

### ISPCE 2018 Drilled Deeply Into Today's Compliance Issues

by Kevin Parmenter, Chair, and James Spangler, Co-chair, PSMA Safety and Compliance Committee

In the vast world of conferences there are only a handful centric to the areas of safety and compliance as relevant to the electronics field. The annual [IEEE Symposium on Product Compliance Engineering](#) (ISPCE) is one of these events. In fact, for those with a stake in safety and compliance issues (including EMC and environmental requirements) and a need to stay current, it's a must attend event. I (Kevin) was privileged to be among the approximately 250 participants at this year's symposium in San Jose. ISPCE addressed all of the proximate issues in this field.

Among the notable topics discussed at the symposium were risk and hazard management, IEC 60601 4<sup>th</sup> edition EMC, RoHS, WEEE and all things environmental related such as chemical content halogens. Also covered were Hazloc or hazardous location regulatory issues, mechanical safety issues and tests. Even the subject of cyber security, which is being discussed in so many forums, was covered. Here, the perspective was on safety such as ways products could be compromised or made unsafe by hacking, for example.

Several sessions were presented on regional safety and compliance standards in Europe, Africa, the Middle East, Mexico, the Caribbean, China and Central America. These extended to labeling requirements for various global locations. Of course, standards of interest here in the U.S. were on the agenda. For instance, there was a session on the National Electrical code for Division 2 vs Zone 2 protection techniques.

Many talks are by subject area. Two of those of interest to the How2Power audience were the ones on lightning protection techniques and hipot testing. Even more germane were the presentations on "Power Supply Safety Evaluation" and "Certification Challenges for Power Banks". But one of the most relevant and often discussed sessions concerned IEC 62368 compliance, which is the new standard for power supplies replacing IEC 60950, which has been with us for a long time. These are topics we routinely discuss and review in the PSMA safety and compliance committee. (For a full list of the presentations, see the ISPCE 2018 conference schedule below.)



Regional requirements have always been crucial in compliance. ISPCE addresses such requirements in a very focused way. (Images courtesy of ISPCE)

One of the benefits of attending ISPCE is that you get to hear about these standards from the top experts in the field. By that I mean the people who are actually doing the work of getting products through compliance testing and into production and the representatives of the NRTLs (nationally recognized test laboratories) and related test equipment makers. With all of these standards and testing experts gathered in one place, you

can get questions answered on the spot.

Broadly speaking, participating in a symposium like ISPCE is a means to preparing for compliance requirements and approaching them in a logical, planned way. Reflecting on what I have observed in industry, it always amazes me how little time or thought is given to compliance needs during product definition, development and design. So often these requirements do not receive proper consideration until one arrives in the compliance test lab where the customer is being charged \$1000 an hour or more. At that point everyone becomes very open minded for discussion.



Presentations given at ISPCE address compliance in a wide range of application areas, some timely like IoT, and Smart Devices, others broadly popular like medical devices, or very focused like army artillery. (Images courtesy of ISPCE)

Yet many of the costs and project delays associated with compliance lab crises could be avoided with just a modest investment in pre-compliance testing. Probably \$2500 spent on a small pre-compliance area in a lab would pay for itself during the first use. Doing precompliance testing and gaining 90% confidence that a product will pass the first time in the expensive test lab would be well worth the upfront investment.



Some talks were very relevant to power electronics. (Images courtesy of ISPCE)

Unfortunately, there is often no time or resources allocated to these activities UNTIL there is an issue—then budget will be provided. This is a frequent topic of discussion at events like ISPCE where you'll hear the consultants and the labs say how thankful they are that companies are completely reactive when it comes to compliance and see no reason to change. This is also a source of humor for the compliance consultants who get called in for firefighting when money is no object.

At many companies, the status quo on compliance is unlikely to change. But if you can help your organization take a more proactive approach, it should ultimately pay dividends. Whether you are new to product safety and compliance, or an old hand—especially in the power electronics industry—attending ISPCE annually should be part of your pre-compliance preparation. I already

have it on my calendar for next year.

