
Subject: Best midbass horn and question about lobing
Posted by [Omholt](#) on Wed, 01 Oct 2014 21:47:25 GMT

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I want to get a midbass horn for the area 600-80 Hz (approximately). Will use subs below 120-80 Hz. I use an active cross over and can time align. My present top horn is a Klipsch K-402, at the moment crossed over at 500 Hz to two JBL 2226 bassreflex' (80 Hz for the lowest one in the picture). The Klipsch K-402 has directvity of 60 degrees vertically and 90 degrees horizontally. Here's a picture of today's setup:

Obviously I want to try to match the directivity of the Klipsch K-402 at least around the cross over point. Getting constant directivity low in frequency requires too much size and corner loading isn't an option here. Decent directivity down to around 450 Hz would be great though.

I have looked front loaded horn (15") which seems to me the best option and I know a design I can use. It's 1 m (3.28 feet) in depth! I would like comments regarding this type of horn for this frequency area and if there's something else I should consider.

Secondly, I would like to know what the thought is about using a double as oppose to a single one. Here's a picture of the kind with double front loaded horn (the one below the black round horn):

The idea of a double horn is not more capacity. One 15" is really sufficient. However, two can even out the response a little. Secondly, the idea of the designer is also to use the extra lobing in order to minimize reflections. And this is especially where I'm uncertain whether it's a good idea or not. Plus integration might be more difficult.

Obviously with such a distance here between my K-402 horn and the front loaded horn there will be lobing also using a single. But the thought of using another horn to increase lobing and thus minimize reflections is sort of contradictory to my acoustics mind where I always want to avoid lobing as far the possible. More lobing may lead to less reflections for some frequencies but that also means the reflected energy will be more coloured. There will be nulls somewhere with less reflected energy and more energy at the other frequencies. I will of course treat the room acoustically but treatment will never completely remove the differences. An especially the floor is very difficult to treat properly.

So, basically I'm asking what is better. One single horn with a bit less lobing or two with more lobing but less reflections? Or I should consider another type of midbass horn?

File Attachments

- 1) [Horn og JBL 2226 002 \(Large\).JPG](#), downloaded 4791 times
 - 2) [2014-01-18 14.48.49.jpg](#), downloaded 4636 times
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I would proffer two observations, one that you asked for and one that you didn't:

First, if the required SPL can be achieved with a single horn, I would always prefer one horn to two because of the interference that necessarily results. Of course, you still have the distance to an adjacent subsystem, e.g. woofer which must be summed through the crossover. But blending those two subsystems is easier than blending a pair of horns, in my opinion. You can get the summing between woofer and midrange right, if you use the right crossover frequency and source location. But you can never eliminate the lobing that comes from a pair of overlapping drivers running the same frequency range.

Second, the one you didn't ask for. This has to do with a different configuration, specifically, a folded horn. I've made some midbass horns folded and some straight. I've come to the conclusion that above 200Hz or so, it's pretty important for the horn to be straight.

Basshorns are almost always folded, and it makes sense because of size constraints. But I wouldn't run a basshorn above 100Hz.

There's a temptation to do the same thing with a midbass horn, but the problem is this range blends with the midrange. And getting the folds at the right dimensions to prevent standing waves is tricky, to say the least. I'd go so far as to say it's impossible. So in the land of competing priorities, I'd definitely vote against a folded midbass horn, or any horn run any higher than about 200Hz.