BRODMANN ACOUSTICS FESTIVAL FS BY AVMENTOR

One of the reasons that the audio field has exceptional interest is the varied approaches that often hide the possibility for a new successful process of ideas far from the "conventional" approach. As an example, consider Hans Deutsch. He entered the field of sound almost half a century ago, and from 1964 is developing and implementing a package of ideas on the design of speakers which is completely innovative, even revolutionary, and exceptionally interesting. …..
It is difficult to evaluate if the choice of a piano maker such as Brodmann to implement Hans' ideas is simply a chance or it is his preference for a designer of speakers, but look at it from the practical side. If there is someone that can construct the cabin of a speaker based on the principle of a musical instrument, it would be best for that someone to be a piano maker.

What is it that makes the speakers of Deutsch different? Basically two things.
First the "charge" of the cabin is not according to classic procedures, but is based on what he names as a Horn Resonator, a variation on the Helmholtz principle.
The second differentiation that appears on most of the Brodmann line, is the use of a vibrating surface, which Deutsch calls SoundBoard (ASB: Acoustic SoundBoard)

Description of the Festival FS…

The speaker is a two way design, with the silk dome tweeter of 28 mm and a mid/woofer of 130 mm of paper pulp reinforced with strands of carbon and cannabis, while the support is of a foam material. Brodmann itself produces the speakers in order to have better control of their characteristics. This allows it to come closest to Deutsch's philosophy which dictates that the mid/woofer would function "in the highest possible frequency of cut off" and the function of the tweeter " in the lowest possible frequency cut offpoint". In the specific case of the FS the frequency cross is 2kHz with the use of a first order filter (6dB/oct).

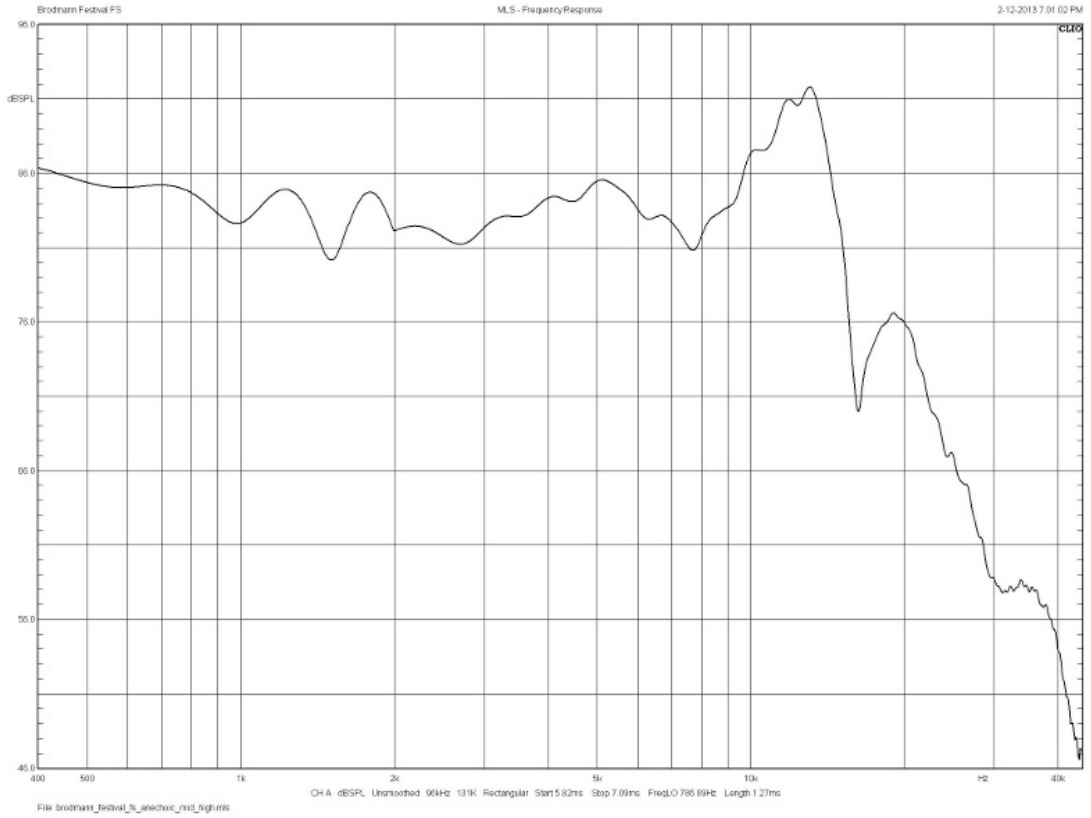
While the SoundBoards of the FS do not show when the speaker is in its upright position of use, that which can be seen is another idea which is named SoundRods (ASR: Acoustic SoundRods). It is in effect a “heavy grill” which according to the company improves the distribution of the middle frequencies. This piece has attachments to the speaker as well as to its base and “ties” together from an aesthetic point of view.
One of the many unique aspects of the speaker is that there is no use of damping material in the interior of the cabin. The company depends on the dimensions and the internal construction of the cabin for this effect.

