whether in a personal or business context, they politely nod and at best lose interest. However, when I avoid the ‘S’ word and simply talk about rules, specifications and the metrics that are needed to make products fit and work together, safely, everywhere, they keep an open mind. When I stress how essential it is to participate in the standards-setting process, I simply explain that companies need to sit at the table where those rules are written, and everybody gets the picture.”

Ehrlich believes that to increase the understanding, and subsequently the use, of standards, people have a need to clearly realize “what's in it for them”. One way is to collect success stories and to pass them on.

Maybe the next competition of IFAN should be to find a new name for what we do, to replace the “S” word.

**About IFAN**

The International Federation of Standards Users is an independent, not-for-profit international association. It brings together national standards organizations, companies, professional and trade associations and governmental agencies concerned with the use of standards.

Founded in 1974, its role is to promote the uniform implementation of standards, develop solutions in response to the problems of standards users, consolidate and communicate their interests and views, and promote networking in the field of international standardization and CA (Conformity Assessment).
Fibre optics pioneer Judy Anderson

Fibre optics pioneer Judith M. Anderson passed away unexpectedly on 26 December 2010 following a fire in her residence in Washington, DC (District of Columbia), US (United States).

Judy Anderson was Staff Director at TIA (Telecommunications Industry Association). Accredited by ANSI (American National Standards Institute), TIA develops voluntary industry standards for a wide variety of telecommunications products in the US.

A hardworking and dedicated member of the IEC fibre optics family, Anderson was Assistant Secretary of IEC TC (Technical Committee) 86: Fibre optics, and Assistant Secretary of IEC SC (Subcommittee) 86C: Fibre optic systems and active devices. She was a valued colleague and a great source of information for all members of the TC and SC.

Anderson also served as Secretary of IEC TC 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories, and IEC TC 48: Electromechanical components and mechanical structures for electronic equipment.

Before joining TIA, Anderson was first an employee of EIA (Electronic Industries Association), the trade association responsible for defining electronic standards in the US.

Later, it became known as the Electronic Industries Alliance and is today under the auspices of other national organizations.

Working at TIA, Anderson also facilitated participation in national mirror groups for IEC TC 86, TC 76: Optical radiation safety and laser equipment, TC 46 and ISO/IEC JTC1 SC (Subcommittee) 25: Interconnection of information technology equipment.

TIA nominated Anderson for a seat on the USNC (United States National Committee) Technical Management Committee, and in 2002 she was one of seven distinguished recipients of the ANSI Meritorious Service Award.

She leaves many friends and colleagues in the world of standardization and is survived by two sisters. She will be sorely missed.

The President of the Malaysian NC (National Committee) of the IEC, Datuk Ir. Mohd. Annas bin Haji Mohd. Nor, passed away on 15 November 2010 after a four-month battle with lymphoma.

Born on 8 September 1946, he received an honours bachelor’s degree in electrical engineering from Brighton Polytechnic (which, in 1992, became the University of Brighton) in the UK (United Kingdom) in 1972 and a master’s degree in management from the Asian Institute of Management in the Philippines in 1984. He was awarded an honorary doctorate in technology from the University of Brighton in 2002 and an honorary doctorate in engineering from Kolej Universiti Teknikal Kebangsaan, Malaysia, in 2005.

Datuk Annas dedicated his professional life to national and international standardization. He was named President of Standards Malaysia at the outset of its official launch on 28 August 1996. Previous to taking up that position, he had been the Special Advisor, International Business, for Genting Power Holding Ltd., and prior to that Chairman of the Energy Commission, the regulatory agency for electricity and gas supply in Malaysia.

He was instrumental in setting up the Energy Commission and played a key role in the administration of the Energy Commission Act 2001, in particular the privatization of the electricity supply and gas distribution.

Particularly concerned with energy efficiency, he advocated public awareness about household devices and labelling of consumer products. Starting with the refrigerator, he led a campaign to inform householders, manufacturers, dealers and retailers about the benefits of Malaysia’s five-star energy efficiency rating.

He was the Director-General of the Electricity and Gas Supply, Malaysia, and also worked with the National Electricity Board (presently known as Tenaga Nasional Berhad – the national electricity utility company) from 1972 to 1988. From 1988 to 1990, he was the Head of Energy Unit in the Ministry of Energy, Telecommunications and Posts, Malaysia, in charge of energy policies and development of electricity supply matters.

