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Inside: Cracking The China Market



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Cream and sugar with that? [continued from page 2](#)

expensive outcome over improper mixing of the two measurement systems mortally affected the 1999 mission of the Mars Polar Lander, which landed a bit, uh, “hard” on the Red Planet. This, because engineering data were sent to the navigation computer in units of “pounds” of force rather than units of “newtons.” Rockets were fired too hard/soft and a \$165 million spacecraft disappeared; destroyed during a year marked by other notable NASA mission failures. (Maybe if the data were converted to firkins, first?).

Thus it is critical to have a central point of reference. Today, the notion of “determining compliance”, “conformity assessment”, “certification”, etc., all spring from a common understanding of two things:
1) What quantities are important? and
2) How do we accurately measure that quantity twice?

This extends to testing and conformity assessment, where environmental conditions are monitored during testing to assure that each piece of equipment gets tested in the same way every time.

In the measurement business, we’ve sliced and diced electrical parameters to the point where squabbling over 0.1 dB (about 1.1%) of accuracy consumes aficionados of measurement uncertainty. We would rather squabble over pottles any day.

Test sites are defined in exact terms with performance specified as “site attenuation”. The application of test waveforms are determined by committees and standards-experts. New ISO guides for laboratories (ISO 17025) call out intra-laboratory comparisons. This is to assure consistent readings from lab-to-lab.

It’s a work-in-progress across multiple disciplines. Methods of all manner of quantities are equally scrutinized. Take the measurement of environmental contaminants, for instance. A flap developed recently over asbestos contamination after the World Trade Center collapse because two different measurement methods were used; results were inconsistent, based on the two methods. This begs the follow-on question of the threshold of “safe” versus “unsafe”. In our field, the questions of electromagnetic and RF exposure hazard levels provoke ongoing controversy. How much is too much? How does one decide the standard for nebulous effects?

Standard Methods. Equal Treatment. Consistent results. Those are the goals. It might take some time, so but how ‘bout a cup of coffee, first. Latté anyone?

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T&E Update

Testing • Engineering • Consulting

Issue 18



開拓中國市場：
產品的安全性和電極磁性配合。

Cracking the China Market: Product Safety and EMC

The effects of China’s accession into the World Trade Organization (WTO) has had practical effects on the approvals process for products entering the Chinese market. These effects have been primarily beneficial, with a medium-to-long term upside that the regulations will be more clearly defined for American exporters seeking to make the most of the market potential in a country with 1.4+ billion people.

Several re-configurations, mergings, and melding of agencies has occurred in the past year. The intent is to provide a better-defined conformity assessment regimen for importers and (ostensibly) Chinese manufacturers as well.

Previous conformity assessment schemes involved registering products under the CCIB program, which covered 139 product sectors, and was required for all products that were imported under those sectors. Another conformity assessment process was covered by the Great Wall Mark, which was required for 7 categories of products (primarily targeted at electrical consumer product such as TVs, audio products and air conditioners).

Hence, China has merged two agencies—the **National Standard Body** and the **Import and Export Commodity Inspection**—into the **AQSIQ (State Agency of Quality and Quarantine)**. A new unit within AQSIQ, but with semi-autonomous status, the **Certification and Accreditation Administration**, has merged the CCIB and Great Wall Marks into a new product approval mark, the so-called **CCC (China Compulsory Certification)** mark, which covers 132 product types that supersede the former categories under the old regimen.

The CCC mark is in a transition period (from May 1, 2002) which ends on May 1, 2003), at which time all covered products must comply with the new marking scheme. Apparently, the new system is working, although a great deal of confusion abounds regarding whom to contact and what the specific requirements might be. To assist importers, the Chinese government has issued 47 regulations on the new process that outline the new system and provide further direction, published in the form of booklets.

The 47 Implementing Regulations,

detailing standards and requirements for CCC certification on a sector-by-sector basis, are available—many in English—from the Chinese government. They can be ordered directly from the Chinese government at <http://www.cqc.com.cn/wenjianguicqc-note/zhengdztz-e.htm>.