The finish of the FS is, as one would expect, exceptional, even though it is a base model. The meaning of “piano finish” acquires new substance when the maker of the speaker has a history in the construction of pianos, and Brodmann uses the opportunity to show what can be done. The connection with the amplifier is by means of two terminals of high quality.

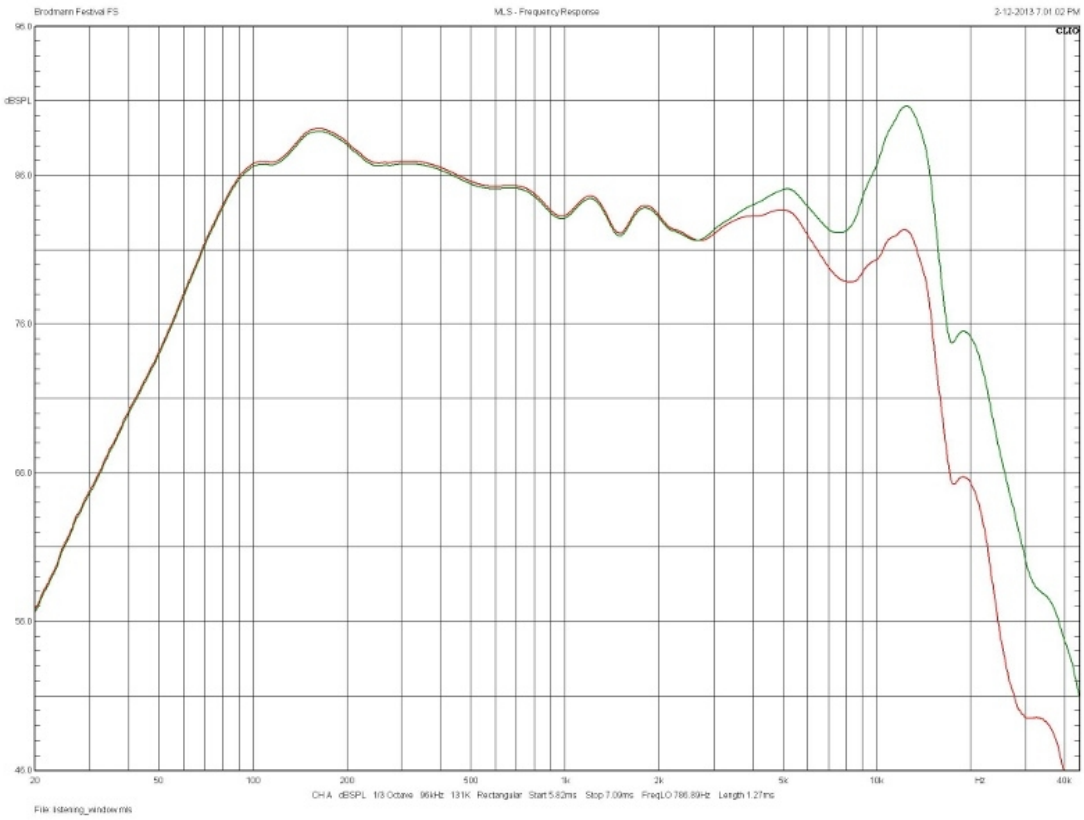
The laboratory evaluation of the FS has specific difficulties which arise from its structural design.

