kharma

Matrix MP150 amplifiers

as reviewed by Marshall Nack

MARSHALL NACK'S SYSTEM

LOUDSPEAKERS
Kharma CRM 3.2 and Kharma Ce-Sb-10 sub woofer.

Good things come in small packages these days—especially when they are in Class D. The next-gen designs have arrived amidst deafening Internet buzz. Little amps the size of shoeboxes are all the rage today, raising seismic tremors in the high-end firmament. One well-known reviewer for a major hard-copy magazine compared a sub-$5K offering with the Statement-class Lamm ML2.1 SET tube amps ($29K)—and called it a draw! That rather strains credibility. (This, along with a few other things he has scribed in recent issues, makes the case for a credit-worthiness re-appraisal—

ELECTRONICS
von Gaylord Audio (formerly Legend Audio Design) LAD-L2 Signature line preamplifier, Kharma MP150 mono-blocks, and ART Audio Jota SET amp.

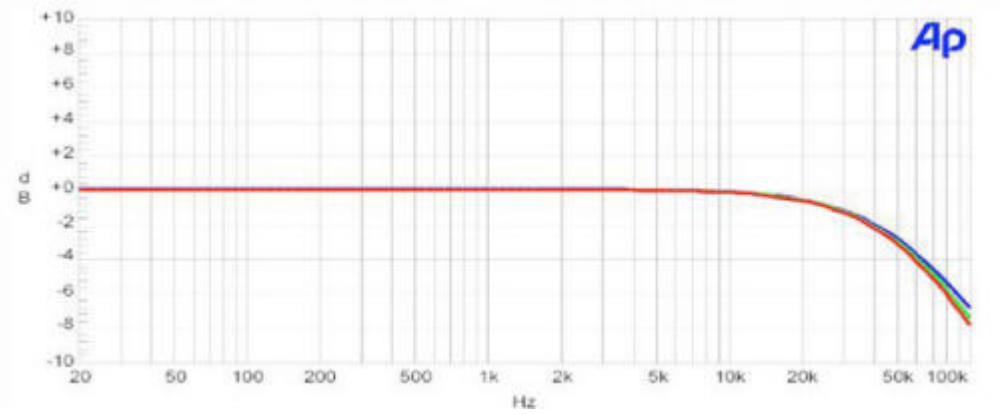
SOURCES
Linn LP12, LINGO, EKOS tonearm, ARKIV II cartridge, AHT Non-Signature phono preamp modified by Walker Audio, Extremephono Limited Edition and Graham IC-30 arm cables. CEC TL1X transport, von Gaylord Audio 2 chassis DAC.

CABLES
Interconnects by Kubala-Sosna, Kondo, Kharma Enigma. Digital Cables by Kubala-Sosna, and Kondo. Speaker wire by Kubala-Sosna, and Harmonix. Power Cords by Kubala-Sosna, Harmonix, Golden Sound, and TARA Labs.

ACCESSORIES
TAOC Rack and TITE-35S component footers, Golden Sound Intelligent Chip and Magic Rings, Walker Audio Tuning Discs and Valid Points for LP turntable, Harmonix RFA-78i Room Tuning Discs, RFS-66ZX Tuning Feet, RF-900, Acoustic System Resonators, Argent Room Lenses, Echo Buster & Sonex acoustic panels, TARA Labs PM/2 and IDAT power conditioners, and Ensemble Mega PowerPoint outlet strips. ERaudio Space Harmonizer component platforms.

too bad, he was very good in his day). Certainly, there are impressive things going on in Class D, but let's not get ahead of ourselves. Most of what I have heard to date has not been totally amazing; on the whole, it hasn't lived up to the hype. Now, after saying all this, I am going to tell you it has happened; one of these amps has made me re-think the value equation.

Charles van Oosterum, the designer and proprietor of O.L.S. Audiotechnology (the manufacturer of Kharma products), has obviously been listening to his speakers in more venues and driven by more amps than anyone else alive has. He knows what kind of diet they need, and he's come out with his own amp, the Matrix MP150 solid-state, Class D Mono Amplifiers, Kharma's first *stand-alone* amplification product (the Kharma Ce-Sb sub has an integrated amp and got there first).



Some Notable Characteristics

You will be refreshed (and possibly unnerved) by the MP150s unusually flat frequency response. The thing is so even you may not have heard anything like it before. Most amplifiers exhibit humps or suck-outs at various points along their curves, the most common being a dip in the area of the upper bass through the lower-mids. This is no accident: it is there to highlight the frequency extremes, to make the amp sound more "exciting" and zippy, and to exaggerate imaging. All designed to lure you in for the quick sell. The trouble is, once you are on to this game, it is unacceptable. It is too artificial.

That evenness of response results in a pure uninflected sound. The MP150's treble is so completely woven into the fabric of the sound, that at first I was not sure I was hearing enough of it. Indeed, after the first few days, it was something of a relief to view a chart showing a ruler flat response (charts come with the MP150 User Manual). As you can see, this chart is as close to the ideal as any you will find.