His burial took place at Tanah Perkuburan Islam (Muslim Burial Ground) Bukit Kiara, Kuala Lumpur, Malaysia, on 15 November 2010.

Obituaries

Malaysian NC President passes away

Datuk Ir. Mohd. Annas bin Haji Mohd. Nor
Nominations
Officers of IEC Boards and Committees

In addition to its regular Technical Committees, the IEC has a number of Strategic Groups, Sector Boards and Technical Advisory Committees which report to the Standardization Management Board. This month, e-tech announces various changes and nominations.

**SG 3**
**Smart Grid**

SG (Strategic Group) 3 came into being in 2008 when IEC SMB (Standardization Management Board) saw the need for long-term planning for the smart grid. SG 3 is responsible for overseeing the International Standards that are required in order to achieve global interoperability of systems and services. At the same time, they provide and manage a central repository via the IEC website to serve industry in terms of published standards and guidance for on-going smart grid projects.

Rolf Apel has been nominated as a further alternate German expert in SMB/SG 3 Smart Grid.

**SB 1**
**Electricity transmission and distribution**

SBs also report to the SMB and are responsible for providing advice to the SMB on priorities and setting long-term strategy for standards in the sector concerned, looking at market relevance and developing a systems approach.

Sector Boards may, like Technical Advisory Committees, set up ad hoc groups and develop guides and recommendations to the SMB and to technical committees and subcommittees in the relevant segment. SB members are senior executives who are representative of industry and users in a broad sense.

Two SB (Sector Board) nominations were announced recently, one, a new member to SB 1: Electricity transmission and distribution, in the person of Eung-Bo Shim and one to SB 4: Infrastructure of telecommunications networks, Barry A. Linchuck.
SMB Advisory committees

The role of SMB advisory committees, ACEA, ACEC and ACOS is to advise, guide and coordinate IEC technical work, under the auspices of the SMB in their respective areas - environmental issues, electromagnetic compatibility, and safety in the aim to ensure consistency.

Members consist of both technical committee representatives and experts who are nominated by NCs (National Committees) in the particular area concerned, and are appointed by the SMB.

The SMB has announced the nomination of experts Luis Nuño and Bernd Sisolefsky to ACEC (Advisory Committee on Electromagnetic Compatibility).

At the same time, they have named Jos Remy as representing TC 108 as a member of ACOS (Advisory Committee of Safety). ACOS deals with safety matters which are not specific to one single TC (Technical Committee) of the IEC. Its task is to guide and coordinate IEC work on safety matters in order to ensure consistency in IEC safety standards. Under the auspices of SMB they assign horizontal and group safety functions to TCs in order to provide consistency across IEC International Standards in areas that are common to a number of TCs.
IEC TC 78
Live working

SMB has announced the extension to the term of office of George Gela as Chairman of IEC TC 78: Live working, for a further three years from 1 December 2010. TC 78 prepares technical publications that deal with tools, equipment and devices that are used with and in the vicinity of live parts of electrical installations and systems.

AHG 1
Marine energy power quality

At the request of IEC TC 114: Marine Energy made during the Edinburgh meeting in May 2010, the P (participating)-Members of TC 114 have now appointed their national experts to participate in AHG (ad-hoc group) 1: Power quality which, under the leadership of Mo El-Hawary, is to investigate whether there is a need for a TC 114 deliverable in the field of power quality, and if so, the schedule and scope of the deliverable.
Almost every household in the developed world has a host of products that constantly suck away at energy, even when they do not appear to be switched on. These so-called energy vampires are all around us.

The microwave or electric cooker with its little digital clock display. The cable set-top box and satellite decoder. The DVD player and TV. The audio system. All of these spend a lot of their day sitting there waiting for the command to ‘Go’ – and that waiting time could be when they are at their hungriest. Even those without any obvious signs of life can still be consuming power.

Standby

Studies show...
Various studies carried out around the world have shown that standby power can account for anything from 5 to 10% of a household’s power.

The only certain way of reducing this is to turn off everything at the plug when you don’t need it – or for those countries without switched sockets, to pull out the plugs from the wall socket. The disadvantage, of course, is that it may mean that you then have to reset a load of digital clocks on devices. And there may be other knock-on effects for other electromechanical system elements of the product.

