SEPTEMBER 2012

Manger MSMs1

Country of Origin

Germany

Reviewer: Srajan Ebaen
Financial Interests: click here
Source: 27" iMac with 3.4GHz quad-core Intel Core i7, 16GB 1.333MHz RAM, 2TB hard disc, 256GB SSD drive, ADM Radeon HD 6970M with 2GB of GDDR5 memory, PureMusic 1.86 in hybrid memory play with pre-allocated RAM and AIFF files up to 24/192; Audirvana 1.3.9.8, April Music Eximus DP1, Esoteric/APL Hifi UX1/NWO-M w. battery-powered Audiophilleo 2
Preamp/Integrated: ModWright LS-100 with Synergy Hifi tubes, Esoteric C-03, Bent Audio Tap-X, *Trafomatic SM-101Dn* [on loan]
Amplifier: First Watt SIT1
Speakers: Aries Cerat Gladius, Boenicke Audio B10, Voxativ Ampeggio
Cables: Complete loom of Zu Audio Event, KingRex uCraft USB cable with Bakoon BPS-02 custom battery power supply
Stands: Artesania Esoteric double-wide 3-tier with TT glass shelf, Rajasthani solid hardwood console for amps
Powerline conditioning: 1 x GigaWatt PF2, 1 x Furutech RTP-6
Sundry accessories: Extensive use of Acoustic System Resonators, noise filters and phase inverters
Room size: 5m x 11.5m W x D, 2.6m ceiling with exposed wooden cross beams every 60cm, plaster over brick walls, suspended wood floor with Tatami-type throw rugs. The listening space opens into the second storey via a staircase and the kitchen/dining room are behind the main listening chair. The latter is thus positioned in the middle of this open floor plan without the usual nearby back wall.
Review Component Retail: €13.200/pr.

The star of Bethlehem. Was it Nibiru? A small spacecraft? Who really knows. Ditto for the star of Manger. A fêted speaker designer with his very own proprietary driver told me that he didn't *fully* comprehend how this flat widebander capable of 80 to 40.000Hz worked. Sure he could recapitulate published explanations like school kids memorize the $E=mc^2$ formula. Yet like such kids he couldn't regenerate the formula from scratch to truly explain it. With the daughter of the driver's inventor—an accredited engineer in her own right—visiting to deliver her active MSMs1 *Manger Studio Monitor* together with Klangwerk's Markus Thomann (designer of this speaker's enclosure, Manger's Swiss representative, early OEM user of the driver and owner of the review pair from his Zürich show room), might I learn more? Or would it be fiercely guarded tech particularly because the original driver patents have expired like Oscar Heil's?

Depending on frequency, bending-wave widebanders like the German Physik Walsh-based **DDD**, the Naim **BMR** and the Goebel operate with one diaphragm but different modes. These span the gamut from Small/Thiele resonant parameters, pistonic operation, bending wave operation and modal break-up. What happens in the transition zones? By strategic changes in their diaphragm's thickness, more conventional dynamic widebanders like the Jordan mechanically decouple their dust-cap lookalike so it articulates like a tweeter. High frequencies originate just in the middle, lower frequencies involve the entire surface. How about the Manger?

The teenage kids in *The Good Wife* TV series wondered about their philandering political father and his hooker. Did that involve a three-way or a threesome? With the dual voice-coil Manger, are we dealing with a twosome which instead of an electrical filter involves a clever mechanical segregation? Since it's sans suspension—no rubber surround, no spider—how does it manage ±3.5mm of excursion for boffo power handling when a Lowther *with* suspension only manages ±1mm? And is a notch filter which adds gain still a notch filter? At 1.600Hz, the Manger's geometry suffers some small inter-diaphragm phase cancellation. This requires a minor narrow-band active compensatory boost of analog equalization.

Shelly Katz's Podium Sound bending-wave panel was a dipole. The Linæum and Audio Consulting Rubanoide bending-wave drivers were/are bipoles. The DDD is an omni. In the only sense that it's traditional, the Manger is a monopole. While it's flat like an NXT bending-wave driver, its variable-thickness unevenly texturized plastic diaphragm is soft and pliable. It's not stiff like the modal membranes of NXT, Podium Sound, Goebel and German Physik.

Even amongst bending-wave drivers the Manger thus is *different*. It marches to its own German drummers. The first was inventor Josef W. Manger. He wrote the initial patent in 1969 and developed his driver from first woofer with 7Hz free-air resonance to then inefficient 76dB widebander. This he used as unassisted full-ranger for many years until the usual modern demands for louder and lower bass enforced capitulation. Like Rethm's Jacob George would do for the Lowther many years later, he eventually acknowledged the need for augmentation with a conventional dynamic woofer.

The current drummer is daughter Daniela. Under her aegis and the latter-day availability of more powerful Neodymium magnets —this driver runs *15* to achieve a 1.32 Tesla field strength in its 0.95mm air gap—the MSW* now clocks a far more benign 91dB. That figure is obviously assisted by low-ish moving mass. Think 19cm diaphragm with a big 7cm but only 0.4g voice coil to boost power handling.

** MSW = Manger Schall Wandler or Manger acoustic transformer. Hence the website URL manger-msw.*

At €800 retail each this driver is not a hairy but expensive critter. That partially explains why even exotic and exclusive speakers in constant search of exotic and exclusive drivers have given it short shrift (Robert Koprowski's Manger horn above and Silbatone's €50.000 Aporia equivalent at left are rare exceptions). At the time of writing, Daniela said that no current commercial speaker used her MSW. Since one is always judged by the company one keeps—personal repute rises and falls with OEM successes or failures to get the very best from the Manger unit—that could be advantageous. As bona fide engineer she approaches acoustic design from a measurement rather than voicing angle. Hence the mandatory active concept. Only a *fixed* match of amplification to drive unit guarantees optimum—predictable repeatable—results. Only active filters *prior to* amps and drivers make for top precision without phase shift. Only sealed alignments support optimal group delay. Ported alignments ring on principle. So the s1 is self-powered with German-built class A/B "monolithic MOS amps with DMOS unity-gain output stages". They feed 180 watts to the Manger, 250 watts to the glassfiber/polyester 20cm woofer with 3.8cm voice coil. The s1 also sports active filters - 12dB electrical on the Manger, 24dB electrical on the <300Hz woofer with LF compensation. And the s1 uses irregularly shaped sealed sub cavities for its two drivers. Because the active concept is heavily inspired by the pro market, there's an XLR instead of RCA input plus various rear-panel adjustments.
More on those anon.

