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Subject: are Beyma Pro drivers any good for Hi-Fi? Comparable to JBL's?  
Posted by [adkins](#) on Sat, 21 Feb 2004 05:44:10 GMT

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Anyone has any feedback with Beyma pro drivers for Hi-Fi, how does it compare with JBL's. All units considered are all recent and current models. Comments? Suggestions?

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Subject: Re: are Beyma Pro drivers any good for Hi-Fi? Comparable to JBL's?  
Posted by [Adrian Mack](#) on Sat, 21 Feb 2004 13:38:22 GMT

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From what I have heard, Beyma is a real ripper for max SPL but they don't sound too good quality wise.

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Subject: Re: are Beyma Pro drivers any good for Hi-Fi? Comparable to JBL's?  
Posted by [steve f](#) on Sat, 21 Feb 2004 18:13:33 GMT

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The Beyma woofers I heard were well made, but "rougher" sounding than JBL 2226H woofers. IMO the JBL has little if any coloration, and it's easy on small tube amps. I think Eminence makes some good woofers like the kilomax series. Some people like TAD. I am told that McCauley woofers are excellent too. Anybody care to comment on either? Steve

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Subject: adrian, you advised me to get the 2206 rather than the 2020 12" from JBL  
Posted by [adkins](#) on Mon, 23 Feb 2004 05:37:43 GMT

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I have reviewed your advise to me last december about mt set-up, you said that it is better to go with the 2206 12" for Midbass and midrange rather than the 2020 for my setup. My only concern with the 2206 is that it is only 95db sensitivity as compared to 105db for the 2020H. I am afraid that a 22-watt SET amp might not be able to drive these 12"ers to the same level as the rest of the system. Any comments about this? Last time, I planned to get the 2242H 18", but when I load this driver at Boxplot software and WINISD, it doesn't have an f3 of 25hz or 30hz, something like 42hz, while the 2241H has a f3 of 35hz which means it can go a little lower than the 2242H. Is this true?

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Subject: JBL 2020, 2206 and 2242

Posted by [Adrian Mack](#) on Mon, 23 Feb 2004 11:05:00 GMT

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The 2020H is actually ~97db on average. If you look at the 2.83v/1m response for the 2020, its 95db 1w/1m at 150Hz, rising rising to ~99db from 400Hz to 800Hz, then rises to 105db 1w/1m above 1KHz as it enters breakup mode region, so this is only straight on axis that its 105db 1w/1m at >1KHz. The 2206 on the other hand is 96db 1w/1m and is dead flat from 100Hz to 2KHz. The other components in the system all need to be attenuated to the level of the lowest sensitivity component in the system, so there isn't an issue here regarding matching efficiency between subsystems. A simple driver attenuation circuit or an L-Pad can do this. Regarding SET amp's, the 2206 is actually more suited to them. The impedance at resonance is a lot lower on the 2206 than the 2020, so a SET amp is going to have a lot easier time driving this load instead. High sensitivity is not the only thing to look for when finding suitable drivers for tube amp's, the complex impedance of driver's is the major issue. About the 2242, your 100% correct. That's why I said you need to use active EQ to boost the low end on the 2242. I suggested use of the Behringer PEQ2200, and I think I even told you what Q, center frequency and boost level to set the EQ to using the box size and tuning I suggested. Check up my old post though to see exact values. The Behringer parametric EQ costs US\$99 though, which is actually not a bad price. However if you really do not want to spend \$99 on an EQ unit, there is another way to extend the F3 of the 2242. This is by mass loading the cone. Adding mass to the cone has the effect of lowering driver Fs and raising Qts, and lowering reference efficiency. That means deeper F3. For this particular setup though, it doesn't lower efficiency in the subbass range, as the driver is already -6db to -9db in this region. Adding an extra 110g of mass to the cone results in the following parameters for the 2242:Fs=26.86HzQts=0.357Qes=0.378Qms=6.514Eff= 1.38% or 93.4db 1w/1m (only change is eff above 100Hz, bass region without extra mass is already this level anyway because of the low Qts and high Fs). Those are the two options available. Either use parametric EQ, or if you don't wish to pay for an EQ, add extra mass to the cone. Both methods will extend your F3 to below 30Hz, they are just different ways to get there. Adrian

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Subject: I'll get the 2206, but 2241H or 2242H?

