

# GATO AUDIO

## FM-2

**Manufacturer:** Gato Audio ApS, Hoerkaer 14, DK-2730 Herlev, Denmark.  
www.gato-audio.com - info@gato-audio.com  
**Distributor for Italy:** Il Tempio Esoterico, Via Roma 170, 95037 San Giovanni La Punta (CT). Tel. 349 5976278  
info@iltempioesoterico.it - www.iltempioesoterico.it  
**Price:** Euro 4800.00

### TECHNICAL SPECS DECLARED BY THE MANUFACTURER

**Type:** bass reflex from stand. **Recommended power:** 505-300 watts rms.  
**Sensitivity:** 89 dB with 2.83 V at 1 meter. **Frequency Response:** 48-25,000 Hz (-6 dB). **Nominal Impedance:** 4 ohms. **Number of ways:** two.  
**Tweeter:** 30 mm ring radiator. **Woofer:** of 180 mm.  
**Dimensions (WxHxD):** 200x390x370 mm. **Weight:** 10.5 kg each.

SPEAKER SYSTEM

**T** This month we try a stand speaker of a relatively new brand, born in Denmark, Herlev, only a few years ago. Who thought of being in front of a small brand founded by young engineers, who are enthusiasts of audio and music playback, is wrong. With regard to research and design of the speakers Gato Audio uses the presence of Milad Kahfizadeh staff of engineers, specialized in acoustics and speaker, a character who has a long militancy first in Gamut, another Danish mark of great calibre, and then in Tymphany, a prestigious company that united Vifa, Peerless and Scan-Speak, with the latter which some time ago has “unmarked” and has started on her own again, as I hope to tell you soon. Here’s a good reason to say that the new brand was born already old, in the best meaning of this term, which means that an inexperienced young brand does not match poor project experience, indeed. Companies of this type, where the engineering staff is comprised of several spearheads for the design of power electronics, digital electronics and speakers, can make the difference very quickly, without any need for the usual ten-year of “minimum apprenticeship” to enter in fact the ranks of credible manufacturers. This long apprenticeship was necessary, as required in the recent past, but that now seems remote enough. The Danish manufacturer’s speaker, as just been removed from the packaging, appears immediately for what it is: a two-way device made by a sleek cabinet, polished to perfection, and two Scan-Speak speakers. Beautiful finish and details, with the front slightly tilted backwards of a few degrees.



The woofer of FM-2 is built by Scan-Speak and customized for Gato Audio. Note the distinctive pattern of membrane reinforced with the “slice” of stiffer material and the double ferrite ring outside.

**The construction**

After a good look at the transducers it is immediately clear that there is something wrong, or at least that it is not perfectly

identical to the Scan production, which we know well. After a few moments of uncertainty I recognize in the tweeter ring the only element of difference between the traditional production of the Ring Radiator and the tweeter placed on the front baffle of FM-2. The rounded side walls and the excellent finish suggest taking a look at the manual before putting a hand to the electric unscrewing device. I learn so that the cabinet is made of high density fibreboard, virtually a mixture similar to MDF but more rigid and dense. The side seams have been achieved due to the forming of five different layers of HMDF glued together to obtain the desired shape with high rigidity. An aluminium cap covers the basket of the woofer with a function, I believe, that is both aesthetic and of seal, considering the pretty strong action of the metal thread screws with a nut embedded in the structure of the front panel. The tweeter has an all-aluminium flange, designed and built by the same Gato Audio to increase, according to the manufacturer, the stiffness of the driver. The secondary effect, certainly less important, is an appearance of great impact by usefully adding a limited diffraction due to the particular 45-degree turning of the outer edge. The transducer, while carrying a Gato Audio plate, seems to be a Scan-Speak built on the manufacturer’s specifications. On the

other hand, the designer, after some years spent working there, knows how to change the high range of performance to its own use without altering the design of the driver. Moreover just in Scan-Speak I learned that one of the most versatile elements is the central point that can be assembled in several forms depending on how the high range has to be modelled and on dispersion characteristics that are to be produced. In the major series of Scan-Speak, dispersion at very high frequencies, even far above the audible band, is studied with particular care in order to obtain a particularly sweet performance, at least if you are careful not to compensate for the high frequencies or have a completely flat response on the axis. As we can see in **Figure 1**, the ultrasonic band response of the tweeter performed on the axis extends well beyond the classics.