Because the speaker is meant for the living room as well as recording studio, it's deliberately compact (21.4cm shallow, 139.9cm tall, 27cm wide). It's timelessly attractive without popular concessions to audiophile bling and excess. And it's available standard in all RAL colors with a semi-matte finish as well as texturized Nextel. For an expected surcharge with longer lead times, there's also high-gloss lacquer and even fine wood veneers. As a small firm with five full-time employees, Manger commits to going the extra mile to satisfy special customer requirements.

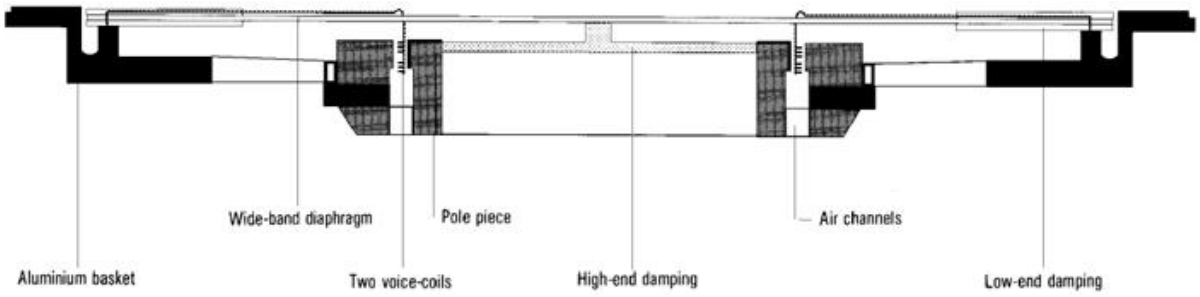
Let's take quick stock of certain implications. With a perfectionist single-diaphragm tweeter/midrange driver matured over decades and capable of 80Hz—we still get to more of its special virtues—Manger suffers the where-to-go-from-here syndrome like Devialet. In their active speaker model, the only variables to consider are bass extension and loudness potential. How many paralleled woofers, how big of a single. For cosmetic reasons there might have to be a floorstander and monitor. Voilà, MSM c1 and s1. The Manger itself is constant. Its diameter predetermines width. Electromechanical and acoustical properties predetermine the ideal box volume behind it. Another constant. The active concept allows for a certain amount of equalization on the woofer. There's no rationale for multiple models if a single one goes sufficiently low and loud for 99% of all potential users. At 30Hz and 106dB before its opto-coupled limiters kick in, the s1 is and does. Another constant. Yawn?

In an industry where novelty and short product cycles play hookers and Johns, constancy and short catalogues do equate to yawn. That's one challenge. Given a weird high-end market whose shoppers don't see the wisdom in active drive with tailor-made amps, another is the demand for passive models. By necessity those can't be as good as their active peers. Here marketing and business demands clash with an engineer's focus on excellence. In short, this catalogue will never be deep nor feature novelties above the waist where the MSW lives. So no short-lived fashion here. That's the small print as I read it. Back on the

Manger now.

"**The 9-pointed star-shaped damper** on both the front and back of our flat driver reduces the amplitude of edge reflections. The diaphragm itself uses a special inlaid ring which matches the wave impedance of the material like a coax cable does in electronics. Mechanically the voice coil employs two windings on a single layer spaced adjacent. These windings receive the same signal but run in opposite directions. Their placement means that when one winding is inside the air gap, the other one isn't. Their counter winding compensates for the electromotive force and cancels out back EMF. This generates our very fast 13µs rise time without overhang but also allows for the ±3.5mm Xmax which is quite high for a full-range driver.

"*Laser Doppler Interferometry* images show how our resistively controlled diaphragm begins to concentrically activate from within the small area encircled by the 70mm voice coil. The coincident frequency of such a driver occurs where the propagation velocity of the bending wave traveling on the diaphragm attains to the speed of sound in air. This propagation velocity increases with frequency and makes the coincident frequency ultrasonic or 80kHz in our case to eliminate the phase problems which trouble membranes with higher bending stiffness. By changing the texturized pattern and thickness of the membrane in a controlled fashion, we exploit shearing forces and control the travel of frequencies depending on their sound velocity. With rising frequencies, smaller and smaller areas of the diaphragm are activated. Low frequencies involve the entire surface. Due to the driver's geometry there is no room for the voice coil leads on the inside. Hence four straight wire lengths are visible on the outside. This voice coil is a mere 0.4g in mass and its induction is a minuscule 18µH. That's far lower than any cable or signal-path inductance. We build the driver in 8/4Ω versions but in the MSMs1 use the 8Ω unit whose voice coil is a bit lighter.