Posted by [adkins](#) on Tue, 24 Feb 2004 01:16:17 GMT

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I am now settled with the 2206 as per your advise, but now, the 2242H here in our country is sold out and will take awhile to be available and think the price will even get considerably higher. So now, I am looking at the 2241H. Can you verify this with me that the 2241H can go a little lower than the 2242H at the expense of a little power handling and efficiency?If let's say I'll save up more to buy the DBX driverack 480, will this unit cure all of my problems regarding driver selection, some cabinet compromises and room limitations, and the flexibility of crossing over frequencies for each driver? Like I can set the slope differently for each driver? Will this significantly reduce the risk of any mistakes I might have on the design process and the integration of the drivers, cabinets and crossovers? Besides, I kind of like the idea of also having EQ and also the parametric variety and would also like to use the built-in Real-Time analyzer. I

was kind of thinking to go for broke and spend on the driverack 480 and set-up a 4-way system in quad-amp mode. As I said before, I have absolutley no idea on how to make my own crossover and run the risk of having a bad sound or damagin any equipments. I have read a lot of crossovers and I think it is a very very complicated process that only speaker manufacturer has the experience, knowhow and the patience to test and do trials without closing up on thier speaker cabinets. Am I correct for even just a bit? I have no one to turn to here in our country since this is a bit too technical even for professionals here. I tried discussing my plans with professionals and they do not know what the hell I'm talking about if we start discussing numbers, all they can offer is thru their years of experience trying to place different drivers into various cabinets and just see what happens, which obviously I could not afford to do. Thanks for your continued support and help.

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Subject: Re: I'll get the 2206, but 2241H or 2242H?  
Posted by [Adrian Mack](#) on Tue, 24 Feb 2004 09:09:06 GMT  
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Hi AdkinsThe 2241 and 2242 are almost the same. Since the 2241 has a higher Qts, it doesn't form an EBS alignment if you want an F3 of 35Hz, but the 2242 will form a -3db shelf. There is nothing wrong with this, but I'm just pointing it out as you asked for the difference. Bass efficiency between the two are almost identical, with the -3db shelf reversed by the higher referance efficiency compared to the 2241, so the two are just about equal. The DBX 480 can do some neat things but it won't make up for a bad design. No electronics will, at least not fully. We won't have you do a bad design though, so you don't need to worry. I can't remember if you are going to use a super tweeter or not. My advice was not to use one, and instead employ compensation on the HF horn instead to have it reach 16KHz. If you do go down this route, the best suggestion I can give is to use the Pi Speakers passive crossover compensation network. I guess you could sort of simulate the curve using a graphic EQ to an extent, however the real crossover provides the exact slope needed. There is also an active version available. Don't be scared about the crossover, you won't be in it on your own. Members of this forum, including myself will give you whatever guidance or help ou need. The 2241 can reach 25Hz as well if you EQ it. You can use a 250L box tuned at 25Hz. Parametric EQ centered at 25Hz with a Q of 0.7 and +4db boost will extend the anchoic F3 to 30Hz. Corner load it in an average sized living room, F3 will drop near to 20Hz.  
Adrian

