As technologies advance and many electronic products get smaller and increasingly sophisticated, agency, certification, and regulatory marks and labels can create confusion and clutter. E-labels can provide a much broader range of comprehensive and updatable information in a consumer-, industry- and regulator-friendly format.

FOCUS ON: E-LABELING

Electronic Labels: An Efficient Solution for Streamlined Product Labeling

By Gary Schrempp, Director, Global Regulations and Standards, Dell Inc; USNC Council Member

Today, a product intended for the global market, like an ac adapter provided with a notebook computer, has a regulatory label crammed with a jumble of 20+ agency marks. These marks demonstrate compliance to the safety, EMI, energy, materials, and/or recycling requirements applicable in the countries in which the product might be sold. How did labels come to this state, and is there anything we can do to slow down the proliferation and popularity of product based agency marks?

Starting Simple

In the beginning, agency marks were not required to appear on products. Instead, each agency published a list of approved products to which interested parties would refer to determine the status of a product. This is the origin of the term "listed." Unfortunately, this method did not suffice, as there was not easy access to the master list, and keeping the list up to date was difficult.

So at some forgotten meeting a person whose name is lost to history put forward an innovative idea… What if there was a mark on each product to indicate compliance? And thus, regulatory labels were born. And before the advent of global products and clever counterfeiters this method worked pretty well.

A Modern Problem

Now, however, regulatory labels for global products are a mess of marks all elbowing each other for clarity and space, and counterfeiting such marks is pretty easy. To add to the confusion, each new compliance program wants to get in the act by having their own "cool" mark. There must be a better way!

Perhaps there is. Consider this: a special mark on a product could provide a link to a website. This mark would replace the portion *(continued)*

IN THIS ISSUE

IEC symbols for electrical current: ⊗ ALTERNATING CURRENT (AC) ⊟ DIRECT CURRENT (DC) ⊜ AC/DC

Electronic Labels: An Efficient Solution for Streamlined Product Labeling *(continued)*

WITH AN EVER-INCREASING NUMBER OF AGENCY MARKS AND A WORLD INCREASINGLY LINKED VIA THE INTERNET OF THINGS AND THE CLOUD, CAN IT BE LONG BEFORE E-LABELING BECOMES THE NORM?

of the regulatory label that today is crowded with agency marks. The website would contain all the relevant compliance information about the product, with links to other useful

information as well. This functionality fulfills and extends the idea of a published list of compliant products.

E-labeling Solution

Consider that the original idea of a compliance list had many merits but was ahead of its time. With access to the internet now made possible from almost everywhere by smart phones and tablets, such a list could exist in the cloud and be accessible all the time. A master list on the internet, kept up to date continuously by manufacturers and compliance agencies, would offer real-time compliance information far beyond a simple mark on a tiny label. This list would provide up-to-the-minute compliance verification of the product in question, with access to details concerning the agency, the certification program, and the product itself.

Regulators and agencies have been slow to accept this idea, in part because not all regulatory authorities and consumers have easy access to smart phones with internet access. But change is happening. Agencies such as the FCC in the United States and CQC in China

GARY SCHREMPP

now allow for e-labeling for products with integral displays, and the U.S. FDA is pioneering the concepts of internet-based product information for medical devices (Unique Device Identification, or UDI). And the increasing use of QR Codes on products by manufacturers supports the argument that consumers can use such features to access information.

With an ever-increasing number of agency marks to display, and a world increasingly linked via the Internet of Things and the cloud, can it be long before the concept of electronic labeling becomes the norm? ☺

DOCUMENTS OF INTEREST

Stay up on the latest policies, documents, and other resources from the USNC and IEC by clicking the links below.

READ UP!