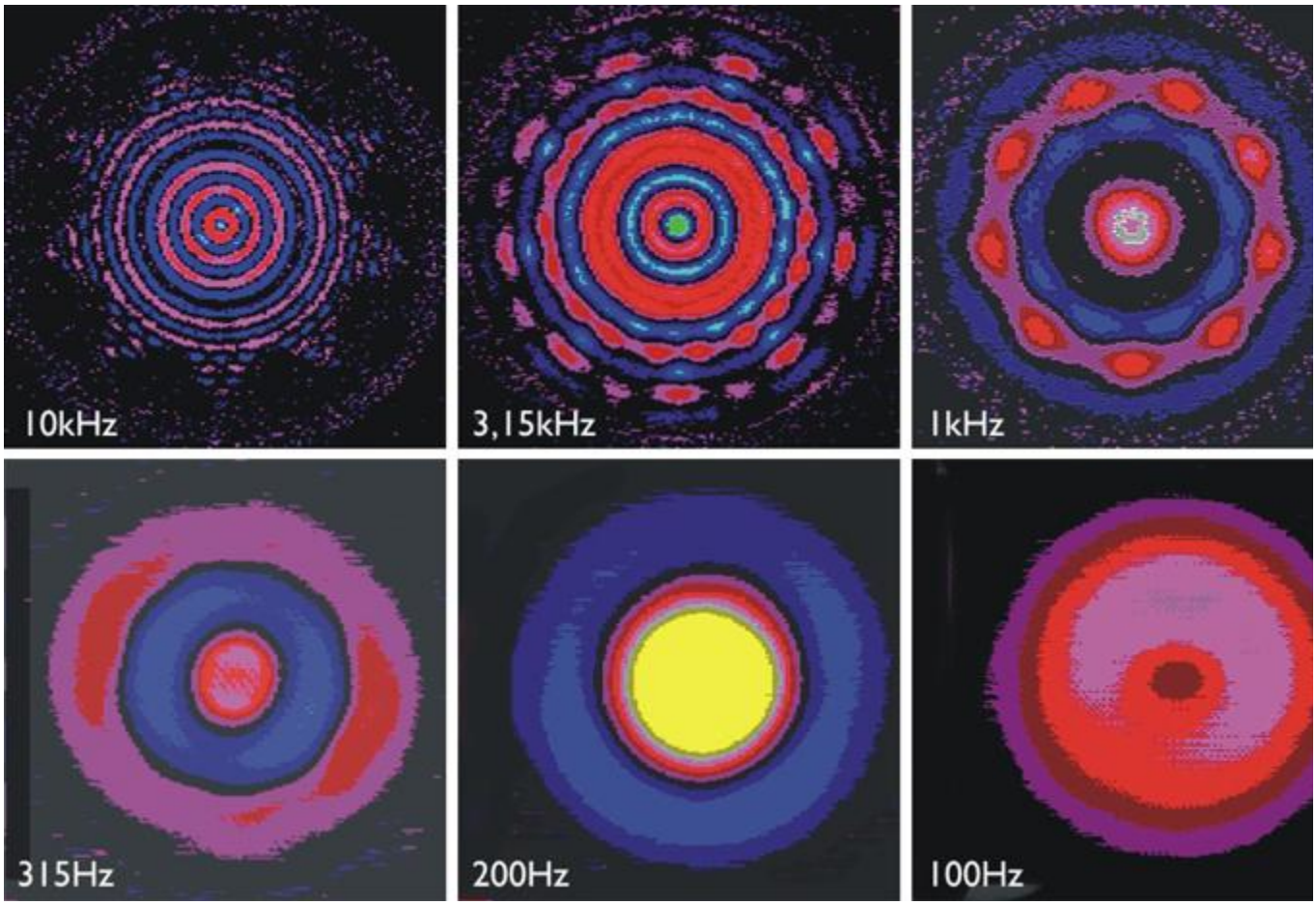


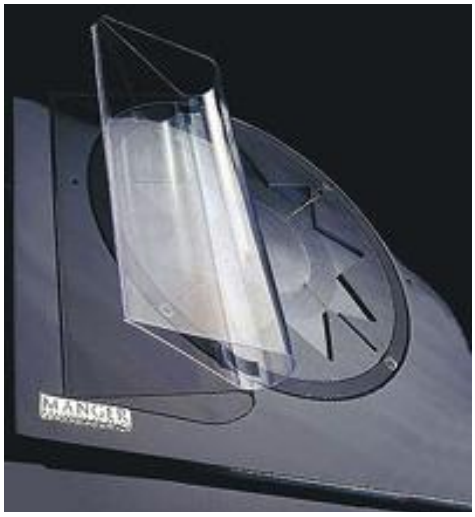
"**At 300Hz** we run a 2nd-order electrical high-pass filter on the MSW which adds to its 12dB mechanical roll-off. Though the driver has useful output to 80Hz, it stops operating as a pure bending wave generator below 200Hz. There it begins to superimpose pistonic behavior on the bending wave. This increases distortion to make unattenuated use down to 80Hz undesirable. The 4th-order low-pass on the polarity-inverted woofer is matched to be *phase constant* in the crossover frequency window. We're quite mercenary about observing proper step and time response behavior and this mix creates the very best blend between the two drivers.

"The air volume behind the MSW is 8 liters. This creates a sealed sub chamber which begins right below the driver and runs diagonally up toward the rear wall. The Burr Brown op-amp based analog filter network is built into the amplifier module while a separate chamber at the base of the speaker houses the power transformer. This leaves 20 liters for the sealed woofer enclosure whose F3 of 30Hz exploits some electronic compensation to extend the raw 40Hz response by another 10 cycles.

"Selectable trim pot or switch parameters include input sensitivity of 0.75 or 1.55V; input trim from -2.5dB to +2.5dB over 11 steps; polarity inversion; a 2nd-order 80Hz AV filter; a -6dB nearfield bass attenuator; a 100Hz high-pass adjustment for +3dB/0dB/-3dB/-6dB; 3.25kHz nearfield and home cinema compensation (+3dB/0/-1.5dB/-3dB) where boost addresses placing the speaker behind a projection screen; and 10kHz shelving (+2dB/+1dB/0dB/-1dB/-2dB) which responds to overly damped or reflective rooms. The recessed M8 threads beneath the aluminum plinth can take spikes or other floor interfaces at the user's discretion. We don't provide any.

"By request however we can provide Mogami-based XLR-XLR or RCA-to-XLR cables to help interface a customer's cinch or balanced preamp/variable source outputs with our XLR inputs. The two green LEDs at the base are for power and output limiters. By request we can bypass the latter with a jumper at the factory. But they are never in the signal path to begin with since we use optocouplers. When the right LED turns red, it means the limiters are clamping down. Their attack thresholds and release times are different for the MSW and woofer but the latter will always limit first. We specify about 106 to 110dB of sound pressure levels before these limiters engage.