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Subject: Can you check the Beyma 18G40 woofer or 18G400?  
Posted by [adkins](#) on Thu, 26 Feb 2004 01:19:41 GMT  
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I just visited a Beyma dealer here locally and saw the Beyma's, upon comparing the 2206 from JBL and the 12" G320 from Beyma, I found the Beyma's to be more pleasing to my ears, I found the JBL's a little too forward sounding for my taste. So now, I am also consiering the Beyma's at

half the price, my only concern is that their 18" woofers might not go low enough just like the JBL's. Here are the list of 18" woofers they have and I do not know which ones is the best for hi-fi. 18LX-60 18G40 18G50 18G40 (new) their website is [www.beyma.com](http://www.beyma.com) for their T/S parameters. I am now really seriously considering Beyma's as I have heard it in a PA set-up and it's not bad at all, and am hoping if I run them with the tube amps, that it might also be comparable to JBL's. Any thoughts. My original plan is to add a dedicated tweeter like the 2404H of JBL or the Beyma CP-25 at less than half the cost. Here are a few of my other questions: what is the difference between a 100 x 100 dispersion and a 100 x 40 dispersion in a home environment, will the 100 x 40 be enough for hi-fi use in a tweeter? if I use a tweeter, will it be better for me to use a 2" exit driver to have more freq. range? and can also go down to 1kHz? we also compared 2" exit drivers of BEYMA CP800ti, CP650ti, JBL 2450nd (old) and also an old EV, and I think the Beyma's are not left behind in sound and still found the JBL 2450's to be still a little forward sounding for my taste. My other companions during that comparisons all liked the EV better than the JBL's, but the EV's are more than 3x the price of Beyma and a little more expensive than the JBL 2450's. Thanks for the help!!

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Subject: Re: Can you check the Beyma 18G40 woofer or 18G400?

Posted by [Adrian Mack](#) on Thu, 26 Feb 2004 09:58:05 GMT

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When comparing the different brands, make sure that each are in correctly tuned enclosures, I prefer to tune for best transient response. A lot of the pro cab's are not tuned like this, which will affect ultimate sound quality. Just something I thought I would point out. The Beyma 18LX-60 is the one suited for deepest bass extension. It has the lowest Fs of them all at 27Hz. An SBB4 vented box alignment will work best for this woofer, 305L tuned at 27Hz. Anchoic F3 is roughly 33Hz and F6 is 28Hz. If corner loaded, expect F3 to drop to around 25Hz and F6 at 20Hz. This alignment works nicely. Don't run a subwoofer from a tube amp. SS or other high power style amplifiers are a must. Its "law" that drivers which hit subbass notes generate a lot of back EMF, so impedance at resonance is high and this is hard for a tube amp to drive. If you search this forum you can find out more on this. You can use a tube amp on the main's though, if their characteristics make them suited. > what is the difference between a 100 x 100 dispersion and a 100 x > 40 dispersion in a home environment, Dispersion angle doesn't change between environment. The difference between those is that one has 40 degrees of vertical coverage, and the other has 100 degrees of vertical coverage. > will the 100 x 40 be enough for hi-fi use in a tweeter? "Enough" is not really the term that should be used here. It depends on what your design goals are. If your trying to fill a mid or large sized area with just one or two speakers, then wide horizontal coverage would be wanted. On the other hand, very large area's would have arrayed horns in which each horn would require a very narrow dispersion angle, and CD horns are typically used. I like between 60 to 90 degrees horizontal coverage per speaker in a home environment when using two speakers. If your got a midrange horn and HF horn, then it's common that you would want the dispersion of each of them to be the same horizontally and vertically. Then comes the issue of matching DI at the crossover frequency which takes a lot of precision to get right. Vertical coverage on the other hand can be made a lot smaller than the horizontal coverage. It will minimize comb filtering and vertical lobing between drivers which is good. Technically there will still be gaps in the polar response around the crossover frequency,

