Power supply oscillation

John Dunn - July 08, 2014

There was this two-board power supply having linear voltage regulators to make the usual +5V and ±12V for a bunch of logic and some linear circuitry. The power supply and everything that it operated were actually a design (a military product) devised by another company for which the company that I worked outbid that first company, the originator of the design, for follow-on production.

The top management of the company where I was working seemed to believe, at least to my perception, that "Engineering" was only an expense, nothing more than an overhead burden. It was "Manufacturing" that actually made money for the company because absolutely nothing ever got shipped to the customer from Engineering, only from Manufacturing.

In a nutshell, the power supply problem was as sketched below. When it was assembled by that first company, it worked okay. When it was assembled by my company's "Manufacturing" people, the power supply oscillated at 10 MHz.

Some of my former co-workers who may read this will probably recognize exactly which power supply this was from the above sketch.

In any case, as the "unit engineer" for this product, a position in which I held full product responsibility and pretty much zero authority, I voiced my objection and got told that since 10 MHz was outside of the frequency span of the power supply's ripple specification, that the 10 MHz oscillation was acceptable. Long story short: After a great deal of conflict, I got changes put through to the circuitry that quelled the oscillation, even with the illustrated harnessing. The thing that gets to me about this reminiscence though, even after several decades of later experience, is that there seem to be some companies that to this very day operate this way. Not all do of course, but I perceive that there are some companies in which "Engineering" is simply not granted proper authority and project control.

There are some companies where, as one subcontracts manager, a fellow named "Woody", once put it to me, "Bull s__ beats science every time."

Perhaps I fall prey to a more cynical outlook than I should, but when I read articles in the trade and business literature where company management staff are lauded for their wisdom and insight and Solomonic judgments, I really have to wonder where the border lies between hype and reality.