*Editor's Note: If you would like to read more about any of the compliance topics mentioned in this article in a future Spotlight on Safety & Compliance column, email [Kevin](#).*



The ISPCE exhibition features displays by an array of test agencies and test labs as well as test instrument manufacturers. Look closely and you may spot some familiar power supply companies and the PSMA.



...many of the companies participating in the exhibition also gave presentations in the symposium...



...which drew attendees eager to learn about the latest developments in compliance issues affecting their organizations. (Images courtesy of ISPCE)

Table. ISPCE 2018 program schedule.

**PROGRAM SCHEDULE - MONDAY MAY 14<sup>th</sup>**

7:00 AM - 6:00 PM	Registration – Donner/Siskiyou/Cascade Foyer			
7:00 AM - 8:00 AM	Speaker Breakfast – San Carlos			
7:30 AM - 8:00 AM	Continental Breakfast & Exhibits – Donner/Siskiyou/Cascade Ballroom			
8:15 AM - 9:00 AM	Exhibitor Breakfast – San Carlos			
8:00 AM - 9:00 AM	Keynote Speaker – Nancy Leveson – Donner/Siskiyou/Cascade Ballroom			
9:00 AM – 9:30 AM	Coffee Break & Exhibits – Donner/Siskiyou/Cascade Ballroom			
<b>Rooms</b>	<b>San Jose</b>	<b>Santa Clara</b>	<b>Monterey/Carmel</b>	<b>San Juan</b>
9:30 AM - 10:30 AM	Primer on Electrical Product Safety <i>Michael Sherman</i>	TBA	TCO Certified for Manufacturers <i>Sören Enholm</i>	IEC 60601-1-2, 4th Ed - What do I need to do before submitting to the test lab? <i>James Benscoter; Paul D. Evers</i>
10:30 AM - 10:40 AM	Transition/Networking			
10:40 AM - 11:40 AM	Global Market Access: A Proactive Approach to Compliance <i>Theresa Glenna</i>	The Internet of Things - Impacts on regulatory issues <i>Tom Tidwell</i>	EPEAT Registration for Updated IEEE Standards <i>Lindsay Fernandez-Salvador</i>	3 Ways to Simplify Medical Device Testing- IEC/ UL 60601-1 <i>Bishan Patel; Anthony Arroyo</i>
11:40 AM - 1:10 PM	Lunch & Exhibits – Donner/Siskiyou/Cascade Ballroom			
1:10 PM - 2:10 PM	Compliance 101: Electric Shock, Touch Current <i>Peter Perkins</i>	The Role of Third-Party Testing in Securing Industrial Internet of Things (IoT) compliance - Hazardous Locations, Functional Safety & Cybersecurity <i>Matt Jakuc</i>	EU RoHS directive: challenges deriving from exemption rules and IEC 63000 (EN 50581) <i>Eva S. Hink; Marcos Medalla</i>	IEC 60601-1-2 4th Edition EMC and RMF <i>Nicholas Abbondante</i>
2:10 PM - 2:20 PM	Transition/Networking			

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<b>Rooms</b>	<b>San Jose</b>	<b>Santa Clara</b>	<b>Monterey/Carmel</b>	<b>San Juan</b>
2:20 PM - 3:20 PM	Compliance 101: The Basic Requirements for Any Product <i>John Allen</i>	TBA	The US Consumer Product Safety Commission says: Stop Using Organohalogenes <i>Michael Kirschner</i>	**Risk Management Challenges in Medical Application Platforms <i>John Hatcliff**</i>
3:20 PM - 3:50 PM	Coffee Break & Exhibits – Donner/Siskiyou/Cascade Ballroom			
3:50 PM - 4:50 PM	Global Market Access Overview <i>Nicole Tatum</i>	African Wireless Compliance <i>Mark Maynard</i>	As Easy as One Two Three <i>Ted Eckert</i>	Medical Devices and Usability Engineering Process <i>Arathi Sundaresan</i>
4:50 PM - 5:00 PM	Transition/Networking			
5:00 PM - 6:00 PM	The New FCC Supplier's Declaration of Conformity Approval Process <i>Nicholas Abbondante</i>	Radio Equipment Directive (RED) Updates for Wireless and Similar Products <i>Jack Black</i>	**Experiments of DC Human Body Resistance I: Equipment, Setup, and Contact Materials <i>Hai Jiang; Paul Brazis**</i>	Cybersecurity: Is your product really "safe" if you haven't fully considered it? <i>Naysahn Saeed</i>
6:00 PM - 7:30 PM	Exhibitor Reception – Donner/Siskiyou/Cascade Ballroom			

