Subject: Carvin
Posted by granch on Wed, 25 Jul 2007 00:10:40 GMT
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How come I never hear Carvin mentioned in ART? I know they make great audio equipment - been using it for years - but I have no experience with their loudspeakers. In particular they make a dual 18 inch sub that looks a lot like certain other mfrs models. Specs read well and I know their electronic gear meets spec.I had posted this in the General forum but it was suggested that this was a better forum for my inquiry

Subject: Re: Carvin
Posted by efaber on Wed, 25 Jul 2007 19:03:56 GMT
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they make decent subs. nothing great but not terrible either.

Subject: Re: Carvin
Posted by granch on Wed, 25 Jul 2007 20:28:41 GMT
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Considering their price, seems like they would make a good buy for a poor but honest old duffer wanting to boost the octave around 30 hz for an outdoor system (stereo) using quad A-7's in each channel. A pair(of LS1802's) would cost about $1100 plus, say, another $1200 for a DCM4000 amp to drive them. That's $2300 amp and all vs, say, $2200 for just one 12pi sans amp. -Dick

Subject: Re: Carvin
Posted by Bill Wassilak on Thu, 26 Jul 2007 16:02:39 GMT
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The Carvins just use Eminence drivers in there cabinets, there's not a lot of Carvin users around my area but the guys that do run them seem to be pretty happy with there equipment(electronics). You have to remember the Carvin dual 18 is a reflex box, where as the 12pi is a horn loaded sub. And the 12pi will blow the Carvins out of the water as far as projection and SPL's go at a farther distance. So comparing the two is like comparing apples to oranges. Also make sure in there spec sheet that the 30HZ they claim is not the -10db down point, otherwise the box will only be good to about 40HZ before starting to roll off.HTHBill W.

Subject: Basshorns verses direct radiators - It's a question of size.
Posted by Wayne Parham on Thu, 26 Jul 2007 18:31:29 GMT
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isn't for everyone. I think it's the best thing out there for large outdoor environments and is great in very large indoor areas too, like covered (or partially covered) football stadiums. But it's overkill for a bar or anyplace less than about 4000 sq. feet.In smaller environments like that, I usually recommend direct radiators. That position doesn't endear me to other horn enthusiasts but it's what I think. The reason is that direct radiating subs almost always produce truer (flatter) response down to a lower cutoff point than small basshorns do. By "small" basshorn, I mean anything under about 25 cubic feet. That's large, I know, but compared to wavelength, it's acoustically small in terms of mouth area and sometimes in terms of path length too. So it will be peaky and may not hit the low notes.It's easy to design a direct radiating subwoofer that will be flat to somewhere between 30Hz to 40Hz in a 10ft3 cabinet (or less) but a basshorn of this size will be horribly peaky or won't go deeper than 60Hz or both. So if you're in a place that's smaller than 4000 square feet, I'd suggest a direct radiating subwoofer.I don't care much for "small" basshorns because of the reasons I said above. At least, not when they're used individually. But one thing makes them make sense, and that's when they are used in groups. That's how you can take advantage of a small basshorn. When an undersized basshorn is used in enough quantity, the system has enough mouth area to have good, flat bass response down to a reasonably low frequency. This allows guy to use a physically small box that's relatively easy to carry and still take advantage of horn loading. That's the only time I think a "small" basshorn (under 25ft3) makes sense.In my opinion, a small basshorn is worse than a direct radiator if it isn't used in groups. That's the problem I have with them. If you have to pack a sub into 10ft3, my opinion is you lose the option of horn loading. If you can triple or quadruple that space, only then you can begin to even consider using horn loaded subs. If you have 40ft3, you can use a pair of large basshorns or four smaller ones, and you can get acceptable response from them. Better still if you have double or quadruple that amount of space. Basshorns need size. So but if you have a small place to setup in, don't use basshorn subs cause they'll be peaky boom boxes that are easily outperformed by a simpler direct radiating sub setup.

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by granch on Fri, 27 Jul 2007 02:14:10 GMT
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To Wayne & Bill:The Carvin LS 1802 is rated 3db from 30 to 150 hz and down 10 db at 24 hz. Sensitivity is 102 dB; Max pwr 1600 W continuous; 137 dB max SPL. Two units would improve those figures in the usual ways.However, the point raised about "projection" is of importance. The nearest audience will be 75 ft away up to a mile or so. The Carvins will be essentially radiating into 180 degrees horizontal and 90 or more vertically. For a horn to "project" it has to radiate in a more controlled pattern at low frequencies - hard to do when you are little.(I'm talking 25-50 hz) Tell me about the abilities of the 12pi, for example, in this regard.