- **The 2016 IEC General Meeting Website:**
  http://iec2016.org/
- **Making the Business Case:**
  http://www.iec.ch/businesscase/
- **Orchestrating infrastructure for sustainable Smart Cities:**
  http://www.iec.ch/whitepaper/pdf/iecWP-smartcities-LR-en.pdf
- **IEC Report to WTO TBT Committee:**
  http://www.iec.ch/about/globalreach/partners/international/pdf_wto/iec_wto_2016_03_en_iec.pdf

FOCUS ON: E-LABELING

The Future of Electronic Labels

By Kaz Gawrzyjal, Senior Agency Relations Manager/Compliance Engineer, Dell Inc.

Machine-readable codes have been used to convey varied information for decades. Widely used in automated process and fabrication facilities, they are also present in everyday life. Even as consumers, we've all scanned a bar code at a grocery store checkout and can easily spot a bar code or QR code on just about every product on a store shelf.

What's the Big Deal?

The world of regulatory compliance uses labels and various markings to display compliance to national standards and regulations. But it's just a little label, so what's the big deal? Actually it's quite large a deal. Such labels convey a huge amount of compliance information which is often required to facilitate legal market access. So they are carefully scrutinized by regulators and manufacturers alike. Manufacturers take essential steps to carefully control their regulatory labels, since a label which is not accurate can easily arrest product deployments into any given marketplace.

As the world's nations continue to develop and evolve regulatory requirements, typically a compliance mark and perhaps some addition text such as a compliance statement or standard number is also introduced. Producers tend to place most, if not all, such markings onto a single label or nameplate so as to allow them all to be more easily located, fabricated, and controlled. The compliance marks are often perceived as ugly, so having them located on a single label also minimizes the negative visual impact to what can otherwise be a sleek and innovative product appearance that is often very important in the marketplace.

The proliferation of these competing marking requirements are exhausting regulatory label space, and they are often so densely packed that it's difficult to see how any useful information is actually being conveyed. Just take a look at the label on a typical notebook computer AC adapter.

These types of labels are commonly used by devices with integrated screens, but also by devices without screens, and face common issues. Since a single label is generally used, global manufacturers who are the good actors and comply with an ever-changing regulatory landscape often face having to modify labels, rework products, and perform field retrofits. This happens in order to comply with what is often a poorly considered and rapidly implemented regulatory change by any one of the agencies represented by the regulatory markings. Such rapid change generates much confusion, adds cost to any given industry segment in the millions of dollars, and also adds to environmental waste, since often the markings have to be on the product and also product packaging. All of these detractors can be avoided by well-considered and forward-thinking developments by regulators and certifiers.

E-Labeling Impact

Use of an electronic labeling system has tremendous potential to benefit the consumer, the regulator, and the manufacturer alike. While the usefulness of electronic labels and decades of use is well established, what's needed is consideration and acceptance of not only the serious issues presented by adherence to traditional marking methods (labels), but also a deep consideration by regulators and certifiers of how electronic labels can resolve these issues.

A measure of relief has taken hold, as some forward-thinking regulators have worked to develop and apply regulations allowing the use of electronic labels (e.g., United States, Canada, Australia, etc.). While existing regulations currently revolve around products with integrated screens, the issues of regulatory marking proliferation are also common to devices without screens. To complicate it all, as these e-labeling regulations develop and deploy in one country or another, they tend to have numerous parallels but are not harmonized. Some countries have developed regulations which are well defined but perhaps overly prescriptive, while others offer much less definition.

Global manufacturers in the information and communications technology (ICT) segment are generally highly supportive of the use of electronic labels, but have also recognized that several issues are beginning to take a strong foothold. The key issues are a lack of harmonization in existing regulations, and the fact that non-screened ICT products are generally not addressed, despite facing the same issues as screened devices. *(continued)*

The Future of Electronic Labels *(continued)*

COMPETING MARKING REQUIREMENTS ARE EXHAUSTING REGULATORY LABEL SPACE. MARKS ARE OFTEN SO DENSELY PACKED, IT'S DIFFICULT TO SEE HOW USEFUL INFORMATION IS ACTUALLY BEING CONVEYED.