To offer some perspective, the confusion and contortions can be forgiven considering the rapid advancement of China’s economic infrastructure in the past 20 years. Whereas Chairman Mao Ze Dong was (is) the hero of the revolution and is regarded as the father of Communist China, Jiang Zemin and Deng Xia Peng are highly revered as the patriarchs of the New Economy China. Ideologues idolize the former; Chinese ‘capitalists’ carry the example of the latter. After decades of disastrous central economic direction—not to mention the focus of the world after the Tiananmen Square incident of 1989—the need to feed their people has driven the reality of free market reforms. The push is SME (Small and Medium-Sized Enterprises); this is, in their central estimation, a necessary component of economic vitality. This has unleashed an innate orientation

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Cream and sugar with that?



Cup of coffee? What size?? Grande? Tall? Give me your standard venti.

But how many ounces—or is it milliliters are in that measure? Not a question of import requiring much debate, but mix standards in some circumstances and disaster may result. Thus, this article touches on some of the historical aspects of Standards.

Standards. **Whoa!** Before you turn the page, let us lay out our short case for how some standards got to be, and how they affect our daily lives and work, and by which big and small events are influenced. Just as many of us wouldn't start the day without a cup of joe, we couldn't get through our day without using, or being affected by standards.

For our clients that make use of the CE Marking for their products, economic globalization is ALL about development and use of standards. In the electronics business, the bottom line is that common compliance standards have allowed US manufacturers to export to countries previously inaccessible, giving a distribution range to products that was unthinkable 10 years ago. This is because

of the efforts put into International Standards and Harmonization of technical requirements. This, in turn, benefits consumers and users of equipment, giving them wide access to products from all over the globe.

But it wasn't always this way. James Madison, in 1785, observed that: "Next to the inconvenience of speaking different languages is that of using different and arbitrary weights and measures." In those bygone days in England, for example, the use of the "pound"—for weight and money—had three different measures in general use. And weight could be measured in terms of *cloves, stones, hundredweight* and *sack*. For capacity, there were *potles, gallons, bushels, firkins (?)*, *stakes* and *cartloads*. Methinks that *boatload* and *s***load* were not commonly used (or maybe, like today, are less "formally defined" measurements.)

Accurately measuring time, so important in navigation, formed the basis for other standardization efforts. For instance, Galileo discovered a connection between the length of a pendulum and its period. Further study by Gabriel Mouton showed that the period of a pendulum varied with the *latitude* where the pendulum as placed. This forged the connection between the measurement of angles (degrees, minutes, seconds) to the beating of the pendulum and could then be used to standardize the measurement

of length, defined as the 'length of a pendulum that beat precisely one second at a latitude of 45 degrees' (halfway between the equator and the poles). Thus were space and time simply linked (until Einstein's theory of relativity complicated this relationship).

Early in our nation's history, Thomas Jefferson, amongst his other legendary exploits, produced the *Report on the Subject Establishing a Uniformity in the Weights, Measures and Coins of the U.S (1790)*, which started from an effort to harmonize weights and measures for the new nation. Further work in standards led him to force the "standard of measure" be defined as a "uniform cylindrical rod of iron, and in a cellar, or other place, the temperature of which does not vary through the year, shall perform its vibration in small and equal arcs, in one second of mean time." Verily, it was recognized that controlling temperature was required to stabilize the standard length.

Heritage drove the Standard Railroad Gauge (distance between the rails) to be the oddly-defined 4 feet 8.5 inches, which is based on a historical evolution dating back to horse-and-cart days.

It is likely that our view of the quaintness of such measures will be echoed by future generations who will puzzle over our acceptance of the co-existence of English and Metric systems. One

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What's this point?

The superiority of the metric system, based on multiples of tens, rather than fractional arithmetic, was fermented by the decimal, which entered the scene after 1585. The concept was "invented" by Simon Stevin of Belgium in his 36-page booklet *The Tenth*, which was eventually translated into English in 1608 when the word "decimal" entered into the English language. Earlier systems relied on fractions: difficult, unwieldy, prone to arithmetic errors. The decimal "point" itself was not invented by Stevin, who instead, used a

series of superscript above the numbers to indicate value in tenths, hundredths, thousandths, etc.