but it's still better to keep vertical coverage angle small to make it as best as possible. > if i use a tweeter, will it be better for me to use a 2" exit > driver to have more freq. range? and can also go down to 1khz? I think I've mentioned this before to you, although it may have been someone else. Look at the frequency response curve of the horn/compression driver combo that you want to use. It will tell you what the device is capable of. Generally speaking, the 2" device will be able to reach lower than a 1" device because their larger diaphragms let them have a lower resonance. Regarding HF extension, a smaller 1" exit throat provides impedance matching to a higher frequency than a 2" exit, so it's got the capability to reach higher. As I have mentioned in the past, I like to use 1" exit drivers and use compensation electronics on them to make them reach 16KHz. > we also compared 2" exit drivers of BEYMA CP800ti, CP650ti, JBL > 2450nd (old) and also an old EV, and I think the Beyma's are not > left behind in sound and still found the JBL2450's to be still a > little forward sounding for my taste. My other companions during > that comparisons all liked the EV better than the JBL's, but the > EV's are more than 3x the price of Beyma and a little more > expensive than the JBL2450's Interesting. Thanks for your thoughts on Beyma and EV!Adrian

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Subject: Re: Can you check the Beyma 18G40 woofer or 18G400?  
Posted by [Bill Wassilak](#) on Thu, 26 Feb 2004 21:41:36 GMT  
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Like to add to what you Adrian were saying, you might want to check out 1.5" exit drivers, you can still cross them over somewhat low (1.2K-1.5K) and get the hi-freq. extension out of them also but not as good as with a 1".Bill W.

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Subject: Adrian, Can I have your blessing to purchase BEYMA?  
Posted by [adkins](#) on Fri, 27 Feb 2004 01:57:42 GMT  
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I have just loaded the T/S parameters of the Beyma 18G40 and it has a fs of 32hz and a f3 of 32hz in a 320l cabinet, and it is available from our dealer here. Do I go ahead with this driver or still stick with the JBL 2241H with f3 of 35hz and fs of 35hz? Will the sound quality of the Beyma's approximate that of the JBL's?Thanks!!

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Subject: LX-60 and G40  
Posted by [Adrian Mack](#) on Fri, 27 Feb 2004 12:59:41 GMT  
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As I said before, the LX-60 is the best choice for low frequency subwoofer duty. LX-60 has:\*9mm

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linear excursion vs 7mm of the G40, hence greater SPL capability\*LX-60 works in SBB4 alignment because of lower Fs and lower Qts, it's better damped with no sharp knees in the group delay (better transient response)G40 has:\*0.5db less power compression at 700W\*Dual Spiders and what Beyma calls an improved motor structureBoth drivers will work though, but I'd prefer the LX-60. In a pro sound application the more rugged G40 with dual spiders will withstand high volume levels for longer, but for a home application the LX-60 has more benefits. I'd expect it's probably a little cheaper too, if the G40 is a new model. Overhang and top plate thickness of both models are actually the same though according to Beyma, so the quoted 9mm xmax of the LX-60 to the G40's quoted 7mm xmax should possibly not be used as a comparison; they should have the same linear excursion. The better transient response capability is what really makes me choose the LX-60. To me, having tight transient response is very important.

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Subject: thanks for the insight

Posted by [adkins](#) on Sat, 28 Feb 2004 06:06:23 GMT

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I have talked to the local dealer and they informed me that they feel that the G40 is much better than the LX60 (according to their own experience in a pro environment), I'll never know for sure since they don't stock the LX60 anymore and now am stuck with the 18G40, but I think I can live with a f3 of 32hz from the G40. I heard it compared to a P.Audio 18" driver with no comparison. Beyma is much smoother overall. I just called the dealer and reserved the ff:18G40, 12G320, CP650ti (2" exit driver), CP25 and a TD400 horn. Now, I plan to slowly design and plan for my cabinet. All of these drivers and horns I got brand new for US\$1,550. Is these prices reasonable? How much in US\$ should I budget for my cabinets with a good wood stain finish?Regarding cabinets? Can I build all of the drivers in one cabinet? Will the 18" back-air(air backwave) affect the 12" and the horns? thanks adrian, I'll keep you posted.