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by Wayne Parham on Fri, 27 Jul 2007 14:37:26 GMT
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Outdoors, a large basshorn will outperform direct radiators even without considering radiating pattern.A good modern high-efficiency 18" woofer used in a suitably tuned box as a direct radiator generates about 93dB to 96dB from 30Hz or 40Hz up when used in half-space, depending on the driver. A pair of them as is used in many subwoofers produces 99dB to 102dB or so. Double the number of woofers and you get 6dB each time for the same voltage input across each driver's voice coil. The thermal limit is usually reached above 60Hz or so and is usually about 500 WRMS to 2000 WRMS per driver, depending on the driver. The mechanical limits are usually reached below 60Hz and are almost always reached below 1000 watts, usually less than 500 watts RMS. So what this means is that at the very lowest frequencies, you can't push all the power to the subs without making them distort badly, possibly eventually causing failure. Between this fact and the reality of thermal compression at high power levels, a modern high-efficiency 18" woofer is limited to about 125dB/M at subwoofer frequencies.A good modern basshorn subwoofer generates from 102dB to 106dB from its cutoff frequency upwards when used in half space. This is already 5dB to 10dB more efficient than the direct radiator, literally ten times more powerful. Add to that the fact that a basshorn is not generally mechanically limited at low frequencies because horn loading reduces cone movement. A basshorn's limit is thermal, which means it can take full power at subwoofer frequencies. This means it is able to generate at least 10dB more at full power, sometimes nearly 20dB more. So at full power, a basshorn subwoofer can deliver 10 to 50 times more power than a direct radiating subwoofer. And since the driver doesn't move as much,

basshorn sub has a couple other tricks up its sleeve too, which give it an edge over other basshorns. It uses push-pull drive, which lowers distortion even further than horn loading alone can do. It also uses a patent pending cooling system that increases power handling over 2x. This reduces heat, increases its thermal limit and makes the system more robust.On the matter of

single basshorn of this size does not start to get pattern control until frequency is higher. That's what gives a single horn rising response, it is beginning to become directional at the upper end of its response curve. However, when you add horns, grouping them together, they become directional. A group of four or more is large enough to direct sound forward even at deep subwoofer frequencies. This is a very potent setup, because it is extremely efficient and powerful. Maximum SPL is about 150dB/M for a group of four.

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by granch on Fri, 27 Jul 2007 16:26:20 GMT
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Let me try to throw in a little economics and then see what falls out. The Carvin dual 18 inch subs go for $550 and have a sensitivity of 102 dBM and a front face of 23.5" X 40". Four of these would cost $2200 have a sensitivity of 114 dBM and a face area when stacked of about 26 square feet (most of it cone or vent). Now, for the same price, about, we could take one 12pi horn with a

mouth area of about 8 sq ft (?) . Sounds like there shouldd be more pattern control in the Carvins.I am an old converted horn man, building my first back around 1950. I love horns, I like their (pardon the expression) "sound". And I like their distortion lowering effect on the usual drivers. But... at my age economics has to count as well...doesn't it?

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by Wayne Parham on Fri, 27 Jul 2007 16:53:17 GMT
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distortion wouldn't be as low. Maybe Carvin will come out to the Prosound Shootout in October and we can measure them and see.

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by Ivan Beaver on Sat, 28 Jul 2007 00:19:37 GMT
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I would REALLY question the 102dB spec. I would like to know what freq it is measured at. How about a MEASURED response graph.There is one MAJOR manufacturer who rates one of their 2x18" cabinets at 108dB. AND it will do it, BUT ONLY at 1800Hz. Not exactly what I call a bass freq.Many manufacturers will choose any high output number they can see (with no freq attached) and call that sensitivity, whether or not you would actually be able to use it.There are NO 2x18" cabinets that can put out 102dB with 1 watt input at 1 M and half space and under say 100Hz, much less under 70Hz.There is no way it goes as low in freq either as stated-within the parameters listed.

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by granch on Sat, 28 Jul 2007 00:48:26 GMT
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Good idea. How about you send them an invitation as initiator and Grand Panjandrum? Wouldn't have to be Carvin. Could be some other maker of similar product. The idea would be to compare multiple stacked direct radiators with horns for outside venues, taking economics into consideration. -Dick

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Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by granch on Sat, 28 Jul 2007 01:03:58 GMT
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I hear you, but I have always found this mfr. to be honest in the past and so have to give them the benefit of the doubt. They post plus or minus 3 dB bandwidth and 10 dB down freq. Thus while frequency at which sensitivity is measured is not specified, it is bounded. If I get into a conversation with them I will ask about freq response graph. Carvin is not a fly-by-night outfit. What would be a "standard" frequency to measure sensitivity for subwoofers anyway?