In his work, Stevin advocated the use of the "tenth" in banking, surveying, astronomy, moneymaking, winemaking and a multitude of other worthy tasks. Certainly, this eased arithmetic, statistics, interest-rate determination, etc., and had a profound impact on commerce in general.

At this point, the transition to a decimal

point was straightforward and promulgated by John Napier (inventor of logarithms—another indispensable EMC mathematical tool). He inserted a "decimal point," linking the representation of numbers with Hindu-Arabic system, paving the way for what seems like a natural, standard, way to count, measure and quantify (but was only discovered some 400 years ago).

Portions adapted from The Discoverers by Daniel Boorstin. First Vintage Books. 1985



ANNOUNCING

2003 Testing Workshop Series

The 2003 schedule of free workshops at Washington Labs is now set - plan now to attend at least one! These popular seminar/practical workshops will include demonstrations, guest speakers, the latest EMC and Safety compliance news, and lunch!

Customized seminars and/or practical lab programs are also available to meet your company's specific needs. Call for more information.

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Designing to Avoid EMC Problems Down the Road

Watch as our Gaithersburg Lab engineers demonstrate several testing techniques that uncover EMC flaws in electrical and electronic equipment- problems which can be avoided before the testing stage. You'll have the opportunity to "get specific" with the engineering staff on particular problems you may be encountering with current R&D designs.

FREDERICK LAB
MAR 14, JUN 6, OCT 17

Hands-On Safety Compliance

Join us at our lab in Frederick for hands-on practical workshops to assist you with Product Safety Compliance. You'll not only hear and learn about the design tips and information to help you with new product design to ensure safety- but you'll roll up your sleeves and work with practical demonstrations and test simulations- all geared to provide you with a 3-D picture of designing for compliance.

Each workshop will have a specific theme and guest speaker! Be sure to register early as positions fill up quickly. Call Patty or Ann at 800-839-1649 to register today.

Through the past darkly

Streamlining standards and harmonization of requirements have led companies to greener foreign pastures. As one of our customers put it: "It is much better than it was ten years ago." Although the challenges associated with figuring out foreign regulations abound, to put it in perspective we have prepared the following write-up to offer some review of past and present regulatory structures.

First, it is important to realize how big the US electronics export industry is. The following discussion shows the size of the electronic market for the past five years. The dip between 2000-2001 has been palpable in some sectors, but overall, EMC and safety regulations leverage a huge market.

10 Years Ago: Old Regimen: EMC and Safety

In the past, the main feature of foreign compliance involved country-by-country requirements and specific rules for those markets. In that regimen, there was little market-to-market correspondence between regulations. Individual EMC and safety requirements were the norm.

Essentially, the only market that had some sort of regulatory structure was (surprise) Germany. The BZT actually had published (VDE) limits, a reporting system, and a way to get products accepted. The large German presence in the U.S., in the form of the various TUVs that abound, also provided *some* way to get a safety approval. The rest of Europe, however, hid behind a dark curtain.

And we haven't even mentioned the lack of coordination in RF (transmitter) regulations and a near-impossible conformity assessment process under the old TTE Directive.

So, even if you could figure out the reg-

...great strides have been made to make international trade a real possibility for companies of all sizes.

ulations to begin with, the amount of time, manpower and money required to enter a market basically left the playing ground open only to manufacturers with sufficient compliance resources and an in-country presence.

Thus, the small-to-medium size companies were left to watch and wonder what they were missing.

Now: Harmonized Regimen

The impact of International Standards (IEC, CISPR, mainly) have led the way for harmonized regulatory systems. Even where there is a lack of regulatory systems (particularly in developing nations), the IEC/CISPR Standards are often accepted. And thus, the watershed event (which was a near decade-long process, in reality) was the abolishment of individual regimens in the European Union and the implementation of Harmonized Standards and the CE Marking.