The anechoic measurement of the response in the middle/high frequencies with lower

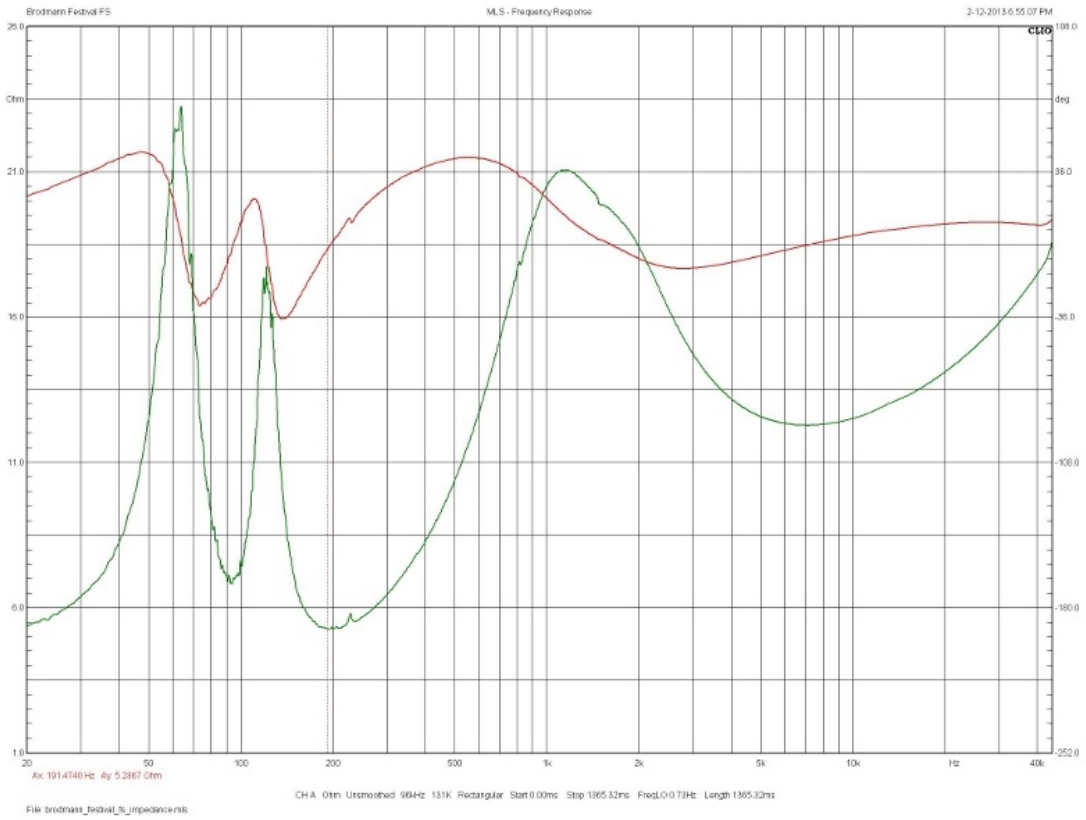
level the 400Hz (and splicing at 2kHz) has two aspects. The speaker appears sufficiently even up to 10kHz, within the boundaries of +/-2.5dB and then has a substantial upswing (about 6dB in relation to the median sensitivity with a center at about 12kHz) which is followed by a quite large downward turn. On the basis of the median sensitivity, the FS has an upper frequency cut off (-3dB) at approximately 15.8kHz and –6dB at 19.5kHz. Considering that the tweeter is designed and produced by the company, this must be a specific choice which is determines the voicing of the speaker.