A Standard Solution

To resolve these concerns, global ICT manufacturers have worked with the Information Technology Industry Council (ITIC, www.itic.org) to develop a set of guidelines that can meet the needs of the end user, the regulatory objectives of various authorities, and the needs of the manufacturer. The intent of these guidelines is to present a balanced approach and to serve as the basis document in the development of an international standard for electronic labeling.

The benefit of an international standard, once developed and adopted, would be to establish a harmonized set of rules that can apply electronic labeling principles to ICT products whether they have do have screens or not. The guidelines for screened devices reflect many of the aspects in today's electronic labeling regulations but also introduce the use of a machine readable code that would be a gateway to the required compliance information on the web.

Such principles can easily extend to other industry sectors facing similar issues. While it's expected that the

KAZ GAWRZYJAL

development of such a standard will best be served in a transparent and collaborative environment and may take some time, the urgency and strengthening need for such a standard is also very clear.

Currently, electronic labels enjoy a limited acceptance that appears to be on a widening trajectory as additional countries develop regulations. It is essential that future use of electronic labels in the regulatory segment be in such a manner so as to utilize their full potential. ⊖

ANSI Site Licenses Support USNC

When buying IEC standards, USNC members' organizatiosn can obtain the greatest value and convenience by purchasing a site license from the American National Standards Institute (ANSI). ANSI site licenses enable standards to be shared within a network. They provide real-time access to standards data and offer automatic notification of updates and revisions. And the revenue ANSI receives directly

ANSI Site Licenses
The bridge connecting you to the standards you need

supports the activities and initiatives of the USNC.

The USNC/IEC is a totally integrated committee of ANSI. When you purchase a site license from ANSI, you are making a commitment to bolster U.S. leadership at the IEC table – and gaining the benefits of easy accessibility, total customization, and affordable pricing for all of your organization's standards needs.

For more information, visit webstore.ansi.org/SiteLicense or email sitelicenses@ansi.org.

FOCUS ON: E-LABELING

ECC Corp. Smart E-Labeling

By Richard P. McDermott, Ph.D., President, ECC Corporation; USNC Council Member

ECC Corp. (ECCC) is a not-for-profit corporation that is the secretariat for the USNC IEC Quality Assessment System for Electronic Components (IECQ). A decade ago, ECCC developed the very successful health services policy and management (HSPM) program IECQ QC 080000, which has been the basis of conformity assessment audits to more than 5,000 companies around the globe.

As a follow-up to that success, in April 2015 at the annual IECQ meeting in Singapore, ECCC made a short presentation on the topic of e-labeling. This was well received, and subsequently ECCC was encouraged by IECQ executives to convert the concept into a specification through the IECQ Approved Component Product (AC) Scheme.

Under the rules of the IECQ AC Scheme, ECCC selected the independent certification body (CB) BSI to perform the two-stage audit. Only 142 days after the Singapore meeting, IECQ CS 033000-UK0001 ed1.0 (2015-09-15), *IEC Quality Assessment System for Electronic Components (IECQ System) - Component Specification - E-Labeling,* was published. This specification defines the requirements to establish and control the production of IECQ Approved Component - E-Labeling that may be affixed to, or laser marked into, the surface of electronic devices or components.

The e-labeling functionality is based on automatic identification and data capture (AIDC) information technology. AIDC is normally referred to as "bar coding." The technology of bar coding is based on the recognition of patterns encoded in bars and spaces or in a matrix of modules of defined dimensions. These are fixed according to rules defining the translation of characters into such patterns, known as the symbology specifications. Symbology specifications may be categorized into those for linear symbols, on the one hand, and two-dimensional (2-D) symbols on the other, as specified in ISO/IEC 15415, *Information technology - Automatic identification and data capture techniques - Bar code symbol print quality test specification - Two-dimensional symbols.*

An AIDC symbol must be produced in such a way as to be reliably decoded at the point of use if it is to fulfill its basic objective as a machine-readable data carrier. In the case of the ECCC e-labeling technology, the mark has been designed so as to be decodable using a free app on Apple and Android smartphones.

