The EMC Standards Process and a Committee that Advises Standards Developers

For this issue, we asked the new EMC Society Vice President for Standards, Ed Hare, to give his view of standards activity for 2018 and how our readers can be engaged in the standards development process. Ed captures the use and importance of standards to serve industry. He reaches out to those interested in standards topics, which he identifies in Table 1 below. For direct communications with Ed, send him an email on w1rfi@arrl.org. The rest of this column describes “hot topics” discussed in the meeting of the International Electrotechnical Commission (IEC) Special Committee on Radio Interference (CISPR) held in Vladivostok, Russia in October. The reader will see a short summary of what the CISPR subcommittees are discussing that will lead to drafting new standards or amending existing standards. The issues range from control of emissions from wireless power transfer devices to determining if emission limits should extend in frequency above 6 GHz up to 40 GHz. In a separate article, the chair of the committee presents the process to seek travel cost reimbursement to attend standards meetings as part of the IEEE Foundation Travel Grant. This is yet another way to participate especially at standards face-to-face meetings. So look it over to see where it might help you to attend our EMC Society standards meetings.

Industry Standards: The Process is Created for You!

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My term as the EMC Society Vice President of Standards began in January of 2017. I spent the first few months getting organized, and getting ready for meetings of the EMC Society Board of Directors, but now that my feet are wet, I want to use this opportunity to write a series of articles that will appear in this magazine from time to time, explaining the standards process. This article is a bit of introduction and an open door to let you know that the process of creating a standard is accessible to you, the practicing engineer that wants to make a difference in the world.

Standards Are You!

Almost everybody in engineering, especially within the discipline of EMC, has used or read part of one or more industry standards. When we look at these standards, we envision some mysterious and exclusive process by which they are created, by secret and anonymous geniuses that have wisdom beyond the ken of average and mortal engineers.

This is far from the case. The reality of the process is that ordinary engineers that choose to come together to document practices and technology that represent the common ground between sometimes very diverse needs and interests create standards.

What Is An Industry Standard?

We all use these standards, but what are they, really? Although some standards do break new ground, they are not the esoteric and
somewhat abstract and theoretical scientific papers we often read in our peer-reviewed journals. Standards explain how those theoretical principles are applied in the real world, offering practical, systematic processes that are the “doing” part of engineering. They are, perhaps, the most practical documents in all of engineering, turning theory into action and describing, well, standardized ways of manufacturing, testing or using real-world products in practical ways. They create opportunities for products made by different manufacturers to work together, or sometimes, in the interoperability standards, to work together cooperatively to allow everyone to share and use the same playground without excluding anyone.

Cooperation Is Key

Standards are not the same as a manufacturing specification. In specifications, a manufacturer or group of manufacturers may gather and work together to create a document that defines its products. This is a necessary part of industry specifications, but standards are more—a lot more. Standards are created when working groups comprised of a broad range of stakeholders gather to find their common ground. The diversity of stakeholders in this process is no accident; the process, in which the entire standards process from start to finish is required to include diversity, available to and including a broad range of stakeholders, mandates it. Standards Development Organizations (SDOs) each have their own processes, but they all have in common the need for openness, access and, most importantly, a balanced and diverse inclusion of stakeholders in which no single category of stakeholders can dominate.

It Is Not “Majority Rules”

Standards are not created by a majority vote of stakeholders. Instead, standards require consensus. Consensus is not a majority, nor is it unanimity. Consensus is a process by which this diverse group finds a state in which nearly all agree (sometimes actually all) on the outcome, with standards processes requiring a supermajority of stakeholders in a working group to agree that a standard is ready to be balloted, and a supermajority of the balloting group agreeing that the standard is correct. But the process goes even deeper that in being inclusive, because as a standard is balloted, all comments by all stakeholders, including the minority, must be considered, and accommodated if possible. (Sometimes, that agreement cannot be reached, so consensus may not be unanimous, but SDOs do require that all input be considered and addressed in some way.)

The result is a product that usually attains a high level of acceptance by all stakeholders, turning adversity into cooperation that allows products to work better and brought to market faster.

It Starts With You!

Standards usually arise from the ground up. Industry sometimes decides that it needs a standard, so a manufacturer or manufacturing group may propose that a standard may be created. In other cases, and this is who this article is really written for, one individual engineer may have a great idea that he or she thinks would make a great standard. Although the standard will ultimately be created by a consensus of stakeholders, that one individual can be the initiating force that gets it all started, and I have seen this happen again and again in my decades of standards work. Your ideas can become standards, and are needed by the process.

Standards Development Organizations

Standards are really created by Standards Development Organizations (SDOs). The words make it sound mysterious, but SDOs are simply groups that oversee the development of standards. The IEEE Standards Association (SA), for example, is an SDO. SDOs created processes that define how its standards will be developed, with all the needed oversight and checks and balances. SDOs usually have subgroups called “sponsors,” comprised of individuals who will oversee the process and ensure that it is followed. In the EMC Society, the Standards Development and Education Committee (SDECom), a group that has the dual purpose of sponsoring standards and working on standards education, sponsors standards.

Working Groups

Standards are developed by working groups. With Project Authorization Request (PAR) approval by the IEEE SA Standards Board, a working group is defined and it can officially begin its work to develop or write the standard. Working groups are open to all who are willing to participate, and obtain membership as long as they meet the participation requirements set out in the working group policies and procedures document, and have technical expertise, knowledge and dedicated interest in the technology described in the standard. For individual standards projects, IEEE or IEEE SA membership is not required to participate.