This has leveraged the dollars expended

in conformity assessment tremendously. This has made the European market accessible to small- to medium-sized manufacturers. Ten years ago, if a manufacturer wanted to place products in multiple markets for a reasonable cost, the response would have been a shrug and a wish for good luck.

RTTE Directive About-Face

As stated before, the original structure made access for Radio and Telecom products nearly impossible for most manufacturers. There were several reasons for this: country-specific technical specifications; tariff issues; bureaucratic barriers.

The Radio and Telecommunications Terminal Equipment Directive 99/5/EEC represented a radical departure (a virtual 180° turnaround) and the allowance for a manufacturer to issue a self-declaration to harmonized standards. No longer would equipment manufacturers HAVE to apply to a Notified Body (for many products, anyway).

With this background as a perspective, we asked the following set of questions to four of our clientele. From these discussions, we collected the following feedback from "Users" of the Global Conformity Assessment System.

User 1: Power Conversion Equipment Manufacturer

Product type? Power Conversion
How many countries do you export to? 5
Proportion overseas? 15-20%
Barriers? Communication about requirements over and above the CE Marking (Europe). Difficulty lies in figuring out what is required, and if it is applicable. Reference to non-applicable requirements (heritage specs). For example, their application is power

plants and apply to the overall plant but not to their specific product. *What kind of technical hurdles do you have to overcome?* Not many. Hazardous location certifications needed recently applying to an overall installation.
Are you aware of the government's MRAs? No. China is confusing. The Chinese don't know what is applicable.
What would simplify your life? Standard technical requirements between countries.
Particular Experience? Mostly good ones. Company has a good reputation so competition and price is more a barrier than anything.

User 2: Radio Communications Manufacturer

How many countries do you export to? 8 - 10
Proportion overseas? 25%
Barriers? Need for export license
What kind of technical hurdles do you have to overcome? Technical Specifications and end use are not exportable.
Are you aware of the government's MRAs? Yes; no impact on day-to-day.
What would simplify your life? Better understanding of specification compliance issues for commercial items, the State Department and export personnel are difficult to understand and deal with.
Particular Experience? Difficult to obtain a license for our type of equipment for dual use (commercial and military). Products require ITAR (International Traffic in Arms Regulations) arms export license.

User 3: Telecommunications Manufacturer

How many countries do you export to? (3) Taiwan, EU, Australia
Proportion overseas? < 10%
Barriers? Australia: learning requirements, i.e., understanding the "nuts & bolts" of maintaining the approval. Not technical, but administrative; who's responsible?
What kind of technical hurdles do you have to overcome? Not technical; internal corporate marketing not understanding what is salable overseas. "Don't sell what I haven't tested!" Making commitments without the evaluations being performed. Keeping products in a

current-compliant state ready for sale.
Are you aware of the government's MRAs? Yes, but no day-to-day impact
What would simplify your life? More assistance from the government. More usable "discrete" information and "How-to". "US Trade Site" not helpful.
Particular Experience? Different power systems and design requirements for particular markets

User 4: IT Manufacturer

How many countries do you export to? 42 Export Countries
Proportion overseas? 60%+
Overseas Brazil, UK
Barriers? Seemingly "arbitrary" change in requirements. Example: China CCC mark is new and the importer wants to have the approval (but can't get there from here). What standards to be applied? What are regulatory bodies looking for? Additional factory inspections? Looking for interagency cooperation.
What kind of technical hurdles do you have to overcome? "So much better now than it was 10 years ago." Particularly with regard to safety standards. Latin America favors UL reports and CB scheme is working.
Are you aware of the government's MRAs? Not sure of impact. If it means that he can cut down on the number of independent investigations, that would be great.
What would simplify your life? Single point of contact. Single investigation. Single report. Single Factory Inspection. Easier and cheaper. Current regimen has decreased agency costs by 60%. One-stop shop for US, Canada, EU and CB Scheme.
Particular Experience? Installing TV filters on houses in Denmark. Tightening of certain regulations would have great cost impact, for example, requiring Class B compliance across the board.