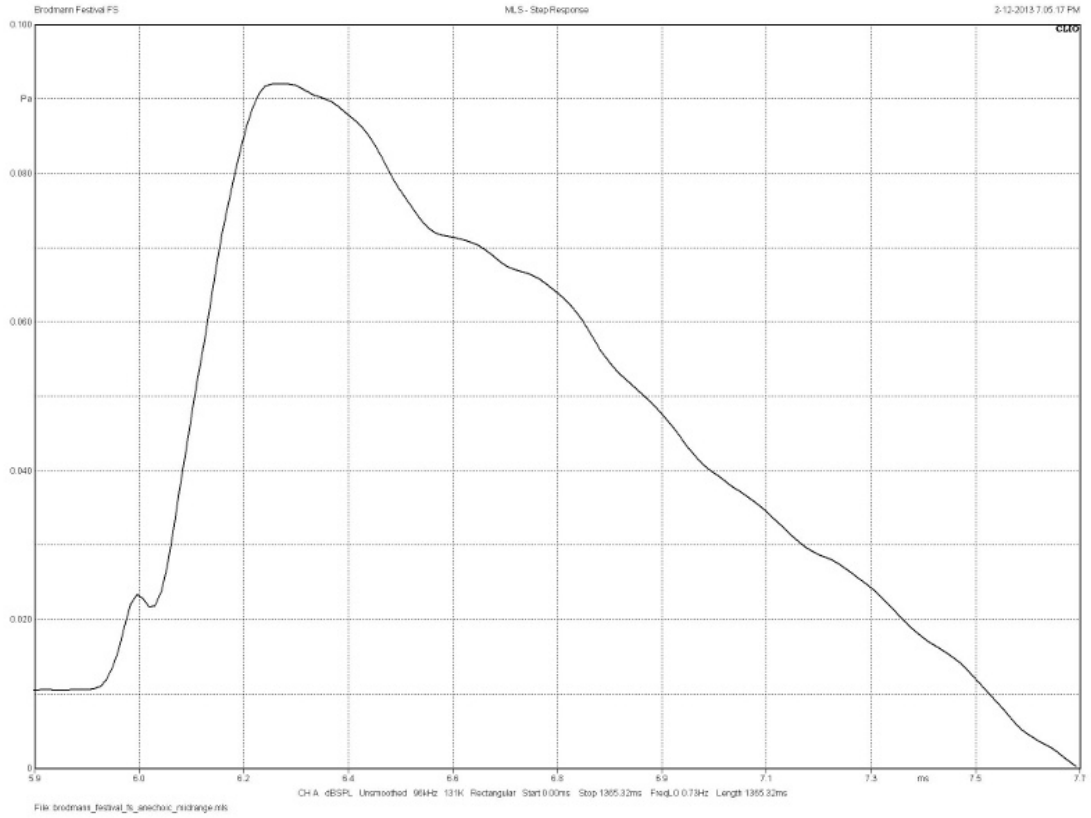
The quasi-anechoic measurement substantiates the initial valuation that the FS is a speaker with relatively small variations since its curve is within +/-3dB, with the exception in the high frequencies (which have been mentioned) and a small emphasis low (at 160Hz). The lower frequency cut off (-3dB) is at approximately 70Hz and the point of –6dB is close to 60Hz. The angle of the curve is 12dB/oct.
On the basis of this particular response, the median sensitivity of the FS has been calculated at 84.4dBSPL/2.83V a result which places it among insensitive speakers. Brodmann gives a much more lower figure of (81.1dBSPL/w/m) but with a different measurement norm (DIN). Very interesting is the space average response of the speaker, which results from a series of measurements both within and out of the axis and can be considered as much more representative of the actual response. In the charts below one can see that the emphasis on the high frequencies is smoothed out to a great extent.