*\*\*Peer-Reviewed Paper  
Best Paper Award Nominees are shaded*

**PROGRAM SCHEDULE – TUESDAY MAY 15<sup>th</sup>**

7:00 AM - 5:00 PM	Registration – Donner/Siskiyou/Cascade Ballroom Foyer			
7:00 AM - 8:00 AM	Speaker Breakfast – San Carlos			
7:30 AM - 8:00 AM	Continental Breakfast & Exhibits – Donner/Siskiyou/Cascade Ballroom			
8:15 AM - 9:00 AM	Exhibitor Breakfast – San Carlos			
8:00 AM - 9:00 AM	Keynote Speaker & Plenary – Necia Werner– Donner/Siskiyou/Cascade Ballroom			
9:00 AM - 9:10 AM	Transition/Networking			
<b>Rooms</b>	<b>San Jose</b>	<b>Santa Clara</b>	<b>Monterey/Carmel</b>	<b>San Juan</b>
9:10 AM - 10:10 AM	Global Hazardous Locations 101 <i>John Chambers</i>	Russia & the Eurasian Economic Union Compliance <i>Mark Maynard</i>	Product Safety Improvements - Legal Ramifications <i>Kenneth Ross and Ted Dorenkamp</i>	**The Development of Proficiency Testing Programme for Electrical and Mechanical Safety Tests <i>Shu-Jun Mak**</i>
10:10 AM - 10:50 AM	Awards Ceremony, Coffee Break & Exhibits- Donner/Siskiyou/Cascade Ballroom			
10:50 AM - 11:50 AM	North American Division 2 Certification in 5 Easy Steps <i>Paul T. Kelly</i>	Testing of Wireless Devices <i>Grace Lin</i>	Component Part Manufacturers vs. OEM - What are the Legal and Practical Duties? <i>Kenneth Ross and Ted Dorenkamp</i>	CCC regulations for Household and similar appliance <i>Aiyng He, Paul Wang</i>

*\*\*Peer-Reviewed Paper*

**PROGRAM SCHEDULE- TUESDAY MAY 15<sup>th</sup>**

11:50 AM - 1:10 PM	Lunch & Exhibits – Donner/Siskiyou/Cascade Ballroom			
<b>Rooms</b>	<b>San Jose</b>	<b>Santa Clara</b>	<b>Monterey/Carmel</b>	<b>San Juan</b>
1:10 PM - 2:10 PM	HazLoc certifications in 90 days (or less)...a piece of cake <i>Gary Kozinski</i>	Kiss-EMC 2018 <i>Jim Bacher</i>	Smart and Connected Devices - Smartphones, Connected Devices, Internet of Things and Drones <i>Ted Dorenkamp and Susanne Wende</i>	South Africa: A closer look at the latest regulatory requirements <i>Theresa Glenna</i>
2:10 PM – 2:20 PM	Transition/Networking			
2:20 PM - 3:20 PM	International Certification for HazLoc Products <i>Polux Sanchez Reyes</i>	Wireless Compliance for Mexico, Central America, and the Caribbean <i>Mark Maynard</i>	Regulatory Update - New Laws and Regulations, Recall Effectiveness and New Directions <i>Kenneth Ross and Susanne Wende</i>	China market access <i>Paul Wang</i>
3:20 PM - 3:50 PM	Coffee Break & Exhibits – Donner/Siskiyou/Cascade Ballroom			
4:00 PM - 5:00 PM	Comparing NEC Division 2 vs IEC Zone 2 Protection Techniques <i>John Chambers</i>	Medical Device EMC Update EN 60601-1-2 4th Edition <i>Jack Black</i>	When Does an Industrial/Commercial Product Become a Consumer Product and How Can You Prevent It? <i>Kenneth Ross and Susanne Wende</i>	Beyond the basics: Save the trauma for when it really counts <i>Lars Mellander</i>
5:00 PM - 6:00 PM	Power Supply Safety Evaluation with Haviland's Load Strength Concept <i>Stefan Mozar</i>	Basics of Lightning Protection for Communication Towers <i>Jim Bacher</i>	**Army Artillery Munition Warhead Explosive Fill Risk Analysis <i>Kevin Singer**</i>	Updates and FAQ on UN 38.3 <i>Rich Byczek</i>
6:00 PM – 7:00 PM	Monta Vista Robotics Team Demonstration - Donner/Siskiyou/Cascade Ballroom			
7:00 PM – 8:30 PM	Chapter Annual Meeting – San Jose Ballroom			
7:00 PM – 8:00 PM	Technical Activities Meeting – Monterey/Carmel			