High notes have a soft tactile quality and rounded wave front—the entire spectrum gives this same tactile impression. The treble is not *more forward*, it is just there like any other band. I was told one of the design goals was to mimic the way SET amps handle the upper frequencies. Well, the MP150 succeeds spectacularly in that. Recently, I extolled the excellence of the ART Audio Jota SET amp in these pages, singling out its top and mid-band. The MP150's treble is its equal. ALL of the treble issues have been addressed. You do not have to fix it—it is *just* another frequency band.

A Discussion of Dynamics

1) the Transient is not Exciting

They appear out of nowhere, instantly, in full harmonic regalia, and always without edge or other attention-grabbing artifact. The transient arrives almost unnoticed. Moreover, this (harmonically) robust transient sounds just like the sustain part of the note. This means the transient is not shocking, or jarring, in the sense of having a different frequency make-up from what comes next. The MP150s have more of this transient-to-sustain continuity than any amp I've encountered.

2) the Wave-like, Flowing Quality

Dynamics are swell. Sure, they can do the big, impressive, zero-to-sixty-in-a-millisecond spikes. But more impressive are the dynamics you won't hear—the kind that ebbs and swells, like an undulating wave, like a ripple in a pool of water. The ramp-up from *pp* to *ff* occurs in undetectably small increments. Even when the dynamic marking of the score is steady, you'll hear subtle shadings.

3) the Start-N-Stop or the Quick Recovery at the Finish

Finally, at the other end of the note, matching that natural onset is the equally fast dissipation that leaves no residue. There's zero fat left at the finish—zero overhang. This lends the sound tautness and clarity. Some may hear this fast recovery at the tail end as dryness, or over-damping of the speaker drivers. The alternative is looseness and some degree of fat. Kharma opted for taut clarity.

Seriously, when I moved in the MP150s, it took a while to gauge just what was going on, because of the naturalness of the transient and the wave-like action of the dynamics. The MP150s are reluctant to show off. I went from a 24-watt SET tube amp to the 100 solid-state watts per side of the MP150, expecting to be assaulted by the difference in power. Instead, I found a similarity of approach. (I'm not sure how much of this is due to the design of the MP150 and how much comes built-in with the territory, because I've heard other Class D amps do this to some degree.)

If you listen to someone talking in an otherwise quiet room, the onset of speech may startle you as it breaks the silence. But beyond that, you'll notice how the leading edge blends seamlessly into what follows it—it is more or less continuous with the sustain. With the MP150s, more often than not, you'll hear continuity. (What I'm describing here is merely one of nature's patterns. I hear this with the winds and strings, but it certainly doesn't apply across the board. A cymbal or a piano, for example, makes distinctly different sounds in quick succession. Nor is it true when the musician intentionally alters the note. But it is something that you never hear in reproduced sound.)

The MP150s transient is often not so exciting …and that's a great thing.

Back up for a minute to the MP150s resolution of sustained notes. Like some other Class D specimens, these amps seem to have no grain of their own. Also like their brethren, the surface of the MP150's soundstage and the instruments upon it are without a hint of abrasiveness. But where all of these amps are notably smooth, only the MP150s are able to resolve *into* the smoothness and delve to a deeper level, dredging up a micro-texture. You will be hard pressed to find this micro-texture delivered by a Class A/B solid-state amp, because it is finer than their coarse grain structure. Nor will you hear it in the smooth, grainless expanse of most tube amps. I've come across it twice before—both times from tube amps. The Air Tight ATM-211

SET mono-blocks had it to a small extent, but the benchmark was set by the Lamm ML1.1 monos I had in a while ago. (I've taken to calling this rare characteristic the ability to render "sound-pixels". Most natural sounds exhibit this textured sustain. So far, the only orchestral instrument I've heard that doesn't is the clarinet.)

This discussion is about very subtle things, things that only make their appearance when the major issues have been taken care of. It probably has little relevance to most audiophiles, but becomes important as you edge closer to the frontier.

I last spent time with *Selections from The Village Vanguard Box* with the Wynton Marsalis Septet (Columbia CK 62191) using a variety of SET tube amps. I usually give my listening panel a preamble about how perfectly tasty Wynton's phrases are, how each note of his solo is carefully selected, revealing Wynton's musical *savoir-faire*. This entire CD is of demo quality. And then I push the Play button and we're all impressed with his virtuosity as he navigates the blazing tempo on Track 5.

Rendered through the MP150s, there's a curious difference. What he's doing now seems easier. The notes flow and it's as if there's more time between them. Now, this is not due to missing body or weight, reduced image size, or etched image boundaries (it's all too easy to achieve that way); it's due to the start-n-stop qualities of the MP150s we talked about above.