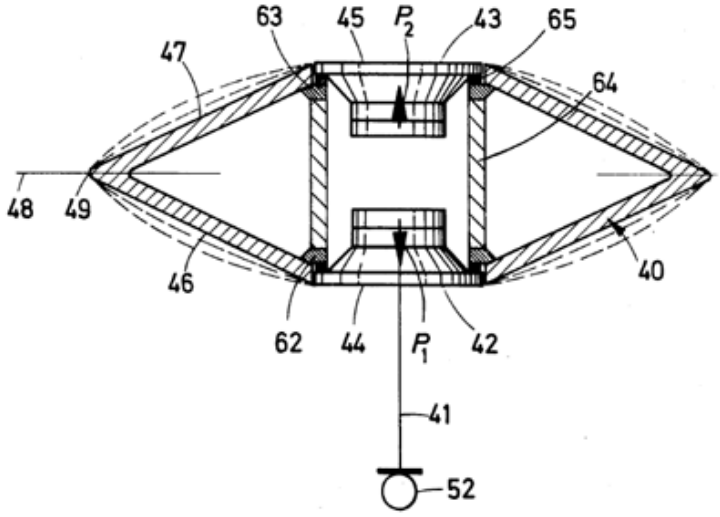


"**The geometry of the MSW** and its relatively large voice coil imply given amount of directivity. This means that the response in the tir domain isn't completely linear. Instead it forms somewhat of an shape. My dad always knew this behavior to be a small compromi inherent to his design. Ever since he had looked for a solution. In 2000 v introduced the retrofittable *Holoprofile®* waveguide to address tl imperfection. By increasing the path length of radiation for half t membrane area that is shadowed by the device, the summed output the ear makes for a flatter rise time without the intermediary 'S' ste With a mechanical acoustic device like our MSW, one cannot pr equalize for this behavior in the electronic domain. One must do it 'this' side of the driver as an added accessory and verify the scope improvement for oneself to decide whether it's desired or not. A pair removable Holoprofiles is €400.

"To my own ears the contours, shapes and outlines of the virtual performers increase in precision with the Holoprofile where precision from any lack of stored energy already is one of *the* outstanding qualities of the time-correct Manger driver. This add-on wave guide simply improves it further. Focus gets better. That's like removing small shadows in a magnifying glass when you hit upon the perfect bioptic adjustment for your vision.

"The MSW amp is a bridged Mosfet affair with 250kHz bandwidth to fully exploit the excellent treble performance of our driver. The SpeakOn connector for the external parallel-connected LF module became a now defunct carryover from the upgradeable monitor version [standard MSMc1 at right, c1 + optional LF module at far right]. This connector will disappear with our next batch of electronic modules for the floorstander.

"My dad's first patent dates back to 1969 which was for his unique voice coil. Later he realized that focusing on a woofer wasn't the right way to solve this time-response problem of a driver. This led him to the bending-wave driver by 1974 which began a long slow development of raw driver sales and prototyping complete speakers. In 1978 he developed the S05 or so-called *Diskus* speaker which was a UFO-shaped system with one driver in the front and one in the back.



From Josef Manger's US patent US4268719 for the Diskus 4MSW

"That's when he still believed that his driver could work as a full-range unit when loaded into the proper enclosure. Whilst the Diskus worked just as predicted, the market didn't embrace it. It simply was too *different.* The driver's poor 76dB efficiency didn't help matters either.

"**First true success for the Manger driver** began in the early 90s. By then the MSW had achieved 86dB. This also forced us to scale up its overall power handling, the mechanical robustness of the voice coil and such. Our first motor systems had been based on Samarium Cobalt magnets. Later we used Neodymium magnets when those became available. This rare-earth magnet type has undergone continuous power improvements since.

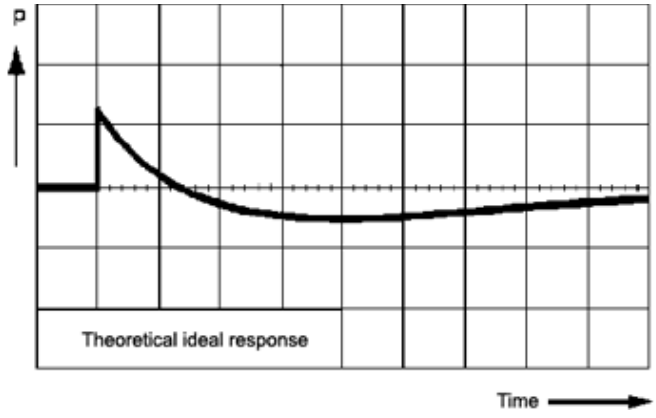
Manger Diskus as seen here

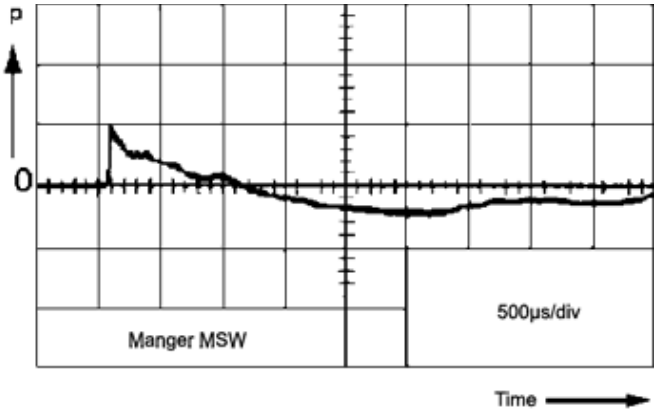
"That is nicely reflected in the latest iteration of the MSW as the most efficient unit we've yet built. We manufacture the driver in our German facilities and the cabinetry and electronics too are sourced from within Germany.

"**Today we find that the type of customer** primed for our solution might be an audiophile intent on downsizing not system quality but *complexity*; or someone who is getting into computer audio where volume-equipped DACs are getting quite commonplace; and finally regular readers of pro-audio magazines who already grasp the technical superiority of active speakers. We also have many clients in acoustic research facilities as well as studios and concert halls and were recently awarded a patent for a new microphone design that should open further doors. I would like to think that this is where pro audio and high-end begin to overlap and where established companies like ourselves, Bryston/PMC, Genelec, Klein & Hummel and others are making inroads. It's often the younger generation who wants a minimalist modern hifi/video system with great sound and comprehensive functionality that's still compact, simple and attractive. For full-range undistorted performance within a compact form factor, those demands make active drive near mandatory."