In summary one could say that great strides have been made to make international trade a real possibility for companies of all sizes. There's more to do, particularly with regard to developing countries where the regulatory mechanisms are still a work in progress.

Cracking the China Market

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towards private enterprise.

The U.S. Department of Commerce, in response to the potential new trade that could spring from the re-alignment offered by the new requirements, has increased its focus on China Standards and Certification issues, and is closely following changes in the system and their impact on US Exporters. They are available to provide assistance and research to US manufacturers.

The short prescription is to:

- Determine if your product is on the list: (Web Site).
- Obtain implementing regulations to determine specific requirements for your product.
- Apply directly to CNCA for certification, or consider using a standards consulting firm to help guide you through the process (about one-third of U.S. exporters use a consultant; another third, primarily large U.S. exporters, use their own in-house experts, and a third, primarily smaller companies, do it themselves).

Further assistance can be obtained from our friendly government resources, namely

Timothy Wineland
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UL Standards Update for Medical Devices

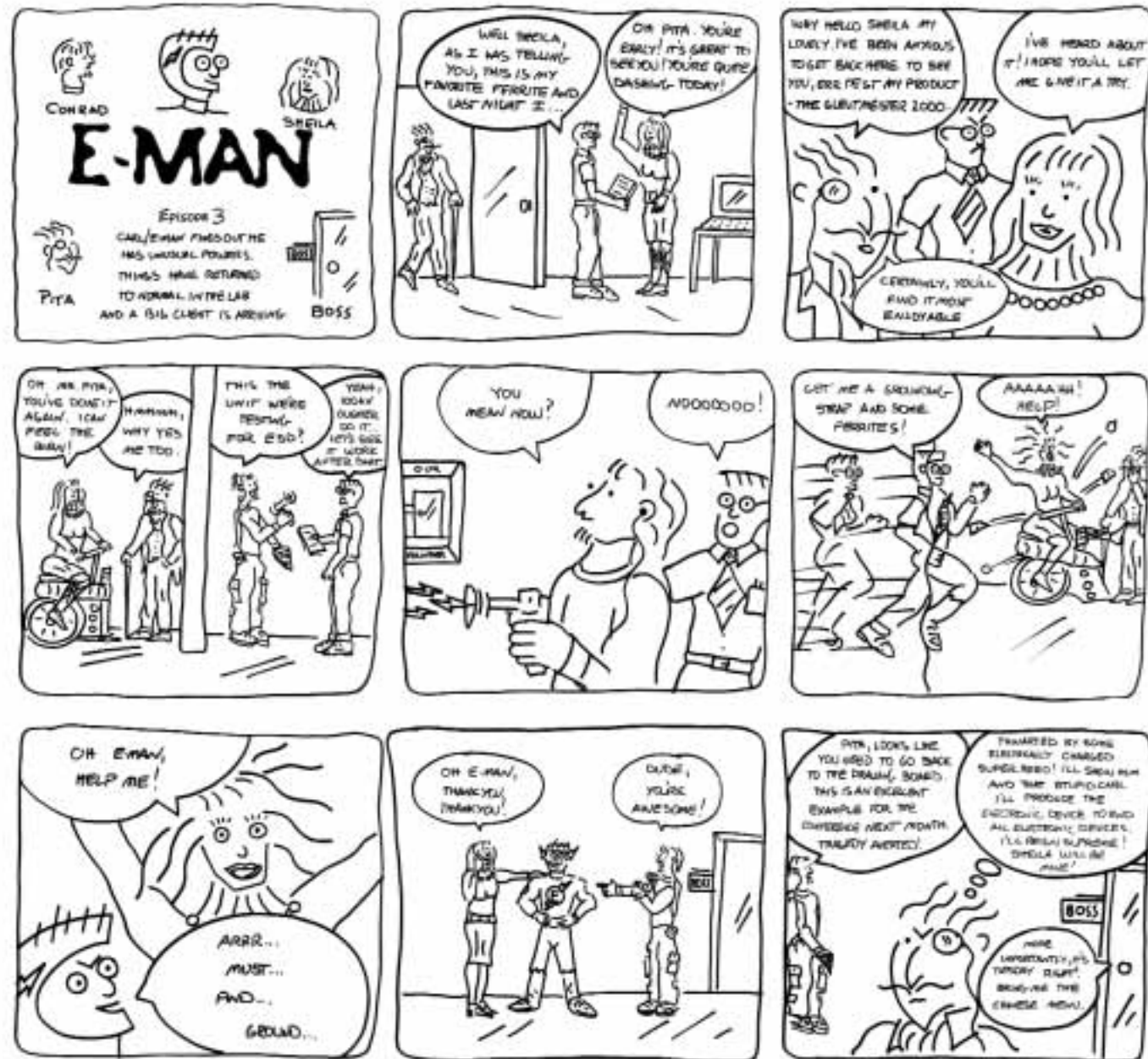
Reminder of Effective Date for Withdrawal of UL 544 and UL 187
 UL announced in its bulletins dated June 7, 1994 and May 10, 1999, the schedule that would apply for the withdrawal of UL 544 and UL 187, the Standard for Medical and Dental Equipment and the Standard for X-Ray Equipment, respectively. These standards will eventually be replaced by UL 2601-1, the Standard for Medical Electrical Equipment; Part 1—General Requirements.