E-labelling information technology is based on a unique symbology (Figure 1). As a single mark, it has application for external marking on electrical or electronic devices for regulatory compliance where there is insufficient available space to locate multiple marks. Similarly, it can be laser marked onto the external surface of an electronic component (Figure 2) such as an individual integrated circuit (IC) or a printed circuit board (PCB).

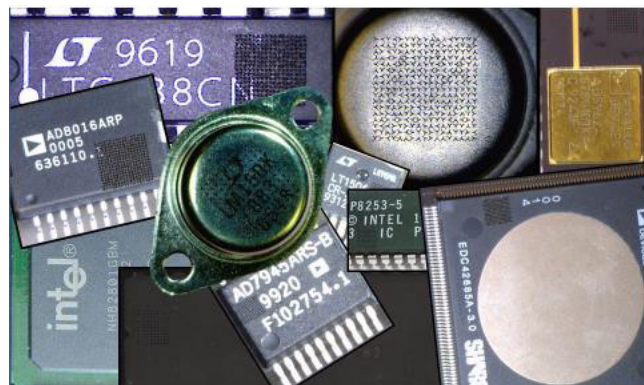An ECCC e-label can be produced as

FIGURE 2: LASER DPM INTO IC'S SURFACE

an affixable printed product (APP) that is applied to the device or by direct part marking (DPM) typically laser etched into the outer surface of the device or component. In both cases, the area of the alteration to the substrate/device is called the "mark." The area that includes the mark and background as a whole, when containing a pattern defined by a 2-D symbology specification, is called a "symbol."

With traditional 2-D symbologies, the mark is always smaller than the symbol. This is because of the requirement for a so-called "quiet zone" surrounding the mark. The technology used for e-labeling has no such limitation, and the mark is normally the same size as the symbol. This feature is critical for devices where free space is restricted. For e-labeling, therefore, the terms *symbol* and *mark* are interchangeable and synonymous. For clarity in this document, it is called a mark.

DPM is a technology whereby, generally, an item is physically altered to produce two different surface conditions. This alteration can be accomplished by various means, including but not limited to, laser etching. Low-cost, low-power fiber lasers are normally used (Figure 2). The mark is typically 30-100 Microns deep and has been shown *(continued)*

FIGURE 1: 35 X 35 MM APP E-LABEL ON APPLE I PHONE

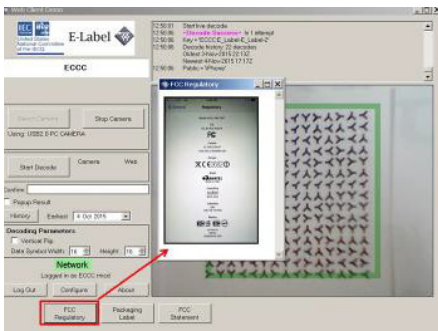## ECC Corp. Smart E-Labeling *(continued)*

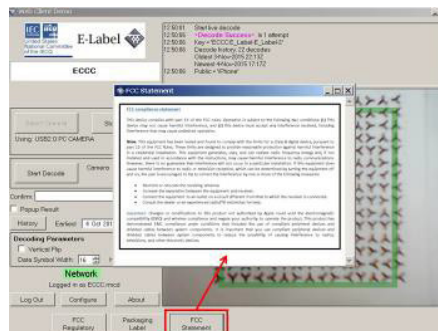**FIGURE 3: EXAMPLE ATTACHMENT AS PHOTO**

FIGURE 4: EXAMPLE ATTACHMENT AS TEXT

not to damage the device or component. For e-Labeling DPM applications, this specification is based on ISO/IEC TR 29158, *Information technology - Automatic identification and data capture techniques - Direct Part Mark (DPM) Quality Guideline*.

For both e-labeling formats, APP and DPM, the encoded mark requires light to read and decode. The data elements within the mark are identified using a technology known as optical character recognition (OCR). When light illuminates the mark, it reflects differently depending on whether it impinges on the background of the substrate or on the physical alteration. For APP e-labeling, when scanning to decode, light is reflected off a smooth surface that has been colored to produce two different diffuse reflected states.