*\*\*Peer-Reviewed Paper*

**PROGRAM SCHEDULE – WEDNESDAY MAY 16<sup>th</sup>**

Rooms	San Jose	Santa Clara	Monterey	Carmel
7:00 AM - 4:00 PM	Registration – Donner/Siskiyou/Cascade Ballroom Foyer			
7:00 AM - 8:00 AM	Speaker Breakfast – Santa Clara			
7:30 AM - 8:00 AM	Continental Breakfast & Networking- Siskiyou Ballroom			
8:00 AM - 9:00 AM	<b>**Safety Outside the Box</b> <i>Dan Roman**</i>	Effects of Dropping a Battery Powered Device: a Look at the Separator and Electrodes after Drop Testing <i>Troy Hayes</i>	Introduction to Electrically-caused Fire <i>Richard Nute</i>	Labeling and Marking Requirements for Telecom and Electrical Products in Latin America <i>Elizabeth Perrier</i>
9:00 AM - 9:10 AM	Transition/Networking			
9:10 AM - 10:10 AM	Global RoHS <i>Kenneth Starvick</i>	Certification Challenges for Power Banks <i>Rich Byczek</i>	IEC 62368-1: Safety of AV/ICT Equipment - Instructional Safeguards In-depth <i>Thomas Burke</i>	Navigating Global Compliance in Asia <i>Nicole Tatum</i>
10:10 AM - 10:40 AM	Coffee Break – Siskiyou Foyer			
10:40 AM - 11:40 AM	Managing Product Safety Knowledge <i>Mike Sherman</i>	Safety, performance and robustness of smartphone systems <i>Flore Chiang</i>	Understanding and Investigating Burn Injuries <i>Kenneth Lee</i>	Certification Schemes for global countries on Electrical safety and Radio approval <i>Polux Sanches Reyes</i>