Of course ways of measuring this power do exist. Methods of measurement are specified in IEC 62301, *Household electrical appliances - Measurement of standby power*, the second edition of which has just been published and is now available from the IEC Webstore. The standard is applicable to all mains-powered household appliances as well as the mains-powered elements of devices that are powered by other fuels such as gas or oil.

Reducing standby power

There are also ways of reducing standby power – notably through using better designs of power supply, though these inevitably involve additional manufacturing costs. In September 2010, APP (the Asia Pacific Partnership on Clean Development and Climate) and the Standby Annex of IEA 4E (the International Energy Agency Implementing Agreement for a Co-operating Programme on Efficiency Electrical End-Use Equipment) published a report on standby power and low-energy networks by Lloyd Harrington (Energy Efficient Strategies, Australia) and Bruce Nordman (consultant, United States).

Harrington is also Project Leader of MT (Maintenance Team) 9 within IEC TC (Technical Committee) 59: Performance of household and similar electrical appliances. MT9 is tasked with maintaining IEC 62301.

The report states: “collectively, consumers pay the cost of high standby energy that arises from poor product design. There is no doubt that extremely low standby designs are readily available at a small marginal cost. However, these are not being universally adopted by suppliers due to the perception of low value added.”

The authors note: “Policy approaches to reduce excessive standby power are clearly warranted, but ... careful consideration is needed.” Various countries are now enforcing limits on standby power and in practice many have already implemented levels that are lower than the legal limit required by legislation.

A study by Kemco (the Korea Energy Management Company) presented in...
Australia during a 2004 energy rating plenary estimated that in order to reduce standby power to 1 W would add AUD 2-3 to the manufacturing cost of each product. [At today’s exchange rates, the AUD and USD are more-or-less on a par. At end January 2004, 3 AUD were worth roughly USD 2.30.] However, the study concluded, “it is possible to cut 75-90 % of standby power if manufacturers use new technologies”.

Standby power consumption of each product in the home is tiny – just a few watts – but most homes have more than 15 products capable of being put on standby. Standby already accounts for up to 25 % of domestic electricity use in certain areas of the world such as the US, Korea and Australia. Already then the Korean experts were saying “We still don’t know if standby energy use is growing or shrinking. Some appliances are more efficient but now there are more appliances with standby! A ‘networked home’ will be a high standby home if no measures are taken. We need to monitor homes & offices.”

A 2005 study estimated the number of standby appliances in the EU (European Union) at 3.7 billion. In the US (United States) according to a study by Berkeley Institute of Technology, standby power uses 64 million MW of power, the equivalent production of 18 power plants.

WG (Working Group) 9 of IEC TC (Technical Committee) 59 prepared IEC 62301, Household Electrical Appliances – Measurement of Standby Power. It provides the means to measure standby power consumption for a broad variety of household appliances, including measurement methodology and guidance with regard to reporting requirements and instrumentation.

WG 9 was formed in 1999 after the Kyoto Summit as a test method to counter wasted energy. The final International Standard was published in 2005. TC 59 SCs now always include standby power in their product standards and since then the publication has gained considerable reputation among manufacturers and regulators addressing the issue of energy waste.

Standby in Korea became mandatory in 2010. The current limit in the EU (European Union) is one watt for products on standby with only a reactivation function – ie equipment can be switched, whether remotely, by internal sensor or timer, to its main or additional function, but has no indication or display. This will reduce to 0.5W in 2012. In Germany standby power consumption was estimated at 22 billion kWh each year at a yearly cost of EUR 4 billion and the equivalent of 4 million tonnes of CO2. This energy saving measure will result in an economy of approximately 800 million kWh in Germany alone. One watt will also be the limit in Taiwan in 2012 and in Canada and Australia by 2013. A similar limit applies in Japan but is on a voluntary, not mandated, basis. Although mandatory limits do not exist in the US, federal purchasing requirements set a standby power limit of 1W for a range of products. The Energy Star endorsement labelling program operated jointly by the US Environmental Protection Agency and DOE (Department of Energy) provides optimum specifications on a range of products, including some low-power modes. Some of its product specifications are used internationally. Most of those for low power are tending towards 1W.

