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Subject: an invitation

Posted by [PakProtector](#) on Sun, 18 Dec 2005 22:35:57 GMT

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Hey-Hey!!!,I have been looking at the methods for doing the grid choke measurement. There are a few issues, and I figure I might get a more elegant sol'n to some of them. One complication is from the change in L due to signal magnitude. All the gap-free, butt stacked inductors I've measured and played with have a fair change of L v. signal voltage across them. With a current sensing R in series, it is fairly easy to do a running tally of displayed impedance. Small change in voltage will make small differences, and I don't feel like a bunch of silly gymnastics if it can be avoided. One would be to measure L at several voltages and see what the slope of the line is and make small corrections. Or just do several measurements at each frequency. The latter is a bit more thorough....)Or I could just say the change in signal voltage is small compared to applied voltage. The DCR is comparable to the planned sense R, and sometimes quite larger. Or I could just ask the manufacturer...but most don't even post Cw numbers. cheers, Douglas

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Subject: Re: an invitation

Posted by [Damir](#) on Mon, 19 Dec 2005 11:49:10 GMT

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Do you have a Vanderveen's book? There is a chapter about measuring primary inductance (indirectly, by meas. Lsec) in OPTs. Plitron specifies Lp of their OPTs on 230V/50Hz, I doubt that there is a standard? Lp is not constant, but have "parabolic-like" curve in respect with rising voltage. Maybe measuring a few points to find L/V curve and then specifying L on some "real" voltage, useful in grid choke function, say 50Vrms?

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Posted by [Damir](#) on Mon, 19 Dec 2005 11:49:10 GMT

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Posted by [Damir](#) on Mon, 19 Dec 2005 11:49:10 GMT

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Subject: Re: an invitation

Posted by [PakProtector](#) on Mon, 19 Dec 2005 23:02:49 GMT

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I don't have that book. The voltage will depend on the item being measured. For the final stage grid chokes, 50v RMS is more than my signal generator can do. There is no standard set of conditions. This makes comparisons impossible, unless you are out to duplicate them, instead of shopping. It is also why I planned on setting out the test conditions prior to doing a measurement,

that way the method could be evaluated. Seems an interesting sport to criticize the project, but that's not unexpected. Lead, follow, or get the Hell out ov my way. I think three voltages at each frequency point would allow the shape of the curve to be accounted for and any small variance in signal voltage to be factored in. From the impedance, we'll have the ability to post-process for the components like Cw and L. I am more interested in what these behave like at HF. There are a few non-audio projects I've been playing with which make me question how something so imperfect as an Iron cored transformer can possibly sound good. cheers, Douglas

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Subject: Re: an invitation  
Posted by [colinhester](#) on Tue, 20 Dec 2005 01:16:29 GMT  
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What about using design of experiment software to "map" all your variables and responses. I always liked "Essential Regression." It's free and has a very nice interface....Colin

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Subject: Re: an invitation  
Posted by [PakProtector](#) on Tue, 20 Dec 2005 01:49:09 GMT  
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Looks like an interesting idea. I have played with some similar Parameter design stuff and it is a natural complimentary piece. May I trouble you for guidance at some point? cheers, Douglas

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Subject: make 1 thing purrrrfectly clear...  
Posted by [PakProtector](#) on Sat, 24 Dec 2005 03:41:40 GMT  
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When I said 'zero gap' I did mean zero intentional gap. Some prelim L measurements give me cause to believe it is quite small...Anyway, I have a few inductors designed for no DC, and either marketed for or designed as grid chokes. Some large signal, like power triode grids, and one for small signal, as for an inpt stage. I am going to measure the impedance across the audio spectrum. With DCR, and low frequency impedance, I'll be able to calculate inductance. Unfortunately, where the core begins to get less and less efficient, the capacitance from the windings starts complicating things. With some of them, I suspect that the winding capacitance is going to raise Hell long before we get anywhere near the limits of the core. As mentioned somewhere else, I will take a few measurements at each frequency, and varying signal to determine the effects of increased signal, and account for small changes in actual AC voltage across the coil as the impedance changes with frequency. So now to get through Christmas so I can look more closely at some data( and of course more chokes ). Cheers, Douglas

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