Subject: Shorting rings - Improve something else besides 2HD and Le?
Posted by Wayne Parham on Sat, 04 Feb 2006 19:19:11 GMT
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It is pretty well established how and why shorting rings help improve harmonic distortion and inductance stability with respect to frequency and drive level. But some have speculated that they do something more. What say you?
Magnet structures

Subject: Re: Shorting rings - Improve something else besides 2HD and Le?
Posted by akhilesh on Thu, 09 Feb 2006 14:32:22 GMT
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1. I am not sure if they work well at low frequencies, wher they are most needed. 2. They seem to have become an essential marketing device that all drivers must have now! SO yeah, they do more...they give marketing something to worry about!-akhilesh

Subject: Re: Shorting rings - Improve something else besides 2HD and Le?
Posted by Wayne Parham on Thu, 09 Feb 2006 16:19:04 GMT
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From the data I've seen, I agree with you that they lose effectiveness at low frequencies. But I also see significant improvements through most of the band, so I think they are definitely a good thing. It costs more to add them, they are an added complexity and that makes costs go up. But I think they're worth doing. I just wonder if there are more technical benefits than reducing harmonic distortion and improving inductance linearity. Seems like I remember someone saying something else they improved, but I don't remember what.

Subject: Re: Shorting rings - Improve something else besides 2HD and Le?
Posted by Manualblock on Fri, 10 Feb 2006 02:25:48 GMT
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Danley has a long and detailed post on his site regarding the past history of that engineering design. He claims it started with a seperation of the last few turns of the coil and doubling them.

Subject: Re: Shorting rings - Improve something else besides 2HD and Le?
Posted by Wayne Parham on Fri, 10 Feb 2006 15:05:20 GMT
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I'm not talking about shorted voice coil turns, but rather (Faraday) shorting rings, usually placed on the pole piece. A shorting ring is most often implemented as a single turn of copper or aluminum extruded or machined and fitted onto the pole piece. It's like a short stub of pipe. About Danley, most times I've discussed them with him he has discounted them. So I'm not sure he is really interested enough in the use of shorting rings to investigate them to any great degree.

Subject: Re: Shorting rings - Improve something else besides 2HD and Le?
Posted by Manualblock on Sat, 11 Feb 2006 18:54:55 GMT
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Yes; I thought that might be the case; it sounded way too simple an explanation and too dismissive of an obviously beneficial concept.I don't even know how I ended up there; puzzling since the site must be linked in some way with another site concerning HE speakers.Thanks for clearing that up.

Subject: Re: Shorting rings - Improve something else besides 2HD and Le?
Posted by Earl Geddes on Fri, 17 Feb 2006 21:00:55 GMT
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Hi WayneThere are lots of considerations here.First they do more than just reduce 2nd order HD, they in fact linearize the inductance for all orders. If it were just second order then they wouldn't be worth doing.Yes they are ineffective at LF, but the problems aren't at LF, they are at the frequencies where the inductance is significant. There is no flux modulation at LF. At LF the concern is for cone displacement linearity not for current linearity.Which makes my next point. For any driver only operated low in its pass band, like a subwoofer, they are of no use. But for a speaker like mine where I take the 4" VC woofer up to 900 Hz they are critical and I wouldn't consider a speaker without one.They are also quite beneficial on compression drivers for not only linearizing the inductance but minimizing it for a better HF response.So in general if I had to either have them or not have them I'd definately rather have them. But, there are situations where they don't do much.

Subject: Re: Shorting rings - Improve something else besides 2HD and Le?
Posted by Wayne Parham on Fri, 17 Feb 2006 21:27:02 GMT
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Agreed on all points. I just seemed to recall someone saying they did something else in addition to these things. But I must have been mistaken, because if anyone, it would have been you I was thinking about. Thanks for your comments.

Subject: By the way
Posted by Earl Geddes on Fri, 17 Feb 2006 22:59:08 GMT
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I checked with Lidia and my friends in Tulsa and we will be there at the conference so I can give a talk. Make it start after 3 on Saturday, for an hour.

Subject: GPAF
Posted by Wayne Parham on Fri, 17 Feb 2006 23:26:07 GMT
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Sounds good, we'll put you down for Saturday at 3:00pm.How did you like that steak place (Silver Flame) last year? Want to eat there Saturday evening after your talk? I thought it was most pleasant last year when a bunch of us all went there.Silver Flame SteakhouseI'm looking forward to seeing you again.