Small is beautiful
Even if each device left on standby only consumes a minute amount of energy, that quantity multiplied by the number of devices in each home adds up to a sizeable figure in the overall world consumption. So, while it is not particularly obvious that power is literally leaking away when a device appears to be inactive, changing standby technology or switching a system off entirely can play a part in improving the world’s energy consumption and increasing energy efficiency.

The idea that ‘every little helps’ is certainly not a new one. British economist E F Schumacher published a collection of essays entitled “Small is beautiful” in 1973. The phrase was one coined by his teacher, Leopold Kohr, and it underpinned much of Schumacher’s forward-thinking philosophy.
Small economies in energy can be obtained through improved standby control. One area where small is starting to play a new role in energy efficiency is that of power supplies. Clunky power supplies are a thing of the past, believes US Company Green Plug. Its digital GPP (Green Power Processor) tunes the power supply dynamically according to the extant operating conditions. The chip can control multiple outlets and communicates between devices and the power adapter. The company’s GLP (Green Load Processor) is a hardware and software protocol stack that provides smart power control. Embedded as a chip on devices it communicates with the GPP informing it of changing power needs, such as higher or lower voltage, or telling it to shut off entirely when conditions permit. Other smart devices include a smart quad port power adaptor that delivers power to multiple devices dynamically tuning the power supply according to need.

Charging wirelessly
Another solution which removes the need for multiple adapters, thereby saving space while reducing manufacturing costs consists of a multiple device wireless charger. One wireless charging model is Powermat’s PowerPlate Wireless Induction Charger. It consists of a pad which is connected to the wall socket. To charge a mobile phone or other accessory, you simply place it on the mat in a special Powercube charging device and the batteries hold their power as if they’d been charged up using their own specific charger. Another system using wireless induction is Duracell’s myGrid Wireless USB Charger which acts like a portable power pack. Devices placed on the mat simply charge up as if they were plugged into the wall.

At CES, the ElectroHub universal wireless charging station promised to charge up to six electronic devices simultaneously, simply by placing them on the device which is flat and tablet-like.

Devices to be charged are made compatible simply by swapping their own standard AA or AAA batteries for a specially designed ElectroHub battery. It does away with the need for a specific customized casing for converting and charging batteries. Standardization of the magnetic induction technology on which it is based looks set to continue development. Until now, because devices couldn’t be charged directly without first being placed in protective casing containing the induction hardware, induction charging mats were really only useful for small items. Now
The technology looks set to continue development. Tremendous economies of scale can be achieved by not having to manufacture separate power adapters for each consumer product. The technology forms the basis of the interface definition launched by the Wireless Power Consortium. This is a cooperative group of over 70 companies set up to produce an international standard for globally compatible wireless charging stations. Headsets, cameras, remote controls, and all mobile electronics carrying the logo will work with all Qi compatible charging stations.

This Qi 1.0 interface definition certifies interoperability between low-power mobile devices such as mobile phones and enables up to 5W to be transmitted wirelessly between device and charger. Parts 2 and 3 of the definition (performance requirements and compliance testing) are only provided to members of the Consortium. The Consortium is also said to be working on standards for medium-power devices such as netbooks and laptops.

**Managing power**

Another product on show at CES was the Fulton Innovation’s eCoupled wireless charging technology. Fulton has played a significant role in developing the Qi global low-power standard for wireless power and is now going one step further. Their charging device which incorporates a storage capacitor in its charging stand can be used for high-powered devices such as an electric vehicle. Once the device on the stand is fully charged, it switches off the mains power. The charger then goes into ultra-low power mode which prevents no-load power consumption, i.e., energy being used unnecessarily because the charger has simply been left plugged into the mains power.

Power management is one of the key issues that needs to be addressed, believe Harrington and Nordman. So features like standby management, cutting power flow to a charged device and super low-power draw are what are required. It’s not difficult to design for new devices, and not particularly costly to implement. It’s harder to contend with the energy vampire of existing products and retrofitting devices to make them more efficient and manageable.
The e-book and its tablet form have come a long way since the first digital devices were announced. The original models were greeted with a fair amount of scepticism. There was doubt concerning proprietary software that might constrain the choice of model or reading titles, and a possible lack of connectivity that would prevent widespread use. Now, all of that seems to be changing, and the original scepticism has given way to enthusiasm and a multitude of new developments.