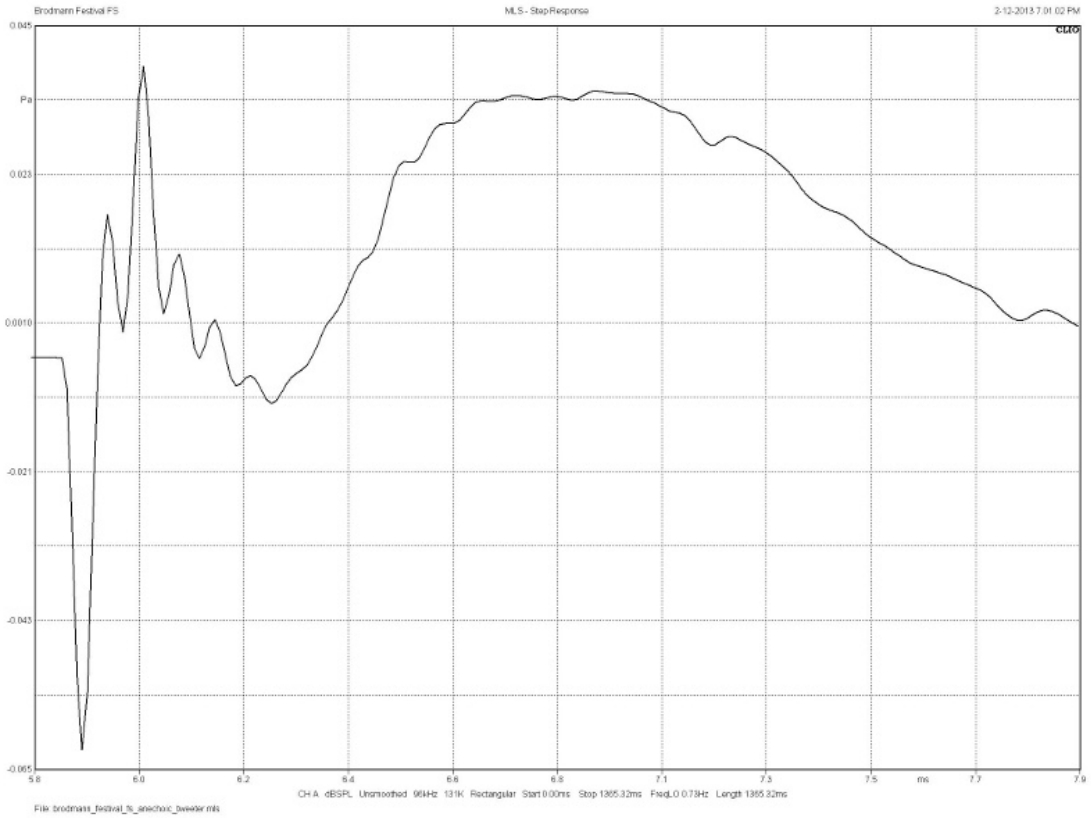


As a load, the FS will not create difficulties for the amplifier which will drive it. The measure of minimum impedance in the lower frequencies is 5.2Ohm (190Hz) with the highest value reaching 23Ohm (63Hz). The phase of the impedance moves in the usual levels, minimally above 36 degrees (with an inductive character, 46 degrees at 48Hz).



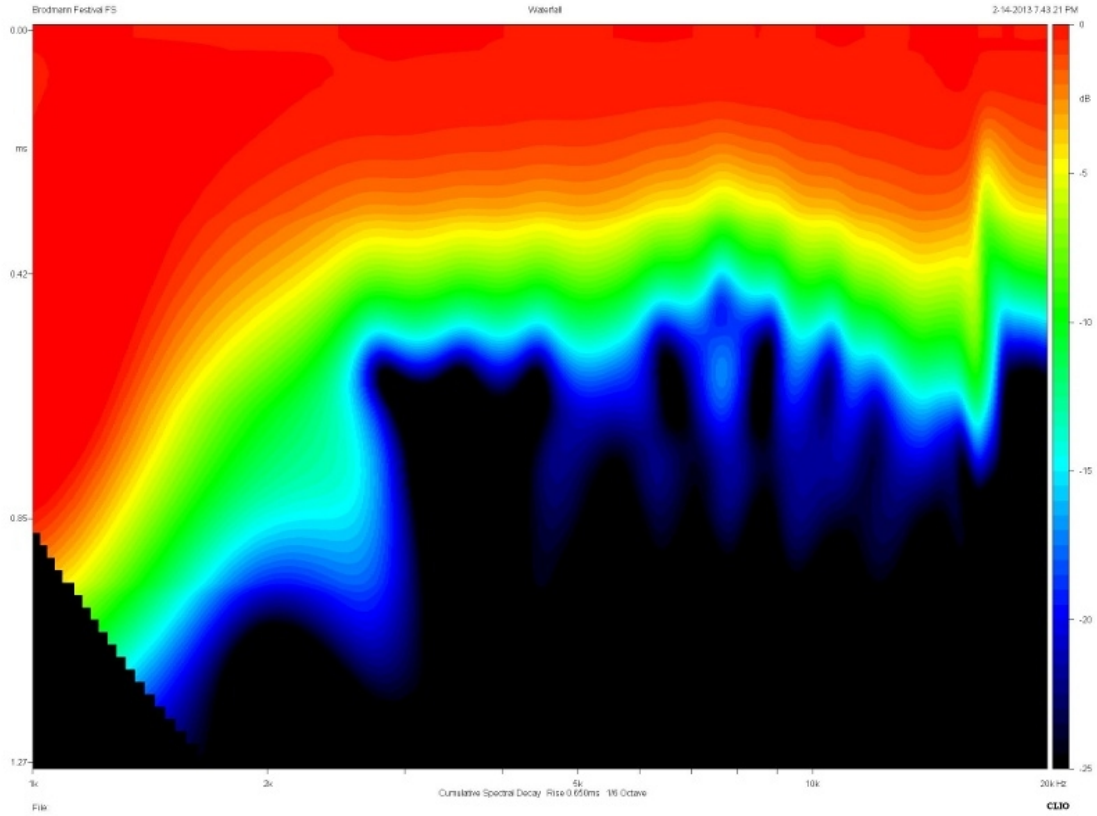
Given that the units of the speaker do not project directly to the listener, it is not possible to obtain a full anechoic step response. For this reason we show separately the response of the mid/woofer which is quite even both during its initial excitement as well as its damping, and, also, for the tweeter that shows an even response with the exception of a second arrival which needs some clarifying.
On the basis of the time delay (0.16mS after the initial impulse) it is very possible that this second arrival is caused by the diffraction of the baffle. This is supported by the fact that the width of the baffle is equivalent (by the width of the wave) to a frequency of 6.4kHz.