The DPM environment generally does not fit this model because the two different reflected states depend on at least one of the states having material oriented to the lighting such that the angle of incidence is equal to the angle of reflection. However, the e-labeling DPM technology has overcome this limitation.

The procedures described in the IECQ International Specification must necessarily be augmented by the reference decode algorithm and other measurement details within the

e-labelling mark specification, and they may also be altered or overridden as appropriate by governing symbology or application specifications.

There are many methods of assessing 2-D symbology quality at different stages of symbol production. The methodologies described in the specification are not intended as a replacement for any current process control methods. They provide mark producers and their trading partners with universally standardized means for communicating about the quality of the e-labeling formats.

The innovation of the ECCC e-labeling product is the ability to attach device or component specific data records to the mark. The e-labelling data record may include specifications, images, text, drawings, photographs, videos, etc., if government regulation requires that certain disclosures must accompany the

product (Figures 3, 4). Hence, Customs can see that the device is in compliance and the data record is automatically translated to the language of the smartphone's registered user.

When the e-labeling mark is produced, the specification defines the requirements for implementing processes to first print or mark the e-labeling; then, test, analyze, or otherwise ascertain the ability of the e-labeling to be correctly read; and then successfully test, analyze, and link to the associated data records and make these data records available in an efficient manner to the customer or agency.

Data records linked to the e-labeling product provide compliance with the regulatory information (Figures 3, 4) that is otherwise impractical to reside on the external surface of the device or component because the available space is too small or overcrowded (Figure 5).

Finally, the ECCC e-labeling mark is highly encrypted, each mark is unambiguously unique, and the data records are read-only to everyone except the original equipment manufacturer. In short, the ECCC e-label is a smart, secure label. ⊜

FIGURE 5: REPLACE MANY LABELS WITH ONE
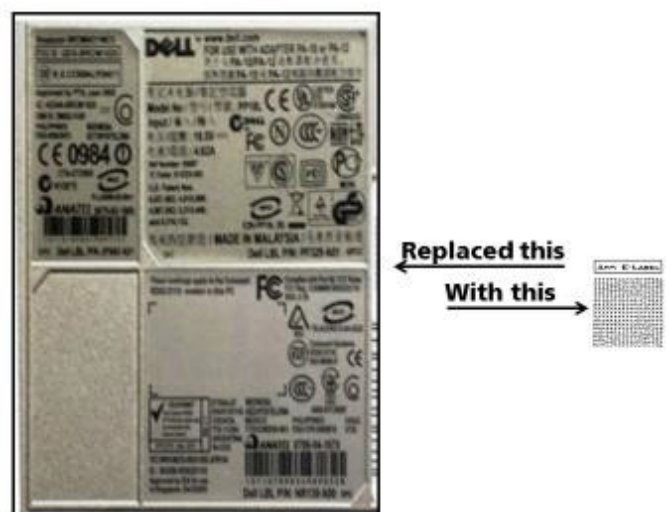
ANSI & USNC Showcase the Power of Standards at the USA Science Festival

Students of all ages had a firsthand look at standards in action at the recent USA Science & Engineering Festival in Washington, D.C., where members of the American National Standards Institute (ANSI) along with partner organizations presented an interactive exhibit to show why standardization is a necessary component in daily relatable activities, including sports, games, electronics, and even everyday school supplies. ANSI developed its theme – "Standards Are Everywhere"– and materials through the support of its Committee on Education (CoE) and the USNC.

The festival, the largest STEM education event of its kind in the United States, had over 365,000 attendees over the course of the event this year. The biennial event is organized to increase awareness about science, technology, and math through hands-on science and engineering activities presented by participating organizations, which is crucial as U.S. businesses are struggling to find talent to fill STEM-related jobs.

In a new incentive to boost community collaboration this year, ANSI and seven participating ANSI member organizations created the "U.S. Standardization System Passport" activity, which encouraged

attendees to collect stamps by visiting each of the eight organizations' festival booths. Over 260 students who presented "completed" passports won a $10 Target gift card for their efforts.

