
Subject: Parallel speaker connections

Posted by [Wayne Parham](#) on Fri, 08 Feb 2002 01:34:50 GMT

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A loudspeaker is a complex load, having an imaginary (reactive) and a real (resistive) part, so the two curves will combine as a function shown by the parallel impedance equations and with a phase determined by the combined reactive loads. On the other hand, you don't care about the whole curve, just an average impedance value, yes? Looking at it that way, you have a loudspeaker with 8 ohms advertised impedance and another with 16 ohms advertised impedance, connected in parallel. So use the formula $Z_t = 1 / (1 / Z_1 + 1 / Z_2)$, and you'll find that Z_t is 5.3 ohms. In practice you'll find a little different story. This 5.3 ohm impedance will be in the 100 to

impedance is closest to 16 ohms. Below 100Hz, you'll have several impedance peaks - two from each loudspeaker. Above 500Hz, the impedance of the woofers starts to rise, approaching an open circuit where other components are dominant. By the crossover frequency, the tweeter circuits provide most of the load, which is of a slightly higher but relatively linear impedance. So all that to say no matter how we slice it, a loudspeaker's impedance curve is more like a roller coaster than it is a fixed resistance.