Being no engineer or fluent in wave propagation dynamics, I remained rather *M&M'd*—Manger mystified—once Daniela and Markus had departed. My head couldn't wrap itself around how a diaphragm might freely bend and not just stretch in the absence of any mechanical suspension.

But I was left with a very strong engineering focus on time-domain fidelity, point-source behavior and lack of energy storage in the actual makeup of this unique transducer. I was suspicious too that at the end of the day the *true* operation of this device—across its entire bandwidth—remains a more complex less linear affair on amplitude and radiation pattern than any polemic would admit. The earlier laser interferometry images certainly suggest a surprisingly broad array of diaphragm patterns or radiation *modes*.

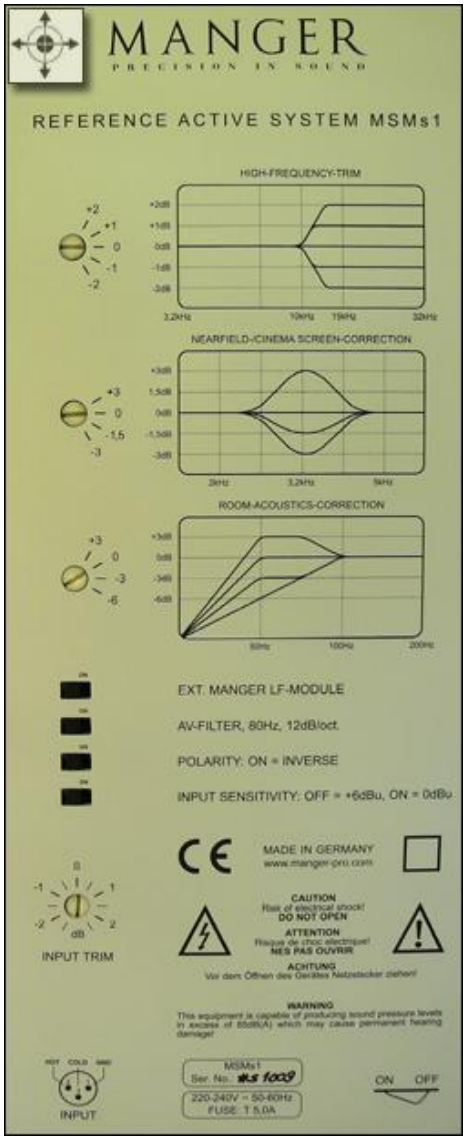




Even so the hifi press routinely overestimates small frequency response deviations and their deleterious effects on the listening experience. At the same time it sorely underestimates or outright overlooks the importance of being 'on time' or true to time. Beyond propaganda then and persuasive technical claims that essentially play out on paper and in the mind, how would a widebander that's so deliberately optimized for those qualities—the step response above tells that story—differentiate itself to the observant ear/brain versus more conventional solutions? What kind or flavor of sound should one expect?

Game over? End game? This speaker represents both. For the listener deeply entrenched in audiophile ritual, belief and habit, the s1 is game over for amps. Obviously. But preamps seem out as well. With units of Trafomatic Audio SM101D, ModWright LS-100 and Esoteric C-03 caliber on hand—single-stage direct-heated triode, 6SN7-based two-stage hybrid, solid-state respectively—none sounded remotely as good as no preamp. To leave surprisingly sleepy first gear as though one foot stayed glued to the brake meant any one of my three D/A converters with variable outputs. Be it the Weiss DAC2, Antelope Audio Zodiac Gold/Voltikus or April Music Eximus DP1 (sequence in ascending order of personal taste), they made far better sound direct over inserting any of my costly preamps behind them. If you've heard an original Quad speaker and thought it pipe 'n' slippers boring—aka very resolved but too polite, laid-back and bereft of jump factor—that's the direction the sound took with them. Yawn.

Because my best DAC inside the Esoteric/APL Hifi UX-1/NWO-M has no volume control, I ended up with it and a Bakoon BPS-02 battery-powered Audiophilleo 2 running into my trusted Bent Audio Tap X autoformer volume control. That's a passive of the highest caliber. Even so, make no mistake. Between my four sources the sonic window of variability or shift latitude was quite narrow. I think that's because the amp/speaker interface really *is* the dominant determinant on final sonics. Here Manger not only fixed it for you but optimized it beyond anything a passive speaker with your choice of amp could duplicate. The upshot is crystal. Should you not fancy the MSMs1 sound, any attempts at changing direction with strategic source and preamp selection won't jump the built-in track. Kismet, predeterminism and the lot. But the inverse is just as true. Fancy the MSMs1 and concerns over 'properly ambitious' ancillaries are seriously alleviated too. The degree of possible change or flavoring is quite small. Again you won't jump tracks. That's why the name of this game is *Over!*



End game! The end game reality is a function of engineering. At €13.200, the intrinsically bi-amped actively filtered and equalized MSMs1 can't be trumped by *any* equivalently priced combination of passive speaker and amps you might come up with. Period. That's a very hurtful thing to audiophile pride with its silly insistence on arbitrary mixing & (mis)matching without global impedance standards. But it's a perfect thing for those who want guaranteed turn-key success at a very high level. And one mustn't completely abstain from audiophile tweaking either. While the whole active concept and XLR interface spells pro audio and we-know-better attitude (on what really matters), quick experiments with power delivery show that audiophiles know a thing too. When I replaced Daniela Manger's long generic Swiss power cords jacked directly into the wall with Crystal Cable equivalents tapping a GigaWatt PC-3 SE Evo conditioner instead, bass weight, tone color intensity and general robustness each took a *noticeable* step up.