Participating ANSI member organizations included:
- Association for the Advancement of Medical Instrumentation (AAMI)
- IEEE
- InfoComm International
- International Code Council (ICC)
- National Institute of Building Sciences (NIBS)
- National Institute of Standards and Technology (NIST)
- National Nanotechnology Coordination Office (NNCO)

Other giveaways included crayons displaying conformance to the ASTM D4236 standard for safe art supplies donated by ASTM International, an ANSI member and audited designator, as well as notebooks, flyers, and posters created by ANSI.

ANSI regularly contributes to such educational efforts to foster the next generation of professionals, as standards are closely tied to STEM careers. Please visit www.ansi.org/students for additional ongoing educational initiatives.

ANSI/USNC Welcomes New Program Administrator

The USNC is pleased to announce that Kendall Szulewski-Francis has joined

the USNC as program administrator, international policy – USNC/IEC. Kendall has successfully managed a broad range of communications, sales, and business development programs in international, political and philanthropic organizations. Most recently, she was a program assistant for Court Appointed Special Advocates of New York City (CASA-NYC), where her responsibilities included providing leadership and logistical support to the executive

director, enhancing and monitoring CASA's social media presence and online brand identity, overseeing the donor database, and serving as a liaison to the board of directors.
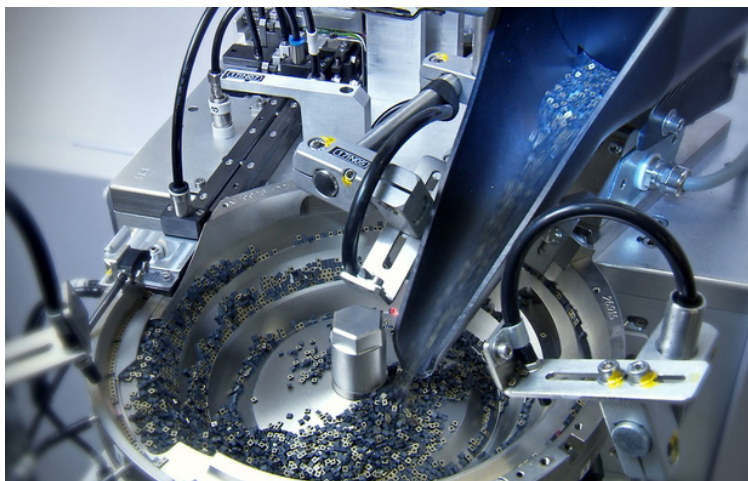
Kendall received a master of arts in international law and bachelor of science in diplomacy and international relations Seton Hall University. She will be working in ANSI's New York office and can be reached at 212-642-4965 or ksfrancis@ansi.org.

Sensors Everywhere: Sensors Are Rapidly Being Integrated in Healthcare and Hazardous Environment Applications

By Alan Hodgson, Chair, IEC TC 119, *Printed electronics*

Originally published by the IEC at http://iecetech.org/etech/Technology-Focus/2016-03/Sensors-everywhere

The decreasing cost of electronic devices and growing access to mobile technology and wireless networks are driving the expansion of the digital economy. Integrating biosensors into this mix could bring great benefits for medical care and for increasing safety in hazardous environments. IEC standardization work will have an important role to play in these developments.

The Sensor Environment

There has been a wide debate in many publications, including IEC's *e-tech* and elsewhere, about the potential importance of the Internet of Things (IoT) – the global network of interconnected embedded objects or devices able to communicate and to generate and share data with one another – and the need for the provision of data to it by sensor arrays. The issue is also covered extensively in the IEC White Paper "Internet of Things: Wireless Sensor Networks." Sensors are a key element of the interconnected world where the IoT is concerned. As well as the provision of information by individual sensor groups, they contribute inputs to the analytics that will shape the future smart world. But sensors can also contribute to future living outside the IoT sphere, interacting in a closed system with other electronic devices.