The back of the cabinet is enhanced and reinforced with an aluminium profile that recalls the aesthetics of the amplifiers of the same manufacturer. Note the chord tube with a diameter of 55 mm and WBT connectors.

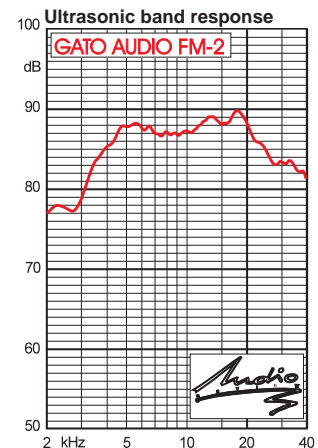


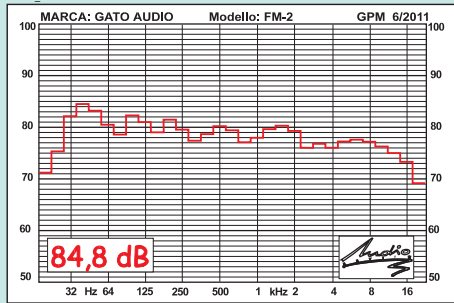
Figure 1

## GATO AUDIO FM-2 Speaker System

### MEASURED FEATURES

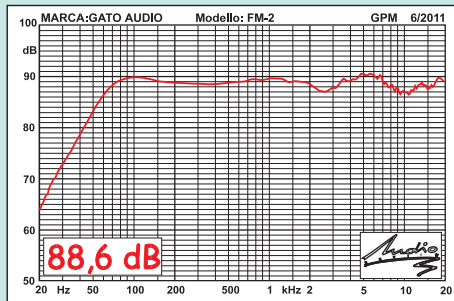
Sensitivity (1 m, anechoic environment): 84.8 dB

Environment response:  $V_{in} = 2.83$  V pink noise

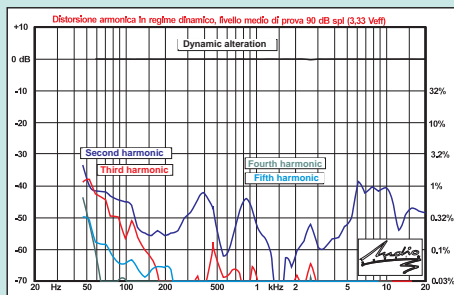


Environment sensitivity (two speakers driven with 2.83 V, pink noise with independent channels): 88.6 dB

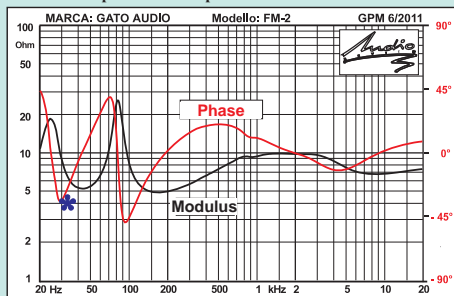
Frequency response with 2.83 V / 1 m :



Distortion of second, third, fourth, fifth harmonic and dynamic alteration of 90 dB SPL

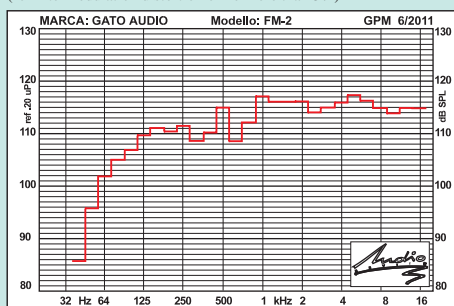


Modulus and phase of the impedance:



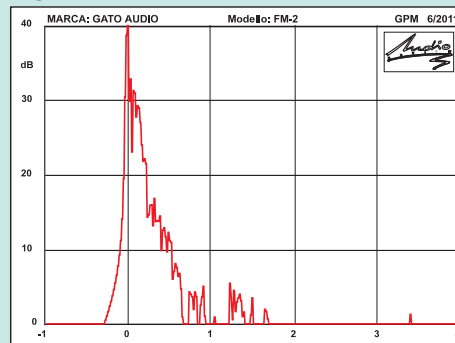
MOL - maximum output level:

(for intermodulation distortion of no more than 5%)