UL's previous bulletins stated that UL 544 and UL 187 could be used to evaluate medical

and dental products until January 1, 2003, after which UL 2601-1 will be exclusively used for the evaluation of new products. As of January 1, 2005, all Listed, Classified and Recognized medical and dental products, where UL 544 or 187 was used to evaluate the product, must comply with UL 2601-1. It is the manufacturer's responsibility to re-submit these products to UL (for UL 2601-1 evaluation) if UL coverage is to be maintained. The UL coverage will be terminated for those products not found to comply by January 1, 2005.

Date Action
January 1, 2003 New products will be evaluated to UL 2601-1
January 1, 2005 All products comply with UL 2601-1 UL 544 and 187 withdrawn

The first implementation date is now less than one year away and UL recommends that manufacturers contact us as soon as practical to develop strategies for their products and the coming transfer dates. An early approach to this work will result in the smoothest transition, with lowest costs and least impact on the manufacturer's production.



Curtain Up, Light the Lights. . .

Employee Spotlight—Brian Dettling



Brian attended college at Long Beach State in California and he has two children still enjoying their teen years. His daughter, Holly, is almost 18 and his son, Eric, is 16. Brian and his significant other, Jane (also a technical writer and theatre person), live right here in Gaithersburg.

His acting credits include roles such as Ebenezer Scrooge in "A Christmas Carol", Bill Sykes in "Oliver!" in

Meet Washington Labs' own thespian, Brian Dettling. Well, in his off hours that is. During the day Brian is one of our Documentation Specialists - the man that writes and edits the test reports once testing is complete. His focus is on the EMC side of the house, and that means he has lots of client interaction and follow-up to ensure that all reports are the best they can be. He also works with our clients to compile the application packages for FCC and Industry Canada Radio Certifications, and is one of the main contacts with our sister company, AmericanTCB.

Before joining WL in May of 2000, Brian lived in California where he worked as a contractor for the Navy's Air Systems Command as a technical writer for Weapons Development. His main assignment was the "Insensitive Munitions" program where the Navy worked on making air-launched weapons safer to handle when not in detonation mode. (This experience has come in quite handy at times in our own lab!)

Along the way, Brian also worked as a commercial artist in the advertising and visual arts industries doing graphic production, and as a journalist.

Our very own Noel Coward

California, and most recently as Uncle Max in "The Sound of Music" for community theatre here in Maryland. Another interesting note - Brian helped form a western gun-fighting show while in California that is still in operation today. (Here again, this experience can help us in the lab.)

Theatre and technical writing? - actually a likely combination. Brian gets "left-brain" creative satisfaction when on stage and "right-brain" technical satisfaction as he processes our reports. Our very own Noel Coward.

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