For example, the proliferation of consumer electronics devices such as smartphones is already changing modern living. Their embedded camera and near

MICRO-ELECTROMECHANICAL SYSTEMS (MEMS) CAN BE FOUND IN COUNTLESS SYSTEMS THANKS TO MASS PRODUCTION (PHOTO: ROBERT BOSCH, GMBH)

field communication (NFC) subsystems can be used to link to external sensor systems that are otherwise unconnected to the outside world. This can extend to sensors that have no intrinsic electrotechnical functionality, such as color-change chemical labels that can be interrogated by the smartphone camera. Utilizing algorithms running on the device, the resulting information is shown to the user on the electronic display.

Some good examples of sensor groups spanning this environment exist within medical and hazardous area monitoring. Applications span clinical, sports, and occupational health and safety sectors.

Sensors for personal care

Sensors in medical devices are not a new concept – they have been a vital part of care within the hospital environment for years. However, until recently they have not been a viable option for personal monitoring outside these highly centralized care settings. Societal trends

such as aging populations have resulted in a need for personal monitoring with sensor systems outside these traditional in-patient care settings. This new generation of sensors could be an enabling technology for a more patient-centric, decentralized health care system.

International Standards are a key element of this, and IEC Technical Committee (TC) 62, *Electrical equipment in medical practice,* will be pivotal to this work. But as we move into an environment of "Sensors everywhere," other IEC TCs will be called upon to make a contribution. For example, the work of TC 21, *Secondary cells and batteries,* is important for power, as is that of TC 119, *Printed electronics, for production technologies.* Wireless communication standards work supports systems placed on (or in) the patient while enabling patient mobility, and ensures the security of their highly personal data. The fabrication technologies from TC 21 and TC 119 bring the technology into ever cheaper and smaller domains, facilitating systems ranging from disposable adhesive patches to reusable on-body devices. And in this mix we may soon see smart medical dressings, making possible the real-time monitoring of wounds for infection and the rate of healing. Such health informatics, the province of ISO TC 215, will in turn drive the delivery of healthcare services to remote locations, in what is called the telemedicine market. The American Telemedicine *(continued)*

Sensors Everywhere *(continued)*

Association projects that this market, estimated at $14.4 billion in 2015, will reach $34 billion by 2020, growing at a compound annual growth rate of 18.6% from 2015 to 2020.

One interesting extension lies in the integration of a number of different sensors together to produce a "bigger picture." Wearable smart devices (currently the subject of an IEC Strategy Group, SG 10) provide an interesting example of this in the form of gait and fall prediction devices. These could be wearable sensors, mounted within the insole of a shoe, monitoring foot pressure distribution and acceleration in a number of planes with a wireless connection. One possible combination is printed pressure sensors and micro-electromechanical systems (MEMS)-based accelerometers, bringing together the work of TC 119 and IEC SC 47F, *Micro-electromechanical systems.* These systems integration tasks, discussed in the January/February edition of e-tech, will be covered by the liaison activities between these Technical Committees.

The issue of gait and fall prediction takes us out of the purely medical application areas and into sectors such as aging populations. However, it also takes us further into diagnosis and therapy regimes, particularly in the area of sports medicine. Athletes' clothing with integrated sensors and skin adhesive patches are all positive vehicles for these sensor arrays, taking the

technology further into other application areas outside personal care, particularly into the area of personal safety.

Sensors for Personal Safety

Sensors continue to be a key element of many personal safety systems. An excellent example is provided by the tiny MEMS accelerometers used in vehicle airbags. However, sensor systems look likely to become much more widespread in the personal safety sector and in hazardous environments. These include:

- **Monitoring personnel safety in high stress environments.** Human performance and wellness monitors are being developed for the military, pilots, and emergency service personnel using wearable technologies. They will require biosensor technologies looking at early warning signs of stress, fatigue, or injury.
- **Respiratory protective devices.** International Standards for these devices are developed by ISO TC 94, SC 15. However, as many of these devices now come equipped with electrical subsystems such as powered fans, the incorporation of electrotechnical sensors in them is logical.