Today, there are literally thousands of titles available for the reading and a wide choice of hardware models that are more or less portable depending on their size of screen. Screen technologies have also improved, and the user can now choose between LCD (liquid crystal display), with its backlit colour contrast, and the e-ink book-like black and white screen, which has the advantage of being clearly legible in bright sunlight but not displaying colours.

There are models to suit all pockets. Some use touch screens, others not. Some have their own wireless connection; others need a Wi-Fi hotspot or to be connected to another device for downloading new material. Some are cross-platform so they are compatible with a variety of systems that allow the user to “carry around” a cloud-computed reading collection. Most, in addition to their own proprietary formats, read open standard files such as EPUB, the dedicated e-book format, and PDF (portable document format), the format created by Adobe Systems in 1993 for document exchange. The need for portability and exchanging of files from one system to another requires protocols on how to store and distribute content.

IEC TC 100 leads the way in multimedia e-publishing

These standards are the work of IEC TC (Technical Committee) 100, TA (Technical Area) 10: Multimedia e-publishing and e-book. Under Technical Area Manager Yashio Uemura and Technical Secretary Mikio Mukai, TC 100 produces International Standards for multimedia e-books, multimedia e-publishing and related technologies, including:

- formats of multimedia e-book contents
- minimum requirements for multimedia e-book viewers
- user interfaces for multimedia e-book viewers
- e-publishing services
- guidelines for e-book distribution by interchangeable storage media

At present, the three PTs (Project Teams) of TC 100/TA 10 are working on:

- Digital Audiobook File Format and Player Requirements (PT 62571)
- Multimedia systems and equipment
- Multimedia e-publishing and e-books
- Interchange format for e-dictionaries (PT 62605)

The e-book reader: safeguarding a future for print media
• Texture map for auditory presentation of printed content (PT 62665)

MT (Maintenance Team) 62448: Multimedia systems and equipment - Multimedia e-publishing and e-books - Generic format for e-publishing, is working on the next edition of IEC 62448, the standard that specifies a generic format for multimedia e-publishing that’s used for e-book data interchange among publishers and people preparing data. The format has the advantage of being revisable and extensible with a heterogeneous logical structure.

TC 100/TA 10 has ongoing discussions with idpf (International Digital Publishing Forum) about establishing a category D liaison in order to work more closely on the EPUB format and participate together at the WG (Working Group) or project level.

When IEC 62448 was first developed in 2006 the e-book market was still very small. It is only in very recent times that the market has grown and with it the demand for the EPUB format to be standardized. ISO (International Organization for Standardization)/IEC JTC (Joint Technical Committee)/1SC (Subcommittee) 34: Document description and processing languages, has also established an ad hoc group to discuss EPUB standardization.

TC 100/TA 10 is also discussing other important technology areas in order to establish digital audiobook file formats and player requirements and an interchange format for e-dictionaries, together with a texture map for auditory presentation of printed text.

**Advantages of e-books**

An e-book has the advantage over printed material of being able to enlarge type so that, even if the screen is small, the display features make reading more accessible to a great number of people. Over and above providing an interface for reading text, the picture quality can be far better on a tablet than on a computer screen; it also offers the ability to create a multimedia interactive storytelling. At the same time the e-book offers advertisers new opportunities to reach their audience.

The first generation Kindle was released by Amazon.com in November 2007. Nook was announced by Barnes & Noble in October 2009. In 2010, the first iPad was launched and with it a new attitude to e-reading that included many features found on a Netbook or laptop, including a library of downloadable additional applications.

**New e-book developments**

The popularity of the iPad has sparked new interest in e-books. Just as the CES (Consumer Electronics Show) was closing in Las Vegas, US (United States), the announcement of TEDBooks arrived. Better known for its 20-minute TEDTalks on a broad selection of subject matters and the resulting digitalized video that is made freely available to the public over the Internet, TED (Technology, Entertainment, Design) is filling the gap between the visual and the printed with a new solution.

TEDBooks, the non-profit company says, are expected to provide a “short, compelling book”, which far from “dumbing down of reading”, will “be trading up”.

“Instead of browsing a magazine [TEDBooks]... will make ideas accessible in a way that matches modern attention spans”, the company says.