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by Wayne Parham on Sat, 28 Jul 2007 02:18:45 GMT
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One thing to consider is the environment a subwoofer is measured in. Most are stating a ground plane measurement. That's reasonable since it is easiest to do and is where the subs will be used. But it's 3dB louder than free space. A woofer that is capable of, say 93dB/W/M from 40Hz to 100Hz as a direct radiator in freespace would measure 96dB/W/M in a ground plane measurement. A pair of these in a sub cabinet would measure 102dB/W/M.

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by Wayne Parham on Sat, 28 Jul 2007 02:48:36 GMT
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If you're interested, last year we measured a couple of direct radiators. The quad-18 Soundbridge 7218S was nice, measuring about 98dB/M/2.83v from 40Hz to 60Hz, gradually rising to about 100dB/M/2.83v from 60Hz to 100Hz. It's an excellent product, in my opinion.We also measured a dual-18 JBL SRX728S. I liked it even better, but I've always been partial to JBL gear. It has a slightly overdamped response curve which makes it sound tight indoors without being boomy. Plus it is a very low distortion design, using push-pull drive (electro-magnetic by way of dual voice coils). It had output of about 98dB/M/2.83v, rising steadily from a 35Hz f10 to 45Hz f3. Another excellent product.As you can see though, these are 10ft3 boxes that generate about 98dB/M/2.83v in half-space. If two or four of these generate enough output to satisfy, then I think they're a great solution. That makes top output be about 125dB/M. If that's enough - like is probably the case indoors in clubs that aren't too large - then I suggest the direct radiators. Using big basshorns would be overkill but using just one or two small basshorns would be too peaky.If you're doing a large outdoor show then basshorns start to make sense. Imagine using 16 direct radiators. This is like 160 cubic feet. You could fit five big 30ft3 basshorns or eight 20ft3 basshorns in the same space. In either case, your maximum SPL from basshorns would be 10x to 50x greater, something like 10dB to 15dB more SPL. The larger 30ft3 basshorn will likely have much deeper cutoff too. Now imagine a situation that requires 16 basshorns like this. You would

have to use a wall of direct radiating subs to try and achieve the same output with them. It would become a problem of logistics, even if you could solve the acoustical problems of arranging this many woofers without introducing weird lobing problems in the audience.

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by granch on Sat, 28 Jul 2007 02:54:35 GMT
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Hard to measure anywhere else. Anechoic chambers are no good at low freqencies. Maybe a large brick building up against a playground would make a stab at a quarter sphere.

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by Wayne Parham on Sat, 28 Jul 2007 03:04:16 GMT
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Yes, you're right. You gotta measure subs outdoors.

Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by granch on Sat, 28 Jul 2007 03:45:13 GMT
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I was wondering. It sounds like the JBL SRX728S is very similar to the Carvin LS1802. The latter is about 12.3 cu, ft, (outside dimensions) weighs 122 lbs and was $550 in the last catalog I could get them to send me. They make a more expensive model, the TRX218b, which weighs more and measures poorer. You can check them out at carvin.com Your measurements on the JBL look good, I wonder how a stack of 2 or4 would measure. These are all bass reflex designs. I wonder if your super cooler would help them?-Dick

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Subject: Re: Basshorns verses direct radiators - It's a question of size.
Posted by Wayne Parham on Sat, 28 Jul 2007 05:11:17 GMT
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The cooling plug / heat sink works just as well in a direct radiator as it does in a horn.

Subject: Speaker testing?
Posted by Bill Wassilk on Sat, 28 Jul 2007 05:28:34 GMT
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That depends on the brick buildings size for the loading. That's why Wayne holds the Prosound shootout. To add to his comments, we test at a distance and half space conditions outdoors. David Lee from BASSMAXX takes the measurments, but any external noise source's, we try to make sure there at least a quarter+ miles away while testing. We don't care if it's any new subs, one note boxes, you name it. You bring it we'll measure it! We don't care what type of speaker format classifcation it falls into.

Subject: Re: Speaker testing?
Posted by granch on Sat, 28 Jul 2007 05:35:25 GMT
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Thanks, Bill. -Dick

Subject: Re: Speaker testing?
Posted by Bill Wassilk on Sat, 28 Jul 2007 05:44:27 GMT
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Hey, if you can take a vacation in October to Tulsa, it would be interesting to measure a couple Sunfire subs since you got them boxed up already.

Subject: Re: Speaker testing?
Posted by granch on Sat, 28 Jul 2007 06:03:51 GMT
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That is a great idea and thanks for the invitation. Unfortunately there are a few contraindications:1. I'm broke.2. I'm 76 years old, 320 lbs, and almost wheelchair bound - can only stand up for short periods. (also going deaf).Were there "world enough and time" its the sort of thing I would love to do. We had "audio clubs" at Bell labs and sometimes visited each other's homes trying out new stuff. Also had one harrowing experience, but I hate to think of it.-Dick