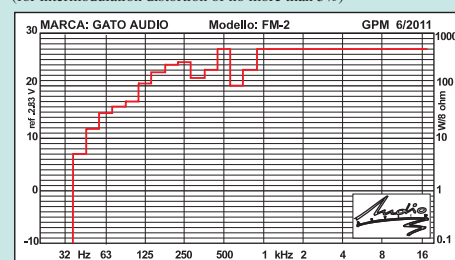
The frequency response of the Danish speaker shows a sensitivity datum well in line with what was stated by the manufacturer, thus showing a somewhat similar method of calculation. The bass response is not huge, but I invite you to make the calculation of the slope of the natural high-pass, a gradient which was calculated in less than 16 decibels per octave, and that to me looks like a correct cross between the extent and tightness of the bass reflex and the damping of the air suspension. The slight peak at about 100 Hz then should not be confused with poorly controlled damping but as an effect of the crossover filter, which tends to lower and regulate the response curve of the transducer used. It should be noted, again, that the slight wave of the response is near the crossover frequency at around 2500 Hz. As we will see, this attenuation is due in part to the response of the tweeter which has a hesitation and in part to the bland initial slope of the woofer low-pass. In an ambient with pink noise double generator we notice a gently downhill progress between low and high frequencies, fairly consistent with what we were expecting considering the regularity of the anechoic response. The hesitations in the mid-range, just above 2000 Hz, remain there while the treble does not show any kind of boost around 10-12 kHz. This is a characterization which I personally tie to the quality of the highest range, which allows a good distinction between the sound characteristics of a soft dome and of a rigid dome. The trend of decay in the time domain shows us how paying, in terms of disposal speed, a proper interior design of the speaker and the front panel is, as well as a prudent approach of the acoustic centres that do not respect the simple mechanical restoration of the emission centres. The modulus of the impedance shows us that the tuning frequency is quite low, around 42-43 Hz, while with high losses by absorption and cracking are on the average a tuning mode tends to QB3. In the midrange we see the control implemented to the crossover frequency, a control that does not lead the modulus to higher values and higher phase shifts. I can add that unless specific compensation we can see that the load offered to the amplifier is very smooth throughout the range of maximum energy content. In low range, just after the first typical peak of the bass reflex, the values of modulus and phase lead to the maximum load condition. Indeed it is a pure resistance of 4 ohms at 33.3 Hz, a condition that does not worry too much even an amplifier of medium features. In the dynamic measurements, I'll point out a feature that I have noted often while using Scan-Speak speakers: the total absence of the third harmonic and those of a high order just past the low range, where the mobile coil moves more. In return, the second harmonic, to which I frankly concede secondary importance, is noted in various parts of the audio spectrum with values always less than one percent. The only drawback of this non-linearity is, so to speak, graphical, since it is the only one to be seen in a panorama of harmonics almost entirely located below the bottom. The dynamic compression is of course just to be noticed, without any particular type of evidence, straddling the zero line. Even to the extent of MIL the second harmonics of the double-tone are used to this measure which forces to stop the measure. At 40 Hz we detect as only 5 watts are needed to bring out a distortion of 5%, with the third harmonics of the test tone enviably low on the monitor of the Audio Precision Two-Cascade. As the frequency increases also the maximum power that the speaker digests without distorting goes up, so that at 100 Hz we are already at 50 watts, continuing to climb up to the maximum available power, passing through 280 watts rms at 250 Hz already. The MOL inferred from the features seen before, from the frequency response and dynamic compression starts from 86 decibels at 40 Hz and goes up to over 100 decibels at the next octave and 110 decibels rms at 125 Hz, pressure which remains more or less constant up to 800 Hz, beyond which the level stood at an average pressure of 115 decibels.

Response in time:

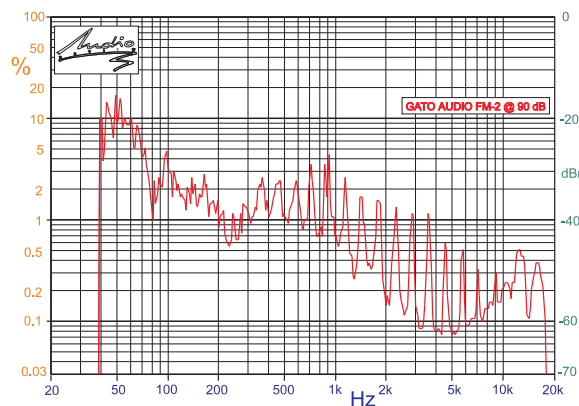
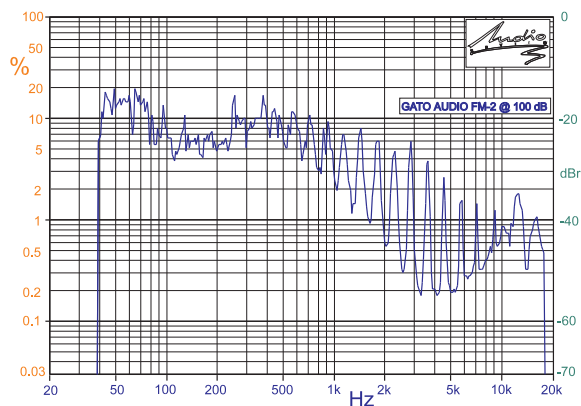


MIL - maximum input level:

(for intermodulation distortion of no more than 5%)







The two measures of TND are both affected by a quite visible interaction of the low range on the mid and high one. As we can see at very low rate for both pressures the usual high values are due solely to the volume of air the woofer is capable of moving, so the more if we take into account the onerous type of input signal adopted. Just beyond the low frequencies both curves reaches a more "quiet" zone, with the red curve of 90 decibels of average rms pressure which falls below one percent. The presence of peaks also of considerable magnitude does not prevent us to notice a quite low average value, with the treble on the values that are low on the average. Even at 100 decibels rms the treble holds well, with low values on the average. At mid-low range the level, instead, remains quite high, with average values that sporadically exceed 10% between 250 and 600 Hz

## LISTENING by Marco Cicogna

A new Danish brand comes to the office. This is Gato Audio, which comes with a line of elegant and refined speakers that once again demonstrate how Old Europe still has much to say. However it is not a newcomer to the scene, if anything, it's my fault that I was distracted, in the major showcase for the CES in Las Vegas. By studying the case, we realize that Gato Audio not only produces speakers, but also electronics. In fact it is a young company, but behind it are men who have extensive industry experience and previous commitments in the key roles of other brands. We are here to remedy, or rather to contribute to the wider knowledge of a sector which for our good fortune and pleasure has always plenty of news (as the recent exhibition of the Monaco High End teaches).

The pair being tested here is the first model starting from the "bottom" of the "FM" series, stand speaker constructed with very few compromises. It must be said about the spontaneous and immediate musicality, or the ability to show right now as valid interpreters of "real" music, the acoustic one so to speak, one in which timbre and instrumental colour propose with authority. It is not a so obvious matter. There are many products which, even technically impeccable, seem to look for sound performance sometimes away from a natural enjoyment of music. It is known that high fidelity is a game, but there must be an "objective" limit to the fantasy in the playback of the recorded source, otherwise all and the other way around would be lawful. I concluded that perhaps the hi-fi aim (and therefore what most audiophiles want) does not always coincide with the search for a reliable sound in a musical sense. This is a personal opinion, of course, but with the passing of time certain beliefs as suggested by experience are difficult to change (but I am always willing to be convinced of the contrary). These Gato Audio, even if "tiny" when compared to my standard of speaker, carefully express the sense of "musicality" we like to look for in a player, showing fine balance just in the wide and fundamental surrounding of the middle range. Moreover, without wanting to generalize too much, it's no secret that high quality components are made in Denmark. Our Gian Piero Matarazzo presents in these pages a comprehensive objective assessment of this "midi". It is a technical evaluation that for breadth and depth (we can say it without fear of being accused of exhibitionism) is rarely seen in our publishing world. My task is certainly easier, since I limit myself to listen to my roundup of known recordings, without lacking any new record label of which you also read later in this issue. The FM2 were included in a chain with a classical piece as the McIntosh preamp and power amp

already here and even a small but gifted outsider such as integrated digital Calyx, just tested by Fabrizio Montanucci. The source was the CD / SACD Cary Audio player that for some time we have well assimilated in the newsroom, I hope indeed that it does not leave us too early so that I can use it again, since the SACD format is far from dead and continues to bear fruit.