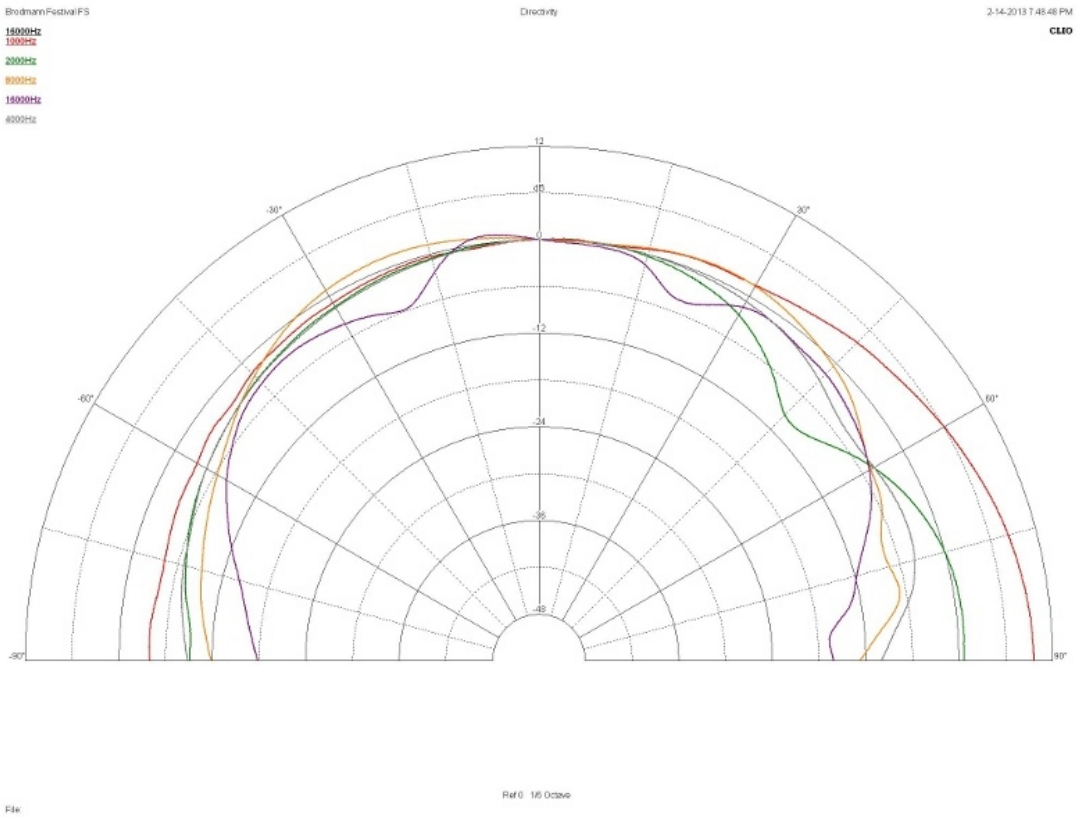


The CSD diagram of the tweeter (above 2kHz) shows a quite fast speaker with a

maximum delay about 1mS at 3kHz. There are, also, see a series of resonances in the region from 4kHz to 10kHz, but they are quite smaller (below 1mS), a result which must be considered absolutely satisfactory.



