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Subject: Passive Radiator versus Port

Posted by [BrianG](#) on Fri, 28 Jun 2002 12:40:05 GMT

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Wayne, There is an article in the recent AudioXpress about passive radiators which got me thinking about Pi Speakers. Do you have any thoughts on the pros and cons of each approach (other than cost)? Thanks, Brian

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Subject: Re: Passive Radiator versus Port

Posted by [Adam](#) on Fri, 28 Jun 2002 13:59:16 GMT

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I'm not Wayne, but I can give you my thoughts at least...PR's really are a mechanical equivalent of a port. The area of the PR could be considered the area of a port, and the mass the PR is loaded with could be considered the mass of the air that is contained within that port area, with a given port length. They really let you cram a ton of port area into a small space. an 18" passive radiator is roughly equivalent to a 15" diameter port!!! That is a HUGE bonus. Obviously, you can't get as much air movement through the port because of excursion limitations. PR's really only shine when you need to place a lot of port area in a very small box, and tune it very low. For example, a GZ Plutonium (15" woofer) can really have no more than 2 cuft of box volume before the box starts to peak, and thus making it bad for an SQ alignment. The unit also has a huge swept displacement of 5.7 litres which means you need a lot of port area. A pretty good ported box for this unit would be 1.5 cuft, with two 4" diameter ports tuning to 25 Hz. The catch? Each port would have to be 67" long!!! A properly selected and tuned 18" passive radiator could still give you a reasonable amount of air movement, and by properly weighting the unit, you could achieve the 25 Hz tuning in 1.5 cuft without having to have those huge port lengths! It is an obvious good solution space wise. These types of situations are really the only ones that warrant the use of passive radiators... None of Wayne's designs have particularly large port dimensions, so a passive radiator would be actually more difficult to install than it would be worth. I hope I didn't miss anything. Adam

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Subject: Re: Passive Radiator versus Port

Posted by [Wayne Parham](#) on Fri, 28 Jun 2002 15:34:32 GMT

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Passive radiators are for tuning a small box lower than a port could. It's easy to tune a large box to low frequency, but a small box would require a prohibitively long port.

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Subject: Thanks Adam you said it all. (NT)  
Posted by [BrianG](#) on Sat, 29 Jun 2002 14:19:20 GMT  
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