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2009 New Year's Resolution: Get Back to Basics

Gary Breed
Editorial Director



It's always good to review the fundamental principles that guide our personal and professional lives. In these difficult economic times, many people are emphasizing the personal approach, remembering which things are essential, which things are useful additions, and which things are optional for our daily living. A recession is a wake up call, a time to assess our responsibilities to ourselves, families, communities and countries.

In the financial community, where our current woes are centered, I sure hope a review of the basics is underway. 233 years ago, Adam Smith published the first thorough economic analysis in *An Inquiry Into the Nature and Causes of the Wealth of Nations*. Our bankers and brokers should all go back to the things they learned from this book in Economics 101. Smith had insights into labor, banking, trade and national monetary policy that still have value. They should not be forgotten, since they are the earliest foundation on which modern complex theories of economics and market behavior are based.

In high frequency engineering, many younger engineers have been educated and entered the workplace completely reliant on the knowledge of others, as embodied in the software of today's advanced EDA tools. They made it through their classwork, but did not work as many problems "by hand" as their predecessors had done. Sometimes I think all great new ideas should start with a sketch on a napkin or the back of an envelope! Then they can be developed, analyzed and refined using the latest tools.

All engineers benefit from the basics, and I recommend that all my colleagues stay in touch with the past foundations of their work. In the past ten years or so, I have casually gathered a number of classic (and less well-known) engineering books. I am amazed and inspired by the insights that were made in the 1920s and 1930s, making the very first connections between the practical application of the original "wireless" and a growing understanding of circuit theory and electromagnetics.

A trip back to the basics can be surprisingly valuable, as I often recall from my own experience. After receiving a degree and working for a few

years, I returned to the classroom for some undergraduate and graduate classes in Physics, starting with the typical sophomore sequence of Classical Mechanics. In the process of working on the same problems addressed by Isaac Newton, I eventually realized that Calculus now made sense in a way that had eluded me. Sure, I could work the problems, but the core understanding did not come until I followed Newton's path. A similar realization came later when I took the Physics version of Electromagnetics, deriving the same equations that had been simply memorized before as an EE undergrad.

I hope many of you will make an effort to develop a better perspective of "how we got here" — connecting history with today's engineering and tomorrow's new ideas.

Clarification on DTV

Last month's column on Digital Television generated quite a few e-mail responses! One reader pointed out an error — not all TV stations will vacate the Low Band VHF spectrum (Channels 2-6). After a little research, I found that the original intent was to move all TV stations to the High Band VHF and UHF channels, but a small number (less than 20 out of the 1700 total stations) have Low Band DTV assignments. A quick check showed that some of them (maybe all?) had successfully appealed to the FCC to change their original DTV assignment, citing both coverage area and economic reasons.

As a side note, I recently obtained converter boxes for my old CRT TV sets and am quite pleased with the results from these low-cost devices, mainly the improved

picture quality on those old, cheap TVs. I can't offer any observations about coverage issues, since I am in an area of good signal strength, with little multipath.

2009 in HFE

Every year, we review how *High Frequency Electronics* operates, and whether there are things that need to be changed.

For 2009, very few changes are planned in the printed magazine, which continues to get good reviews from our readers.

The primary area of attention is our Web site and other online information pathways to our readers. Although we are not making any sudden changes, we are constantly reviewing which content and service additions will make our efforts useful for even more high frequency engineers.