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'Macro' and 'Micro' Engineering are Growth Areas

Gary Breed
Editorial Director



One thing about my job that is both necessary and fun is trying to figure out changing trends in the engineering profession. One of the clear trends is the amount of effort and expertise being dedicated to the extremes of physical scale—from atomic level IC design and fabrication to worldwide wireless communications network design and management.

The differences have always been around. I remember serious discussions over circuit design versus system design, with each group touting their role as being the most important. Of course, we all know that it takes every piece of the design mosaic to make a full picture. What's different today is the strength of the two ends of the scale—apparently “size matters” whether it's minimum size or maximum size!

So, why is this an issue for editorial comment? Because it makes my job harder! The range of tasks at, and between, these extremes is larger than ever. This makes it difficult to provide much information precisely targeted to any one group within that range.

On the other hand, the broad scope of high frequency engineering is good for the imagination! For example, I've always liked some of the science magazines—and envied their editors' options of covering atomic physics, astronomy, biology, anthropology, or any other of the many branches of science. Now, with so much going on in the engineering world I'm involved with, we can share in some of the same “gee whiz” excitement.

Every year in late summer, we review the industry and the engineering profession to create the following year's Editorial Calendar. We want to be sure to cover the core topics we know will be important. And we leave plenty of unplanned pages to cover additional subjects outside the core. This is where we get an opportunity to have some fun, technically speaking. We can cover research in both core and supporting technologies; we can introduce readers to esoteric concepts; we can even do a little history.

In other words, we want to provide a combination of information that is useful today and ideas that show you some of the interesting work being done by others. Our 2007 Editorial Calendar is included on page 62—as you look for subjects of interest, remember that every issue will have something that is *not* on the list!

Marconi's Trans-Atlantic Wireless Reenactment

In December 1901, Guglielmo Marconi sat at a receiving station above St. John's Harbor in Newfoundland, Canada and heard the Morse Code letter "S" sent by his team from a transmitting station in Poldhu, Cornwall, England.

Although trans-Atlantic radio communications soon became common, there has been lingering debate over the legitimacy of Marconi's original claim. After all, there was a race underway to be the first to demonstrate such long-distance radio communications.

From November 2006 through February 2007, a beacon is being transmitted from Poldhu, with hopes that many listeners on both sides of the Atlantic will be able to hear it, putting an end to the doubts about Marconi's original claim. Since this winter coincides

with a solar activity minimum, as did the original transmission, the propagation conditions should be similar.

The beacon operates on 1960 kHz, in the amateur radio 160 meter band. This is a higher frequency than the original transmission, which was probably at about 800 or 900 kHz. The beacon begins with a 100 watt transmission, then makes successive transmissions at 6 dB power reductions. It is possible that newly-issued experimental licenses for 490-505 kHz will allow additional experimental transmissions to be evaluated.

Early reports indicate that the 1960 kHz beacon is easily detected in the maritime provinces of Canada at the 100-watt level, including a report of hearing all reduced power levels. Further listening reports may put this long debate to rest.

For more information, go to <http://www.arrl.org/news/stories/2006/10/05/101/>

Election Reflections

I was glad to see the stock market actually go up after an election that will radically change the balance of power in Congress. Politics is a fact of life, and despite individual preferences, things will change from time-to-time.

I think we all understand that, over the long run, there will be a balance—sometimes achieved by bouncing some policies from the far right to far left or vice versa. I also think that the majority of Americans understand that any country with 230 years of history should have the strength to survive any political change—and there will always be plenty of change to deal with.