
Subject: musical peaks / SPL / power distribution

Posted by [Steven Homrighausen](#) on Tue, 03 Apr 2007 00:31:00 GMT

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Sorry for the lengthy post. Thanks in advance to all who reply. In a tweeter array of nine ribbons (wired 3x3), say 98dB each - rated at 20w RMS / 50w max each. The array is 98dB, and can support 180w RMS / 450w max. Theoretical 'constant' SPL of 120.5dB with SPL 'peaks' of 124.5dB (so really 124.5dB musical peaks). In a mid-bass array of nine drivers (wired 3x3), say 89dB each - rated at 100w RMS / 200 max each. The array is 98.5dB, and can support 900w RMS / 1800w max. Theoretical 'constant' SPL of 128dB with 'peaks' of 131dB (so really 131dB musical peaks).

1. Please correct the above statements if they are incorrect.
2. A stereo pair - can you assume 3dB more than the above listed numbers? What about 'in-room' vs. 'anechoic' levels?
3. If: - you power each of these arrays with the RMS power listed above (180w & 900w)- at a crossover point of 2000Hz with electronic crossover set to LR4 (or LR8 for that matter)- with a good mix of music (classical, jazz, rock, R&B, fusion, etc, etc.) will the tweeters see a similar amount of that 180w that the woofers will see of the 900w? Stated another way, what's the general power breakdown with a crossover point of 2k (20% tweeter, 80% mid-bass?)
4. I've heard that ribbon tweeters DON'T like to be overdriven, and will just 'give up'. Is this true and is this something to worry about more than 'under-driving' them with an amp that's too small for the transients?
5. What are people generally using for the bottom octave (or two)? With the levels presented above, it seems that an IB sub would be a logical choice. (94dB with 4 drivers + 1000w = 124dB potentially.) In the grand scheme of things, I'd rather hear \$600 worth of woofers pop a bit, than hear \$2000 worth of tweeters give up. I know that these are EXTREMELY high levels, I'm just trying to understand each of these concepts.