I said about the always consistent timbre of FM2, as it appears from listening to the original instruments from the baroque recordings (superbly I would say) by labels such as BIS, Accent, and Harmonia Mundi. Without going into detail of the discography, for brevity, I want to point out the good fusion between the ranges assigned to the woofer and the tweeter, a soft flowing which is free of "infirmities" where you do not lose focus of the harmonics in treble, finished without excess. Here is matched by a mid-bass with just "hot" tones, able to provide structural support to the fundamentals of instruments such as the bassoon, clarinet, and cello, too often depleted by systems for audiophiles in search of synthetic emotions. The dialogue between the natural horn and the strings of the Academy of Ancient Music (Hogwood in Decca, do you remember?) proposes solid contours, burnished tones of the solo, rhythmically featured phrasing. Without pretensions to monitor settings, the Gato Audio devices succeed in the timely presentation of sources, not giving up to outline with the best records the depth of the scene of pleasant suggestion. Bach's Brandenburg play on the articulation of the parts in an agitated counterpoint, while tonal preciosity of the Sesto Concerto ("leg" viola and "arm" viola in close dialogue) is expressed in a reading which is light and dense at the same time.

Solo voices prominently at centre of stage, with a plus in the correct setting of the female ones. With several recordings of organ music of my selection, the great instrument is just climbed, however, consistent in the exposition of the registers, with the support of the pedals to get down to where possible. Huge control even at "adequate" volumes, which to me are never anaemic, while also the great orchestral percussions in non-huge ambient allow facing the score with the right impact. The performance with jazz is of great charm, and in the classical formation of piano trio (Loussier, Telarc), both in dynamic pages for big band, along with the wind instrument ensemble just pungent at the treble end and a perfect seal on the octaves of trombones and baritone saxes, unusually intense for a system of this size.

A happy combination of refinement and valid instrument grain in these Gato Audio devices, to listen to, understandably, with all of your attention.

## GATO AUDIO FM-2

20,000 Hz, with an attenuation at the increasing of the frequency with the contained slope and without abrupt hesitation. The woofer is 180 mm, with the membrane effective diameter of 142 mm and an excursion of more than six millimetres. The "extraline" engine, as defined by the same manufacturer, is made of a very long coil shaped in a particular way and immersed in a particularly constant magnetic field, both for the particular shape of the central pole and the original arrangement of the