With this launch, a new tendency towards digitalization of previously paper-bound traditional books appears to be well established and set to investigate new realms of the written work.
High voltage
Safer electrical power installations

IEC TC 99 recently issued a new version of a key electrical power publication, IEC 61936-1, Power installations exceeding 1 kV a.c. – Part 1: Common rules. The standard provides essential new safety and user information for people building or installing high-voltage power systems.

IEC TC (Technical Committee) 99: System engineering and erection of electrical power installations in systems with nominal voltages above 1 kV a.c. and 1.5 kV d.c., particularly concerning safety aspects, has published a significant revision of IEC 61936-1.

The publication aims to align world practices concerning the design and erection of high-voltage electricity installations such as power stations or substations, generators or transformers or electrical systems in factories or public premises. It provides minimum requirements for IEC members, together with other information that ensures acceptable reliability of an installation and its safe operation.

Electrical power installations covered by this standard include: Substations, including substations for railway power supply; electrical installations on mast, pole and tower; switchgear and/or transformers located outside a closed electrical operating area; one (or more) power station(s) located on a single site, including generators and transformers with all associated switchgear and all electrical auxiliary systems; electrical systems of factories, industrial plants or other industrial, agricultural, commercial or public premises.

Compared to the previous edition, published in 2002, this revised standard includes substantial changes, particularly those concerning safety issues.

IEC 61936-1 covers general requirements such as personnel safety; the selection and compliance of equipment; specific needs for switching devices, power transformers and reactors; installation precautions and safety measures both for human protection and for buildings, together with general considerations such as protection against the danger of arc faults, fire, and lightning; and leakage, decomposition; identification and markage. It takes into account, for instance, specific climatic or natural conditions in particular countries; regulations for fuses and escape routes; clearances for fire protection; safety criteria for earthing systems; and modified curves of permissibly touch voltages.

You can find a summary of the new publication, together with its purchasing information, in the IEC Webstore at: http://webstore.iec.ch/webstore/webstore.nsf/ArtNum_PK/44501.
Strong cooperation in SC 59F produces “dust-free” success

By Jeanne Erdmann

We probably take vacuum cleaners for granted. An easy flick of a switch and dust mites, dirt and tumbleweeds of dog hair disappear into a handy container. Even more astonishing, it’s possible to slurp up buckets of liquid without being electrocuted. Some homes boast robotic vacuums that look like hubcaps moving along the floor from room to room.

Floor care experts who comprise IEC SC (Subcommittee) 59F: Surface cleaning appliances; take dirt – and its removal by vacuum cleaners – quite seriously. They have a lot of discussions on dust, and what comprises that pesky layer of particles sitting on furniture and floors that won’t go away on its own.

In fact, Ron Battema, the newly elected Convenor of WG (Working Group) 3 which was set up to deal with the maintenance of IEC 60312-1, Vacuum cleaners for household use - Part 1: Dry vacuum cleaners - Methods for measuring the performance, remembers a moment from his early days as manager of the engineering test laboratory at Electrolux. He was interviewing a candidate for lab technician, showing him around the laboratories and test equipment. After the tour, the candidate said, “I’m from the aviation industry and we don’t do nearly as much testing as you’re doing for a vacuum cleaner.”

Battema and members of SC 59F developed the IEC 60312-series standards for wet and dry vacuum cleaners. SC 59F was set up in the 1970s to create and maintain vacuum cleaner performance standards. Grahame Capron-Tee was appointed Acting Chairman of IEC SC 59F in 1988 and has continued to be re-elected.

“Unless standards are able to be dynamic, they risk losing their relevance in the modern world,” says Battema. Members have found ways to keep pace with industry changes. For example, emissions procedures developed for simple bag filtration systems won’t work for HEPA (high efficiency particle arrest) systems which filter 99,9 % of 0,3 micron particles. Internationally there are many different classes of HEPA. “SC 59F members have to try and draw all these together in a single test method,” explains Capron-Tee.

The 4 working groups under SC 59F have plenty of thorny problems to tackle. They need to measure the cleaning performance of a robot vacuum cleaner, which follows random patterns around the floor; how to measure the cleanliness of a carpet after wet cleaning; and how to measure the performance of a ride-on-street vacuum cleaner.