The same audiophile know-how on preamps however—which in a traditional passive speaker system can be surprisingly determinant—had to accept the wisdom of saving money and kissing the breed good-bye*. This gets us to a second end-game aspect. If one means to cap total system expense with a pair of Mangers at €20.000, a €3.000 DAC like the Eximus with a €2.000 iMac with Audirvana in integer/direct mode leaves about €2.000 for cabling and sundry. With such elevated performance plus built-in flexibility to compensate for placement, room conditions and listener tastes, that's very high value. Twenty large *are* serious coin. But here are very significant returns too and serious mitigation of the usual insecurities on whether goodness you heard there will transpose intact to your own system here.

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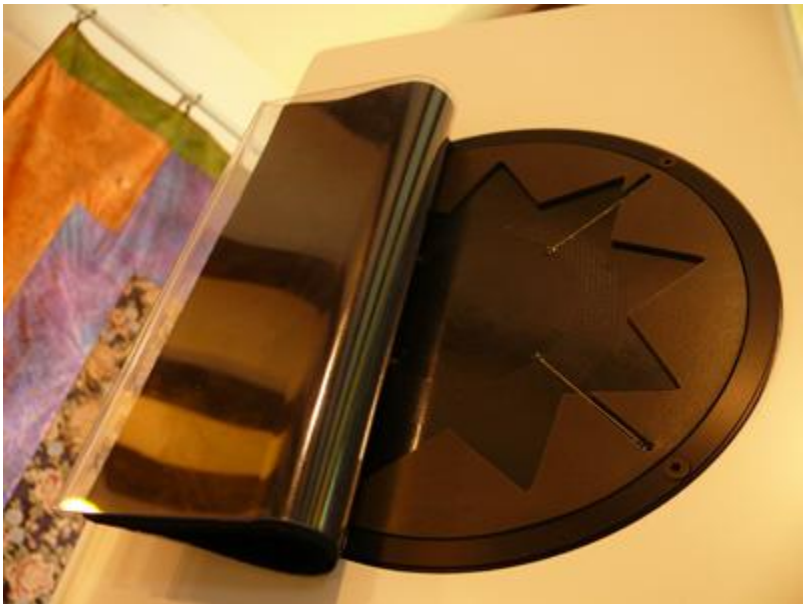
** This is mere conjecture but musing why my preamps which usually are so good with FirstWatt's SIT1 monos made such a bad showing here, I predict that the built-in amps are quite complex multi-stage circuits with high feedback. If more is less, such 'moreness' on the part of the amplifiers would explain why preamps weren't welcome; and why a simple buffered attenuator in a very good but not excessive D/A converter performed so much better.*

Against this backdrop we will now inspect the sound up close. The entire system consisted of my usual iMac (Audirvana 1.3.9.8, PureMusic 1.86 as backup) fed via a split KingRex USB cable to a battery-powered Audiophilleo USB converter into the NWO as DAC, from there via RCA cables to the Tap X and from there via long Mogami XLR cables (Neutrik RCA to XLR adaptors on the Tap X) to the Manger MSWs1. The latter were powered through Adam Schubert's Polish power conditioner with 2m runs of Crystal Cable cords.

Basics. Handing over at 300Hz to a standard dynamic woofer with higher Xmax than the Manger guarantees proper power-zone displacement. And that makes for the necessary impact and slam in the upper bass where it matters most. Here semi-powered wideband competitors like the Rethm Maarga with its lower 100Hz transition give up spunk and grippiness. Naturally Manger's chosen woofer can't move the amount of air the 12" Fostex in my customary Aries Cerat Gladius does. This renders the first two octaves inherently more lithe and quick than massive. LF click tests in conjunction with some room resonance showed surprising output at 25Hz. This dropped to nothing at 20Hz. But in rooms of standard size—say 16 x 24' or 5 x 8m—it's fair to tag the MSMs1 as a full-range speaker for 95% of all music.

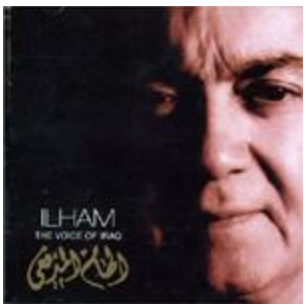
Holoprofiles attach precisely via included alignment jig with built-in bubble level to shade the outer third of each driver

Dense bass pressurization—which to my mind always signifies too much speaker for the room by creating unnatural results—is not on the menu. Unless your space is simply too small. Such pressurization requires more brute weaponry, hence larger enclosures. And that would trade the smart concept for more excessive trophy hifi. This is a gentleman's transducer, not a hooligan pounder. Hard-core rockers in search for acoustic blow dryers will look elsewhere. The presence of electronic limiters implies power handling restrictions as well. 100dB peaks at the ear are rather loud if you sit at the apex of a 2.5m or less equilateral triangle as recommended. Increasing distance and overall cubic volume of the listening space meanwhile (or going back in time to when your hearing was still immortal) can generate conditions to trigger the limiters.



Here it thankfully involves no clipping but only momentary dynamic compression during peaks. So it's about the Rolls-Royce spec. Loudness and extension are *perfectly sufficient* for the audience intended. *Expendables* style home cinema simply integrates active subs with the 80Hz high-pass filter. For civilized listeners, all necessities and niceties are accounted for. On to brass tacks then. Live music is far more dynamic than normal hifis can reproduce. Referring to the Manger sound as life-like without qualification would be misleading hype. By not being as dynamically unfettered as high-efficiency hornspeakers or even 100dB Lowther types which still trail the real thing, it's actually twice removed on that count. Alas, once we invoke absence of effort to perceive everything—intelligibility built on superior precision—this sound does approach it.

That's because its transients are very natural and free of grit. *It's ultra-fine needle work without the needles*. Assuming that higher transient exactitude means sharper and edgier is a common mistake. To compensate for this reflexive presumption, we might introduce some type of softening language like a laundry additive. Unfortunately the limits of language then imply less exactitude as a lower level of precision. It's important to understand that the Manger sound is soft only in the anti sense. It's not soft per se. It simply doesn't equate time fidelity with samurai-blade slice 'n' dice. There's no needling, no leading-edge hype. Everything merely locks into place. It becomes transparently obvious. When things stop to wander and stand still, there's perfect clarity. In Manger speak that's precision.