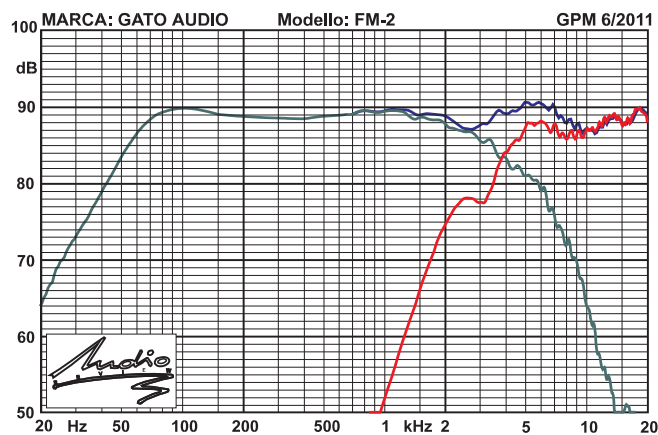


Figure 2

## LISTENING

I have already admitted in the article opening to know a little about this Danish trade mark which is good rumoured and uses speakers that I generally like both in the yield and in the liability. Obviously then there is a double attention in searching for a location that maximizes the performance, experimenting with the available power stages the best interface I can afford. In truth, I must say that I liked this system almost immediately, for a feature seemingly unimportant but that always strikes me: the stability of the scene noticed before trying a rational position. Basically I placed the speaker on the stands, I connected the first power electronics and the CD player and I set fire to the powder, with the primary intention to break in the membranes a little. And without touching anything I saw that the scene was firm, rocklike, almost predictable. And this is really a great first taking of confidence. I alternated several "preventive" sessions with more or less short periods of rest and after a day of work and measures I'm returning to the listening room. Both the tweeters and the woofers are equipped with protective round rings and equipped with magnets for a tough grip to the speakers they cover. I removed the one of the tweeter and then that of the woofer. My first impression is that with the tweeters covered and woofers uncovered the yield is better, a feeling that disappears as soon as the power electronics is changed by replacing the super-powered amp with a less powerful but more refined one. The two speakers can also be spaced more than the standard without having the central zone audibly emptied and this will almost certainly allow more versatility in placement, having only to take care to the timbre change in the bass and mid-bass range without worrying about anything else. This is, in my opinion, a good identity card of the performance which must have been carefully optimized in the design of the crossover filter. As for the rotation of the cabinet to the point of listening I preferred a few degrees angle, so you do not have the whole "music" in the centre, with a deep and narrow stage. The first tracks reproduce the female voice and then the male, just to start the test well. In the voice of the fairer sex I notice a good naturalness, with proper positioning of the performers of the three songs at my disposal and a part just lower than the standard. The pulsed high-frequency components, and hard consonants generally do not present any type of hardening, and are reproduced with good tonal balance. The naturalness of the emission is significant and let appreciate more the rendering of details and voice inflections. It is, in my opinion, a very critical portion of the spectrum of speech, which must have a great balance between performance of the details, resolution and timbre for not going at higher levels from sensational to fatiguing. In my opinion, one of the most critical points in the development of a speaker. Well, the designer of the FM-2 should have been especially busy because it seems to me that everything is going very well even in this small portion of the acoustic spectrum. Male voices, more full and powerful, tend to take a correct position, and not a backward one. The mixed choir finally proposes dimensionally correct, with a good sense of depth and a

great and enjoyable respect of the rows of performers. A feeling that comes out slowly and gradually gets more and more clearly noted regards the respect of the signal amplitudes, the yield and accuracy in detail and dynamic range on the sudden jumps in level, which in voices are often considerable. Obviously I could not tell you about these features if the tonal balance presented significant changes or if the treble was unbalanced. Even if I do not love this particular type of tweeters, I can say that the performance is remarkable and enjoyable, with a wise control in the amplitude of the cross range and a single light attenuation in the treble which seems to let the air miss on the harmonics of the instruments. The bass is well extended, with the limitations imposed by the size which are not too much felt, thanks to a decent damping and a contained gradient of the natural high-pass. And it seems to work very well while noting, I would say understandably, a contained extension. The stability of bass and the good dynamics still come out with the jazz music that seems to be particularly pleasing to the Danish. The well-balanced tone without excessive special effects, in the treble, the clear, lucid midrange, would be good credentials, which would be wholly unnecessary if they appear poorly related to the lower mid-range and to the lower bass. In the two ways the tie between the bass and mid-bass is optimized only by the construction of the woofer and the cabinet and in the case of Gato it seems to have been carefully optimized. In short, the listening is loose, easy and quite enjoyable, with some loss of clarity and detail that comes out every now and then, especially when the musical texture is complex and at the same time the level is high. The range of the electric bass is really intriguing, aided by regular response throughout the treble, with pizzicato of strings that comes off easily, at least if the engineer did not study in a beauty salon. The effort to Gege Munari at Alexanderplatz is well rewarded by Gato FM-2, which reproduces with good accuracy the certainly not huge environment of the room where the great Stefano Isola has captured accurately, pointedly and with "handle" the ambience of the room. Personally I only own the CD version, but I already asked the good Rocco Patriarca about the 24/96 version for a direct and critical comparison. The piano of Domenico Sanna in some passages does not really seem to focus, and I think we lose some inflection and some details, perhaps to the benefit of Marco Ferri's sax which is located right next to the piano. I do not know by heart this recording because it came in my possession for less than a month. So I'm looking, through the tracks of my test records, for a piano that I know very well and I confirm that in some passage the yield in the mid-range can sometimes seem slightly veiled. Moving on to music genres with large orchestral mass I can again note a correct scene in all dimensions, with good depth and a significant horizontal proposal. Basically, the system handles well the difficult cohabitation between the width and depth without exaggeration and without compressing anything.

G.P.M.