SDOs like to see working groups created from as wide a variety of stakeholders as possible, although balance can be hard to obtain. As long as the process is open to all who want to participate, the balloting process assures that a group with a broad range of interests ultimately approves the standard.

The Process: Step-By-Step

More detailed information on how a standard is developed is available on the SDECom web page. (See Figure 2.) Nevertheless, this overview explains the highlights of the process.

To form a working group, after the initial participants agree that they want to develop a standard, they usually identify someone willing to become the Chair of the working group. The ad hoc Chair or other working group representative approaches a sponsor and asks if it would be willing to sponsor a standard. For EMC standards, SDECom can be contacted through its Sponsor Chair, or through me, as the Sponsor Representative on SDECom.
IEEE Project Authorization Request

To initiate a standard project under the EMC Society, the work needs to be sponsored (overseen) by SDECom, which holds the responsibility for the scope and content of a proposed standard. The working group would then submit a Project Authorization Request (PAR) to obtain approval from the sponsor and by the IEEE Standards Association Standards Board (IEEE SASB).

A PAR is a legal document and the means by which a working group assigns copyright to and indemnification from IEEE. Every PAR that is submitted must have a sponsor to oversee the project. A PAR is a document that states the reason for the project and what it intends to do.

Links to download the form are on the “Help for Standards Developers” link on the SDECom web page. The sponsoring committee then takes a vote to approve its sponsorship and the PAR is then sent to the IEEE New Standards Committee (NesCom), for their review and for their recommendation for approval by the IEEE SASB. Once approved, the working group can formally begin its work, under the oversight of the sponsor. Most PARs have a lifetime of three to four years, so there is plenty of time for standards to be written by people that are essentially volunteers. The draft standard will ultimately be balloted by a group of stakeholders, all input considered and a product will come out that represents a broad consensus and wide acceptance.

The EMC Society Needs You!

As you can see, it is not really difficult or mysterious to take your good ideas about technology, or an industry need to standardize its practices, and turn those into standards. The SDECom leadership and I are always glad to hear from people or entities that want to develop standards, so your good ideas can be made into standards, with no more needed than the work to get it done. Although technical expertise is needed to develop a standard, they are practical applications of technology that are typically developed by working engineers, so what you do in your daily work is exactly the expertise needed.

Table 1 - The EMC Society has 13 standards under development or revision. You can help!

<table>
<thead>
<tr>
<th>Std.</th>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>187</td>
<td>FM and TV receiver emissions</td>
<td>In sponsor balloting process</td>
</tr>
<tr>
<td>473</td>
<td>Site Survey</td>
<td>Work underway, Vice Chair and Secretary selected, interested parties identified. PAR expires 2020</td>
</tr>
<tr>
<td>1128</td>
<td>RF absorber</td>
<td>Drafting assignments. May seek APS cosponsor.</td>
</tr>
<tr>
<td>1302</td>
<td>Conductive gaskets to 40 GHz</td>
<td>On target for April 2018 balloting</td>
</tr>
<tr>
<td>1597.1</td>
<td>Computational electromagnetics</td>
<td>On target for April 2018 balloting. Being revised. May need to request PAR extension.</td>
</tr>
<tr>
<td>370*</td>
<td>Characterization of PB boards and interconnects to 50 GHz</td>
<td>3 task groups, on target, but will need to be fast-track, 3 meetings at Symposium</td>
</tr>
<tr>
<td>1848*</td>
<td>Manage EM disturbance risks</td>
<td>Most text drafted, being finalized, copyright issues with IET being resolved</td>
</tr>
<tr>
<td>2425</td>
<td>Instrumentation in nuclear facility</td>
<td>Need reporting</td>
</tr>
<tr>
<td>2710*</td>
<td>EM shielding for portable electronic devices</td>
<td>On target</td>
</tr>
<tr>
<td>2715</td>
<td>Shielding effectiveness of planar materials</td>
<td>On target</td>
</tr>
</tbody>
</table>
Currently SDECom has 13 standards under development of revision, plus a need to update a few of the current standards, so there is plenty of opportunity for you to apply your engineering knowledge to help create standards that are part of what moves technology forward. Read the information on the SDECom web page to learn how to get started!

SDECom has the dual purpose of sponsoring standards and working on standards education. Currently SDECom has 13 standards under development or revision. The committee meets annually during the IEEE EMC + SIPI Symposium.

IEC International Special Committee on Radio Interference (CISPR) Meets in Vladivostok, Russian Federation

By Don Heirman, Immediate Past Chair, CISPR

The International Electrotechnical Commission (IEC) national committee of the Russian Federation hosted the annual General Meeting of the IEC where the International Special Committee on Radio Interference (CISPR) had its meeting at the same venue in Vladivostok, Russian Federation. The venue was the Far Eastern Federal University (FEFU) Congress and Exhibition Center on Russky Island. Bettina Funk of the Swedish Post and Telecom Authority chaired the CISPR plenary meeting. The author of this article is a member of the CISPR steering committee and immediate past chair.

These meetings have historically been held over a two-week period. This year it was reduced to a week as a trial to see if sufficient business could be accomplished. This article will focus on key issues and reports that were presented over a full day (half a