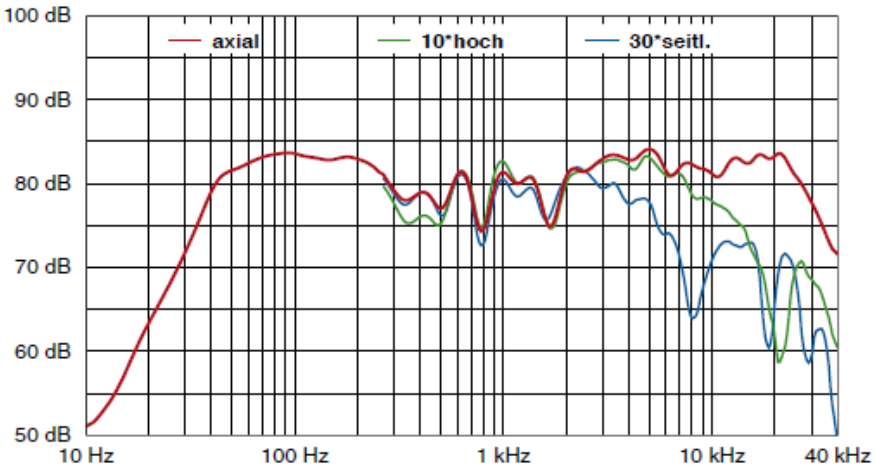


Granted, their slogan of *Precision In Sound* has a laboratory ring. Well-publicized engineering focus plays further to that. Yet the manifestation of what they actually mean does not. It isn't clinical or sterile. It's more natural. Easier. If we subtract the semi-omni effects of his 180° Kynar tweeter—patents will expire in a few years to perhaps open doors to licensing the CDT tech—Anthony Gallo's work on the Reference 3.5 and subsequent Classico range pursues a similar path. I would simply say that the degree of artifice shedding is even higher with the Manger. It's easier yet. It's also less tensioned or driven. Its lateral staging isn't as broad due to HF directivity. Depth perspective is quite spectacular though. Besides a low system noise floor to not obscure micro data, this to my mind also relies on low phase shift. It creates proper spatial alignment of fundamental and harmonics to eliminate subliminal vagueness. This type of soundstage sorting, image focus and localization specificity has no need for sharpened outlines and unnatural lighting effects. Focus is achieved not by redrawing edges or raising contrast. It is achieved by internal alignment. This eliminates what Daniela calls small shadows.

To point at the same quality from a different angle (again by more saying what it's not), this focus involves no greater contrast. In the visual world, heightened contrast is achieved by orange-tinted sun glasses of the sort snipers wear. It's an effect paid for with color shifting, most heavily green. Hifi has equivalent means to pump up contrast. This appeals to visual listeners in particular. But Manger refuses to do that. In a profound sense their core sound lacks sensationalism. It's unspectacular. It's very easy and natural. It's understated, not flashy. The degree of precision or lack of common artifacts is such that no trickery is required to compensate. To fully appreciate this mandates maturity. One should have outgrown fascination with various sonic Technicolor schools to desire and recognize naturalness. Most audiophiles look for an enhanced sound. In various ways they wish to make up for audio's single-sense appeal—the ears alone—which involves not all of our five senses as does a concert. No enhancements with Manger.

On that most challenging of instruments—because it's simultaneously percussive and resonant *plus* massive of bandwidth—the Manger is blessedly free of getting a piano's lower registers messy. Unlike many others it seems to add no (or far less) resonances of its own. Put differently, left-handed ivory work retains a higher percentage of percussive qualities than is common. This must be a function of very low energy storage of the raw transducer. It doesn't hang on to notes but lets go like a finger recoils from a hot iron. The sealed alignment adds proper damping and impulse response.

Related aspects of the Manger sound are quickness and cleanliness. Wherever warmth is euphemism for blur and bloat, here it doesn't apply. Even so tone colors are finely saturated, not bland, whitish or washed out. Image density is just right though not pronounced as good SETs conjure up. Quickness manifests in the clarity of percussive strikes, string plucks and brass staccato though a Lowther, Voxativ or Rethm widebander has more violent startle factor, more lightning power. While Manger's magnetics are very stout, one presumes limits to how far they can lower their plate diaphragm's moving mass to behave as intended before it breaks up by being too thin. Here the inherently greater stiffness of a cone allows for reduced mass, hence higher sensitivity which more effectively translates sudden voltage spikes to dynamic crests.



Even though published measurements by 'Stereoplay' in a review PDF on Manger's website show a quite depressed nonlinear midband, the speaker doesn't sound sucked out. It's a case where measurements don't correlate in meaningful ways with the in-room ear response. Or where amplitude linearity is very secondary to something other which dominates and overrides. What does correlate is the stiff 30° off-axis treble roll-off which mandates steep toe-in to achieve the desired response.

Recommended setup thus has the axes cross slightly in front of the listener. With that in place top extension is the equal of a good ribbon and in an altogether different league than the usual whizzers. Unlike most ribbons there's no metallic coloration or zing either. Back on voltage sensitivity, the Manger won't come on song as early as a 100dB Voxativ or Rethm but its general precision serves low volumes very well. It's simply no full-bore music whisperer. As a mechanical device of far greater distortion than even cheap electronics, no loudspeaker can be all things to all people. The MSMs1 goes after no-stress precision from what must be superior timing and unusual freedom from cone talk or driver-related energy storage.

The latter is mere theory. But how else to explain this cleanliness when the enclosure itself is ordinary MDF, not some 'heroic' ultra-mass affair of X material or aluminium? Clearly orchestral bombast won't compete with the dynamic bombast of really big speakers. Even so the *complexity* of melodic and rhythmic lines overlaid with a very broad spectrum of tone colors gets deciphered, separated and sorted with astonishing accuracy. Forget the usual 2-way implications in the face of an electronic crossover and active tailor-made amps for each driver. This is not a speaker that gets tripped up and confused by convoluted fare. Try Mozart's *Requiem* for proof. Then follow up with Leos Janáček's *Sinfonietta* with its 16 trumpets plus symphony orchestra or the mighty *Taras Bulba*.

