

Re: Can PLL Freq Error be zero?

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"John Larkin" <jjlarkin@highNOTlandTHIStechnologyPART.com> wrote in message news:lb3k31hsc5qrl5nlmm8et5dfdms5pr3fg@4ax.com... [on use of 'S' in an expression unrelated to Laplace transforms]
> ... so it was perfectly obvious to me that $S = \text{divider ratio}$. There's only
> 26 letters on my keyboard, and it's not my fault that some lunatic
> Frenchman decided to use S for something else.

(Chuckle) If he was a proper Frenchman, he more likely used much prettier, flourished versions of 's' that would be trickier to replicate with machinery.

> Actually, I never use that Laplace stuff. I must have learned it once
> in ancient times, because I didn't flunk very many of my EE courses,
> but nowadays a quickie Bode plot is enough to stabilize simple loops,
> and if it gets more complicated, or gets nonlinear, I just simulate.

Don't take this as advice to the effect "You should relearn and use that Laplace stuff." But I would urge a different way of looking at that tool than as a poor substitute for a simulator. For complex loops, it can be a real assist while trying to understand what to do for them, especially when you have expression for the system poles and zeros. I have rarely used the Laplace (or Fourier) transform to actually compute a frequency or time domain response. But, as I see it, there is no good substitute, (except from a get-it-done quickly standpoint!), for an s-plane representation of the system and its pieces.

> I had an engineer a while back who was a whiz at this stuff... pages
> of equations, root locus, polynomials in s-domain, all neatly solved.

I was interviewed by a fellow once who, noting the phrase "root locus" in my resume, got a gleam in his eye and pulled out a special question he had worked up for such claims. After I ascertained that he really wanted me to work out the solution, right

there in his office, (while he did other work for 15 minutes or so), I did the work and handed it over to him. He went immediately to the bottom line and informed me it was wrong. I acknowledged that possibility, but invited him to go with me thru the derivation to find the error, a challenge he took up readily. After another 30 minutes scrutinizing each step, getting to the bottom without finding any identifiable error, he pulled out a little worksheet that I imagine was his derivation. We found his error in short order, leading to a reaction that I considered carefully later. The reaction? A plain and apparently sincere thank-you, accompanied by a smile. Needless to say, he was not the reason I turned down the company's generous offer.

> *But the answers usually made no sense, and when I pointed it out to him he got pissed off (ie, angry in American.)*

One reason to have a few different analytical tools at hand is for checking. 'Making sense', (when carefully done and not confused for bare supposition), is one of the better ones for that purpose.

> *As soon as I finished*
> *paying for the legal fees to get him a green card, he quit.*

A good decision. People who find it difficult to deal with their own errors usually make poor engineers.

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--Larry Brasfield
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Above views may belong only to me.