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Subject: Re: thanks for the insight

Posted by [Adrian Mack](#) on Sat, 28 Feb 2004 07:27:40 GMT

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Hi AdkinsSounds good then. The G40 isn't bad or anything, in fact it will still work quite well. The LX60 isn't all that different, but this was my preference for the reasons given. I'm sure you'll be happy with the G40 though. Its similar to a lot of other high end 18" drivers. I'd have the 18" in a seperate enclosure from the rest - a subwoofer. I'm assuming that the 12" can reach to below 100Hz (I have not checked myself), below 70Hz would be the best. The G40 18" needs over 300L box volume so you can't really have the 12" and HF horn in the same cab. In any case, I'd rather have the 18" seperately anyway. The 12" driver your using needs to reach at least 70Hz. Have the 12" and HF horn in the same box with the 12" on the bottom, and HF horn on the top. The 18" goes in another box. This will also let you place the subwoofers each in a room corner, and have the 2-way main speakers out in front which is a good setup. I don't know how much the Beyma's

are worth, in fact I live in Australia so its pretty hard for me to give a US\$ price. > Will the 18" back-air(air backwave) affect the 12" and the horns? If they were in the same cab, you're right, the G40 and 12G320 each need to be in their own seperate enclosures. The HF horn can be in the same compartment though. "CP650ti (2" exit driver), CP25 and a TD400 horn" What is the CP25? Is it a supertweeter or something that doesn't require a horn? If it is, then I'd have the 12" driver on the bottom, HF horn in the middle and supertweeter at the top. Have you made sure that your tweeter horns provide the correct response curve and such. Adrian

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Subject: Yes CP-25 a supertweeter w/ 2.5-20khz freq. resp.

Posted by [adkins](#) on Tue, 02 Mar 2004 00:44:16 GMT

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The 12" G320 from Beyma are quoted with a freq. resp of 40-5000hz. I am not sure if it can go down to around 70hz flat though. I have a whole book of Data Sheet of Beyma and the freq. response curve has shown it can reach down to 70hz. the CP-25 is a supertweeter with a small horn just like the JBL 2404H bi-radial horn if you are familiar with JBL. It has flat freq. resp upto 15khz after which it goes down a few decibel to 20khz. I thought and assume this would be just a good match with the 2" exit driver CP650ti which rolls-off sharply after 10khz. sorry but I still have to ask regarding port size and length. I still do not understand how I am going to measure my port length and size for my 18G40 driver in a 320l enclosure. does it have a formula? I can't understand how to read the port sizes and length in WINISD and Boxplot shareware software. thanks!!

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Subject: Re: Yes CP-25 a supertweeter w/ 2.5-20khz freq. resp.

Posted by [Adrian Mack](#) on Tue, 02 Mar 2004 10:55:32 GMT

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What are the T/S parameters for the 12G320? The Beyma website doesn't seem to have it. It will determine weather or not it can reach 70Hz flat. The CP25 looks OK. It's a 100x60 deg horn though, I would prefer to match the dispersion to be the same as the TD400 horn your also using, which is 90x40deg. Even then though the directivity varies with frequency so they won't be exactly matched. Actually at the 10Khz crossover point the DI between the two subsystems are definitely not matched. That vertical dispersion is really a bit large in relation to the other subsystems - more lobing error will result especially up this high. It's a shame Beyma don't publish much about vertical on and off axis response for the CP25. I couldn't find the CP650Ti comp driver response curves on the TD400 horn on the Beyma site either. In fact that compression driver model number did not even seem to be listed. In terms of distortion, if you compare to the JBL's curves they are clearly a lot lower, though thats not to say the Beyma's are bad. I've never used Beyma before so again, I can't offer opinion on how they will sound subjectively, only design advice to make it good academically. About the port length's, yes, there are formulas. Boxplot and WinISD should also give you port sizes too. I'll load up the 18G40 later and get you the port requirements if you want

me to. Here is my 300L vented box tuned at 25Hz that I built for my 18" driver about one and a half years back: I'd still prefer a 1" exit compression driver on a horn with compensation to cover 1.6KHz to 16 or 18KHz rather than a supertweeter crossed at 10KHz. It's not worth it in my opinion, too much polar response error and parallax is introduced for the small gain in HF bandwidth which you don't need. Adrian

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