Members have found ways to keep pace with industry changes. For example the introduction of Cyclonic filtration and associated bagless reusable receptacles in the 1990s and subsequently many non-cyclonic systems also changed to the “bagless” system. “Dealing with clogging (no loss of suction), filtration and emissions among others on these new products introduced new testing problems and, as with new HEPA filters, used on both bag and bagless alike, SC 59F members continue to seek new solutions,” says Capron-Tee.

Priorities prevail
As anyone who has written standards knows, producing documents that are fair, unbiased and meaningful can be a challenge. Resources, whether laboratory time or availability of personnel, are more limited today, says Battema. Manufacturers have to do more with fewer resources. WG 3 meets these challenges by setting priorities.

When prioritizing, WG 3 considers a variety of factors, including relevance for manufacturers and consumers, the need to address a particular issue, such as energy use, and the time required for a proper evaluation. To address some of these factors, SC 59F decided to evolve WG 3 into several distinctive groups. “Rather than rely upon a single working group to develop standards that have limited scope (not every company is interested in wet cleaning or robotics, for example), new Working Groups have been established that focus on specific products,” says Battema.

Strength in Working Groups
In 1979, the newly formed WG 3 aimed to find a replacement test to measure dust removal from carpets that was more representative of field performance. Since then, WG 3 has remained active, maintaining the vacuum cleaner performance standard, which is currently in its 5th edition.

In 2008, SC 59F chose to separate wet and dry vacuum cleaners standards; WG 4: Wet surface cleaning appliances, was established for this task. WG 4 published IEC 60312-2, Vacuum cleaners for household use - Part 2: Wet cleaning appliances - Methods of measuring the performance, in 2010 and is currently establishing new test methods that are of interest to users.

SC 59F further decided to create two subdivisions, one, WG 5 for robotic vacuum cleaners and another, WG 6 for commercial surface cleaning machines, to look after
these areas and publish relevant standards. Currently, SC 59F is preparing for more transformation by considering a new subdivision for battery-operated products. It is also accommodating the changing nature of vacuum cleaners by recognizing that some products do not use vacuum, though they are also used to clean the same surfaces. So SC 59F is in the process of changing its scope and title to embrace all types of surface-cleaning electrical appliances.

Capron-Tee is keen on the changes which he introduced. "As Chairman of SC 59F, it is my belief that these structural changes are bringing more interest and participation in our area of standards making," he says. "Where we had approximately 14 members of the single WG in 1980, we now have more than 40 members across the four current Working Groups."

Battema joined SC 59F WG 3 in 1996 as the official Technical Advisor for the US and remained in that position through 2002. "When I began working in WG 3 there was only one representative for the United States," he said. "Having been involved with ASTM (formerly American Society for Testing and Materials) Committee F11 which is responsible for maintaining US vacuum-cleaner performance standards, I could only wonder why the procedures between the two organizations differed so much, and why both groups were working independently on similar work. To me, it seemed to make more sense to work together wherever possible to develop common procedures.

While some standards may never be harmonized, we are seeing a growing instance of shared development. ASTM F11 has adopted parts of IEC 603121, or has at least incorporated aspects relevant to the markets in the US and Canada."

Capron-Tee underlines the role of the IEC as global standards organization and looks forward to the day where IEC-based, or harmonized, methods are used to measure vacuum cleaner performance around the world, without the current alternatives that measure the same thing but potentially give different results. He has emphasized this global importance by having a South Korean professor convene WG 5 and a German Convenor for WG 6. Capron-Tee himself is from the UK and the most important role of Secretary of SC 59F is taken by Hans Erik Rundqvist from Sweden. All member countries play an important role in ensuring that the procedures are relevant for the consumer.

Today’s vacuum cleaner... ... yesterday’s model: hi-tech in its time too
Medical devices

Smarter, more efficient and better connected

Electrotechnology can be found in a very wide range of products and equipment needed to treat and care for patients. The IEC, through its standards and the work of its experts in a number of committees, ensures these work properly, are reliable and safe to operate for both staff and patients.

The IEC’s involvement in medical devices covers all stages from the original design to their performance and safety; it includes countless essential devices from general equipment, such as beds or operating tables, to monitoring, treatment and examination systems, like defibrillators, or ultrasound and magnetic resonance imaging systems.

The next issue of e-tech will look at a broad range of these devices and at the IEC’s contribution in their development.