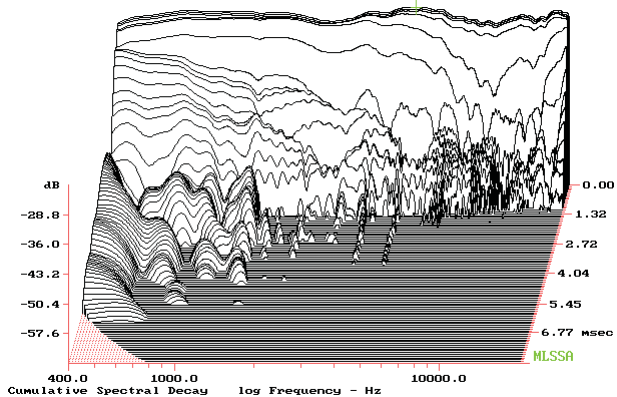


Figure 3

magnetic short-circuit ring. In the version designed for Gato Audio another two ferrite rings have added behind the closing bottom. I do not think, frankly, that the ultimate goal is the shield, or at least I do not think it's only for this reason that this solution was used. The increase, though modest, of the force factor and the consequent lowering of the electrical quality factor add a touch of more sensitivity so that to come near 89 decibels, a higher pressure than the one of the normal production Scan. The interior of the enclosure is coated with an acrylic material dense enough, certainly more than the normally used one. Removed this material we see a reinforcement ring which is not very invasive in terms of sound, made of wood and placed in a central position between the woofer and the tweeter. The crossover filter is placed at the base of the speaker. Unfortunately, it is completely covered with a tarry material that covers the "low" components for at least an centimetre and a half and makes it impossible to unravel it. You can see the large capacitors with high voltage of breaking which should be Clarity Cap, certainly of good quality and with a good

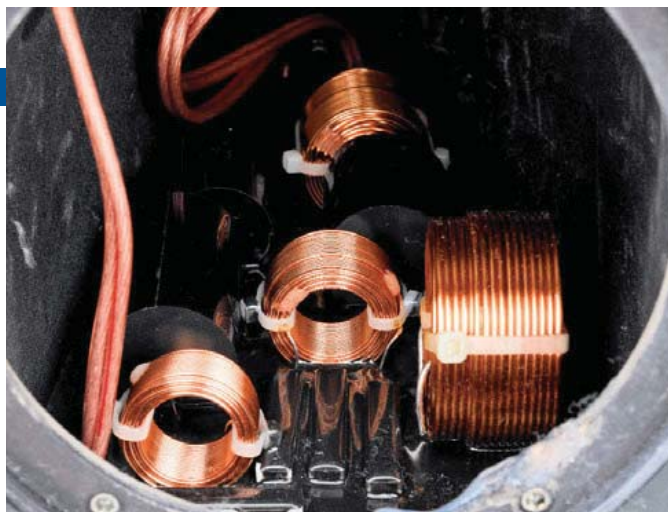
music result. You can also see the inductors, which are all wrapped up in the air with a wire of good section and the cemented coils to prevent the vibrations to modulate the sound in some way, a modulation that with the economic inductance is well measurable at the crossover frequency, where it assumes maximum values, which in some cases are even embarrassing. The rear termination of the cabinet is made of aluminium, with an elegant shape that is somewhat reminiscent of the power electronics produced by the same manufacturer. In this "metal addition" are placed the four WBT connectors connected to the crossover with cables of optimal section. The action of the crossover filter is measurable only through the bi-wiring and I obviously I have not missed an opportunity of a separate measure. As we can see in Figure 2 the crossover frequency is quite high, at around 3800 Hz, with a pattern of two speakers that allow the identification, in approximately 24 decibels per octave, of the acoustic slope of the speakers. The hesitation of the tweeter at 3000 Hz should be noted, probably due to the diffraction of the front panel or the flange of the same transducer.

Finally, the waterfall of Figure 3 points out an interior free of particular reflections even at mid-low range frequencies, with the woofer that behaves in excellent way with mid-range and medium-high range. Two slight hesitations between 3000 and 5000 Hz should be noted probability due to the tweeter.

**Conclusions**

If this speaker is the Gato Audio presentation on the Italian market, I can certainly say that it was a great presentation. The speaker shows the experience behind the designer and was born "old" because of the knowledge and vision of proper playback. In short, despite the young age of Gato Audio I can say that I liked the speakers both for performance and for the setting of the whole project. I have noticed the sound characteristics that cannot be improvised overnight, with a shrewd and well-designed build and a balanced sound output that claims an amplifier of the same level to give the maximum result.

Gian Piero Matarazzo



The crossover is located at the base of the box. The coverage of the components with tarry material makes it impossible to analyze them. The inductors are all wrapped up in the air and the capacitors are the fine Clarity Cap ones.



The tweeter has a front flange in aluminium. This is the Ring Radiator of Scan-Speak, this is also made for Gato Audio. Note the chamber covering the rings in neodymium.