Finally the diagram of the polar response shows what is to be expected. The FS is a speaker which excites the space homogeneously, especially below 2kHz where midrange driver comes into play. Even in the high frequencies the directionality is very small with -6dB being more than 45 degrees off axis.
On the basis of this, it does not seem necessary to turn the speakers toward the listener, even though Brodmann in its manual recommends it. The diagram is characterized by a lack of symmetry in the vertical axis which can be explained by the fact that the two units are placed at an angle of 90 degrees. The total response of the speaker on the issue of directionality shows that it is capable of creating a homogenous acoustic field which the listener should use if he wants to have best possible result.



The FS replaced the reference speakers and were driven by the Parasound amplifier HCA3500 with the rest of the system being the Teac Esoteric P70/D70 (upsampling 176k connected AES with cables DC-110 of Nirvana), the preamp Plus Series Line of Melos. One part of the listening was done with the use of digital acoustic correction Through the DRC-205 by Copland, in order to judge if the speaker and handle corrections in the lower frequencies.
The design of the small Brodmann demands quite careful placement. The listener receives the largest part of the middle frequencies indirectly. One should make certain of a symmetry in the placement of the speakers as well as in the uniformity of the reflexions. Of course, the length of the waves that are below 2kHz are quite large, so in effect on should avoid extremes, but the impression that the speaker create during the test is that a bit of researching is always rewarded.

The first impression in listening to the FS is that one has before him a exceptionally well set up speaker, based on clear concepts on high fidelity which are then served with consequence. For example if one is looking for the sound of a monitor, they should search elsewhere. The FS is an uniquely atmospheric speaker, capable of creating a rich sound field within which the listener feels he is enveloped and which is the most complete that this reviewer has ever heard from a two channel stereo.
The imaging is not simply in front of you but it creates a spherical presence which changes the acoustics of the space and is truly impressive, if one considers the size of the speakers.
The focus of the sound field is not especially sharp , however the description of the total musical event usually does not necessitate such details and it is obvious the Deutsch belongs to the school that considers such sound more natural and a large percentage of demanding audiophiles agree with him. (This reviewer is not at all unhappy with such a result even though he systematically listens to speakers diametrically opposed on this issue!) On the basis of what I heard with the FS, it is not strange that the larger models of Brodmann (and the older ones of Bossendorfer)

have garnered some amazingly enthusiastic reviews. The larger the sound field in a recording the better this speaker responds, and the large orchestras (where one distiquishes groups of instruments instead of individual organs) are truly impressive in presence (mind you that we are speaking of the mid/woofer of 130mm)

In regard to the area of frequency response, the designer has his thoughts. The FS sounds quite pleasant and soft on high with good speed and transparency. It does not tire and one can listen to hard recordings since its character veers to the light and pleasant side. The middle range is presented appropriately: it keeps its distances from the listener, providing sufficient details and the presence of the instruments and voices in this range are natural and pleasing. In other words there is nothing missing and nothing is projected beyond the necessary. This is probably the reason that one can very easily exhaust this small speaker without feeling that it is tiring one. Brodmann gives a top level in constant use of 96dBSPL/1m which means that in a system where the listener is seated 2 meter away the real volume would be around 93dBSPL, a value which is perfectly satisfactory for most purposes. If you over push it the FS reacts with acoustic suppression (as anyone would expect) but again without it becoming unpleasant.

In the lower frequencies the limits are dependent on the speaker and the space of cabin, although the unique architecture of the cabin gives the speaker a bit more "air" in contrast to what one would expect from a traditional approach of a bass reflex. Truly, even though there are clear limits, the FS sounds balanced and well controlled with capable deleniation of the rhythmic part without showing "small" or insufficient. Clearly the very low frequencies are held back and lose a part of their impressive character, but this is expected and in the final analysis does not bother given the volume and dimensions of speaker.

Finally…..

… the smallest Brodmann speaker is an interesting case: It is a economical, scaled-down, version of the large speakers of the company, and under this prism, it is a test of how much the ideas of Deutsch can come "down" to a lower price category. Without experience of the large models it is difficult to judge if the use of the horn resonator and the SoundBoard are justified in such a small cabin, but this is finally an academic issue.
In practice, the FS is a very good small speaker, with a unique character and I have no doubt it will enthuse a a lot of demanding audiophiles.
You must listen to it for it truly stands apart!