*\*\*Peer-Reviewed Paper*

**PROGRAM SCHEDULE - WEDNESDAY MAY 16<sup>th</sup>**

11:40 AM - 12:00 PM	Lunch – Siskiyou Ballroom			
12:00 PM – 1:30 PM	IEC 62368-1 Panel Session Rich Pescatore; Morten Andersen; Thomas Burke; Jeff Pasternak; Bob Griffin			
1:30 PM - 1:40 PM	Transition/Networking			
Rooms	San Jose	Santa Clara	Monterey	Carmel
1:40 PM – 2:40 PM	Fundamentals of FMEA <i>Sergio Hernandez</i>	Electronic cigarette - a safer alternative to smoking or health hazard? <i>Flore Chiang</i>	IEC 62368-1 Panel Discussion <i>Carry-over for further discussion with panelists</i>	Update on product safety regulation in Argentina <i>Silvia Díaz Monnier</i>
2:40 PM – 2:50 PM	Transition/Networking			
2:50 PM - 3:50 PM	On Product Warnings: The Latest Standards, Best Practices and Trends <i>Derek Eversdyke</i>	<b>**Metalized Film Capacitors As Fire Pattern</b> <i>Louis Bilancia**</i>	<b>**Integration of Industry 4.0 and Assessment Model for Product Safety</b> <i>Chi Ho Li**</i>	Risk Assessment of Low Voltage products LVD Directive 2014/35/EU, Annex III,2 <i>Lars Mellander</i>
3:50 PM – 4:00 PM	Transition/Networking			
4:00 PM - 5:00 PM	<b>**Essential Requirements of the Nigerian Information and Communications Equipment Homologation</b> <i>James Kunle Olorundare, MNSE; Adebimpe Olorundare**</i>	Probabilistic Safe-Service Life Assessment of US Army Mortar Weapon System <i>Douglas Ray</i>	<b>**An Automatic RFID Detection based Railway Identification System</b> <i>Hongxu Zhu; Kim Fung Tsang; Chung Kit Wu; Hao Ran Chi**</i>	Innovative approach to proactive maintenance of regulatory compliance approvals <i>Roger Martin &amp; Pat Dugan</i>
5:00 PM - 5:30 PM	Closing Session and Wrap-Up – Siskiyou Ballroom			

*\*\*Peer-Reviewed Paper  
Best Paper Award Nominees are shaded*

## About The Authors



*Kevin Parmenter is an IEEE Senior Member and has over 20 years of experience in the electronics and semiconductor industry. Kevin is currently vice president of applications engineering in the U.S.A. for Excelsys, an Advanced Energy company. Previously, Kevin has served as director of Advanced Technical Marketing for Digital Power Products at Exar, and led global product applications engineering and new product definition for Freescale Semiconductors AMPD - Analog, Mixed Signal and Power Division based in Tempe, Arizona.*

*Prior to that, he worked for Fairchild Semiconductor in the Americas as senior director of field applications engineering and held various technical and management positions with increasing responsibility at ON Semiconductor and in the Motorola Semiconductor Products Sector. Kevin also led an applications engineering team for the start-up Primarion where he worked on high-speed electro-optical communications and digital power supply semiconductors.*

*Kevin serves on the board of directors of the [PSMA](#) (Power Sources Manufacturers Association) and was the general chair of APEC 2009 ([the IEEE Applied Power Electronics Conference](#).) Kevin has also had design engineering experience in the medical electronics and military electronics fields. He holds a BSEE and BS in Business Administration, is a member of the IEEE, and holds an Amateur Extra class FCC license (call sign KG5Q) as well as an FCC Commercial Radiotelephone License.*



*Jim Spangler is a Life Member of the IEEE with over 40 years of electronics design experience and is president of Spangler Prototype Inc. (SPI). His power electronics engineering consulting firm's priority is helping companies to place products into production, assisting them to pass government regulations and agency standards such as UL, FCC, ANSI, IES, and the IEC.*

*For many years, he worked as a field applications engineer (FAE) for Motorola Semiconductor, On Semiconductor, Cirrus Logic, and Active Semiconductor, assisting customers in using semiconductors. He published numerous application notes and conference papers at a variety of conferences: APEC, ECCE, IAS, and PCIM. Topics included power factor correction, lighting, and automotive applications. As an FAE, he traveled internationally giving switch-mode power supply seminars in Australia, Hong Kong, Taiwan, Korea, Japan, Mexico, and Canada.*

*Jim has a Master's Degree from Northern Illinois University (NIU), and was a PhD candidate at Illinois Institute of Technology (IIT). He taught senior and first-level graduate student classes: Survey of Power Electronics, Fields and Waves, and Electronic Engineering at IIT and Midwest College of Engineering.*

*Jim is a member of the IEEE: IAS, PELS, PES; the Illuminating Engineering Society (IES), and the Power Sources Manufacturers Association (PSMA) where he is co-chair of the Safety and Compliance Committee.*