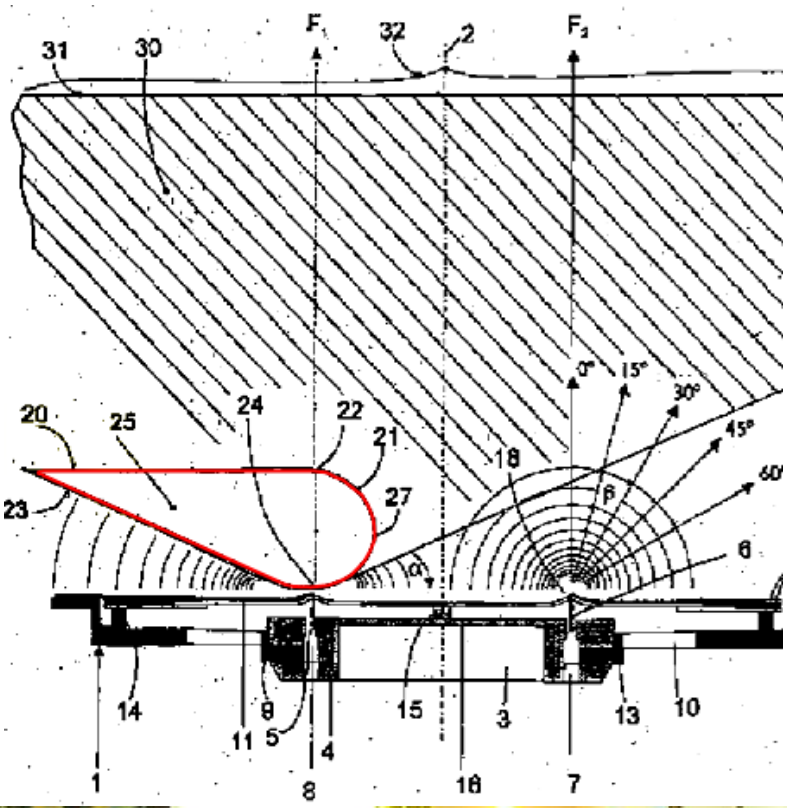
The Manger sound celebrates precision, articulation, transparency and exactitude. That means speed over mass, insight over romance, depth over width, focus over warmth. That sum total adds up to very high intelligibility which makes for extreme listener ease. And that great ease or *mellowness*—sitting as it were atop, around or behind very fine rhythmic articulation like a climate or mood—equates to greater naturalness. Think Braun-era Quad ESL with bass and dynamics. It means absence of strain, grain, glint, sharpness and edges. This sound isn't hung up on output fireworks or massive displacement. It's not about voluptuousness à la Sonus faber legacy or propulsive and driven like house Zu. It's about crystalline clarity plus suppleness.

The engineered package of self-powered speaker clearly favored attenuator-fitted DACs over additional preamps. This extended the theme of minimalism and integration to the source. With an optimized amp/speaker interface locked in, the remaining hardware variables made for rather smaller differences than usual. Power delivery—AC conditioning and power cords—was still a worthwhile upgrade for the built-in amps however. Owners of RCA-only sources will scoff at the lack of matching inputs. I agree that a home audio speaker would ideally sport selectable RCA and XLR inputs to eliminate adaptors or cable rebuilds. But as my only reasonable gripe, the MSMs1 secured its clean bill of health (no transformer hum!) and a most hearty recommendation with flying colors.

A second though not reasonable gripe is the Holoprofile. It looks like a tacked-on afterthought. Which it is on both counts - tacked on and thought of after the MSW had been finalized. Making the gripe unreasonable are two other counts. A, it's optional. B, it actually works. I appreciated it particularly in the depth domain and on image focus. Since it's undoable (it mounts with stickers and comes off easily) complaining about an efficacious tweak just because it's unattractive would be... well, so very non-audiophile. If other qualifications are in order beyond the already mentioned, it would be only on the level of propaganda.

The star of Manger—the actu
proprietary driver—*is* unique. And
the present implementation it do
work most effectively and impressive
It simply shouldn't be implied that th
type of presentation can't be achiev
by different mear

Disregarding voicing options wi
strategic amp and preamp choices
add more harmonic meatiness and
particular buoyant texture from lin
level valves; and disregarding the
obvious increase of bass power; n
passive three-way speakers with seal
bass and deliberately bandwidth-limit
Fostex widebander perform qui
similarly. [At right, a drawing from th
German Manger **patent** on th
Holoprofile®.]



The most relevant difference isn't sound but money. My amp/speaker combo above wants €30.000 to get there. The Manger is €13.200. For that achievement I'd credit the MSW and active concept equally. And that extends at least similar potential to an equivalent AMT-based model by A.D.A.M for just one example. As a shopper, I'd personally consider the MSMs1 first on the basis of its active concept and compact dimensions and only secondarily on its choice of drive units. Naturally dyed-in-the-wool valve aficionados will feel curtailed. So will traditional audiophiles subscribing to the prevailing passive paradigm.

But the embrace of computer audio heralds a brave new world. It wants more cost-effective convenience, integration, performance and lifestyle cosmetics. Here active should have a real future. Unlike pro speakers still attempting to court consumers—Genelec comes to mind—the Manger MSMs1 is fully house-broken already. Its sticker reads stiff only until you ask how to secure equivalent performance for the same money the traditional route. It's close to impossible. That doesn't minimize this sticker. It simply pushes returns to the max. And *that's* what makes it smart modern hifi at its finest. Should you still need a 'sound in a nutshell' takeaway to condense all of the above in one easy sketch, it'd be 'B-squared' Quads (= balls x bandwidth). Even the concentrically outward rippling sound propagation of their flat membranes is similar.

PS: If you've read this for pure entertainment and edification because you're not in the market, I still recommend you spend some Manger coin. I'm talking of their fantastic *Music wie von einem anderen Stern* (Music as though from a different star). It's a 15-track test CD or LP that'll really take your system through its paces. And it does so with brilliant music and inspired performances rather than slamming garage doors and such...

Srajan Ebaen