Where Is Graphene?

No discussion of sensors would be complete without consideration of the potential of 2-dimensional materials such as graphene, coordinated within Work Group (WG) 8, *Graphene related materials/Carbon nanotube materials,* of IEC TC 113, *Nanotechnology standardization for electrical and electronic products and systems.* The use of graphene in sensors has been the subject of much research, and this material is considered as ideal for sensor elements due to its attractive thermal and electrical conductivity, its electrical properties, and a large surface to volume ratio. For example, graphene can be very thin while remaining flexible, conductive, and transparent.

Thin layers result in high surface-to-volume ratios and the potential to produce sensor elements for a wide range of biomedical applications. This type of sensor could also find applications outside biomedicine, notably as industrial pressure sensors for areas such as aerospace.

Sensors to Play Key Role in Many IEC TCs' Future Work

The IEC recognizes that sensors will have a key role to play in the work of many of its TCs into the future. The IoT will be an obvious driver in this, but the additional fields of biosensors in personal medical care and sensors for safety in hazardous environments will take the devices into some wider areas. The digital economy, as well as societal trends such as aging populations and the need to keep healthcare costs under control, will continue to underpin these trends well into the future. ⊜

LAUGH TRACK

"My company utilizes a yet-to-be-developed technology to deliver content that's still in the conceptual stage to a segment of the economy we really hope is out there!"

IEC 80th General Meeting Frankfurt 2016 | IEC

An open platform for ideas and visions:

The Reinvention Laboratory

We want your expertise, ideas and visions for the

future of standardization. Join in!

A special forum – in parallel with the standardization policy work level of the IEC General Meeting – dedicated to a lively discourse regarding the effects on standardization of current topics and questions will be provided for the first time by the DKE: the Reinvention Laboratory.

The standardization system is changing. Digitalization is changing our entire environment. Not only does this affect virtually all aspects of the electrotechnical sector, but also the **procedures used to develop standards**. At the same time, **the expectations of the users of the standards are changing** in terms of how the information is made available. The question is how to balance the demands of our fast-moving times with the thorough and often time-intensive work required to achieve consensus. In this context, the Reinvention Laboratory is intended as a forum to present and **discuss a wide range of ideas** and concepts, strategies and visions from the world of standardization.

This is where you come in.

The Reinvention Laboratory needs your active contributions: Your experiences and ideas, your concepts and visions with regard to the key topics for the future of our industry. But also **controversial process-related questions** on standardization and standardization policy,

SAVE THE DATE

Mark Your Calendar for Upcoming Meetings & Events

ANSI
American National Standards Institute

2016

8 – 12 May
Pacific Area Standards Congress (PASC) 39
Bali, Indonesia

17 – 19 May
CAPCC/TMC/Council Meetings
FM Approvals, Norwood, MA

13 June
CAB Meeting, Geneva

14 June
SMB Meeting, Geneva

15 June 2016
Council Board, Geneva

30 August – 1 September
CAPCC/TMC/Council Meetings
IEEE, Piscataway, NJ

10 – 14 October
80th IEC General Meeting
Frankfurt, Germany
Monday 10: SMB/CAB
Wednesday 12: CB
Friday 14: Council

24 – 28 October
World Standards Week
Washington, DC

2017

17 February
SMB Meeting, Geneva

13 June
SMB Meeting, Geneva

13 June
CAB Meeting, Geneva

9 – 13 October
81st IEC General Meeting
Vladivostok, Russia
Monday 9: SMB/CAB
Wednesday 11: CB
Friday 13: Council

2022

24 – 28 October
86th IEC General Meeting
USA

For additional event info, visit www.ansi.org/calendar and search for "USNC" or "IEC."

UPCOMING ISSUES OF THE *USNC CURRENT*

www.ansi.org/usnc

Q II IEC's Lost Boys - Seldom-seen groups, partnerships and issues

Q III Encouraging Leadership / Succession Planning

Q IV IECRE & Renewable Energies