Dynamic Continuousness

Here's something rarely observed, but worthy of more attention: the notion of dynamic continuousness. I'm referring to how changes in signal level affect dynamic response. Most amps handle medium levels OK, and manage to keep us interested. As the signal increases, they get even better, until they come to a dynamic peak—then the shakeout begins. Few manage to hang on here without breaking up or running out of headroom. Those that do hang on usually exhibit coarsening dynamic quality, with steep, ratchet-like gradations—finesse flies out the window. But it gets worse at the other end, with the lowest levels, where ninety-five percent of amps let you down. In quiet passages, dynamics suffer equalization and compression, everything flattens out, and the stage loses dimension. But then, most of us feel lucky just to have the information, let alone worrying about the missing animation. Rare is the device that has a lively hand with low-level passages. Think about it: when the program material gets low, do you sit there bored until something louder, and more dynamic, comes along? We all do. Obviously, dynamic quality shouldn't alter in tandem with changes in signal level. Now think about what it would be like rendered with dynamic continuousness—why, you'd be involved in the music all the time. The MP150s have vibrant dynamics throughout the range of dynamic scaling: and they have an uncanny ability to give inner life to unchanging, steady state dynamic passages.

Track one of *I Have The Room Above Her* (ECM 1902), with Paul Motian, Joe Lovano and Bill Frisell, quickly establishes an ambiguous, dark atmosphere full of mystery and suspense. Where there is usually a lot of murk within that dark cloud, instrumental lines are now clearly demarcated. I can tell it's a trio 'cause I recognize a guitar, drums, and sax—temporal coherence and timbral resolution are excellent. There are some low-level, low-frequency impulses, as if from a synthesizer—is Bill Frisell playing double stops or making use of some electronic effect? Maybe it's the kick drum? Track three has a melodic *ostinato* laid down by guitar and sax, in stark contrast with the loud and off-tempo panoply of drum effects, which include solos on the kick drum and tom-toms. Amazing how Motian populates each measure (and how his kit is sonically all over the stage. How many mikes were used on the drums?) The pummeling impact of the kick drum wells up from my floor (it doesn't take brutal hits to activate these powerful wave fronts on a kick drum) and in no way interferes with the relaxed counterpoint laid down by the guitar and sax. The competing demands of multiple rhythms never upset the MP150s composure: these amps never become confused, even under heavy orchestration.

Soundstage

I've experienced a few Class D amps at this point, including three of the small chassis affordable ones, and two larger, stereo amps. Some are capable of throwing enormous walls of detail at you, with truly phenomenal resolving power. Most guilty of this was the Uniwave Tek Anaco 2, whose stage was like a scaled-down doll's house with chiseled, flat images placed upon a chilly, frozen soundscape. This amp was unique in my sample: it alone was on the chilly side of neutral—all of the others veered towards warmth. I remember being mightily impressed five or so years ago by the first Bel Canto Class D amp, the 200.2. It was surprisingly warm and tube-like, and yet brandished solid-state *power*. The TacT was (and remains) an impressive device. And now there's NuForce, a market phenomenon by any measure. I just heard the NuForce Ref 8.5 mono-blocks. They may be the best sounding amps you can buy for $1900—I dunno. I'm not familiar with that end of the market. I do like their dark and weighty tonal balance—darker and weightier than the MP150s, which in turn have about average tonal balance, but more weight than most amps I've tried. But that doesn't mean the NuForce scale beyond their price tag. They are very easy to listen to—initially. They are the tubeiest sounding solid-state amps I've ever heard—not modern tubey, but in the old-fashioned sense: rolled on top, fat on the bottom and oh-so-soft all over. Their sins and distortions are uniformly on the side of euphony, and contribute to a rapid descent into boredom. Beyond that, the NuForce, along with most of these amps, has imaging issues, with vaguely shaped, balloon-sized replicas that bear no relation to actual instruments. All have decent soundstage width and modest depth. The MP150's images also tend to be large, with soft borders, but they're well formed—and quite the opposite of chiseled miniaturization. Resolution, however, is right up there with your expectations for the best of the Class D category.

And don't look to the MP150s to provide euphony.

Forward? That was the hasty assessment of one fellow after a couple of jazz CDs. He ate his words with the first orchestral piece.

Preamp pairings

This amp sounds composed. Composed can become over-controlled if you don't watch out. The odds of this happening are lessened with a good, fully tubed preamp upstream. Most of my audition was done with my tube-hybrid von Gaylord Audio Uni prototype and later with the solid-state mbl 5011 preamp. This meant there were either two or no tubes in the chain. I couldn't help imagining what the MP150s would be like with a full-tube line-stage in place. Some of the subtlest things that I look for, like the warmth and shimmer of strings that at times borders on lush, and sometimes can be heard at concerts, are only to be found in the presence of valves. A well-chosen valve preamp mated with the MP150s could be a dream come true. But I'll have to determine that down the road.

(Late in the day, I had access to the Lamm L2 Reference preamp. WOW. This pairing had those subtleties I was wanting, if not the unlimited headroom and dynamics of the mbl 5011. A beautiful match—the MP150s and the hybrid Lamm L2. More on this coming up soon in my mbl 5011 preamp review.)

Be careful what you wish for

Be careful what you wish for—it may come true. The High End press has educated us to value purity, simple signal paths, and good specs. That's about what I have now. The question is, is it still involving? Do we really want the story told straight, without embellishment?

I started this review equating the top end of the MP150 to that of the ART Audio Jota SET tube amp. To compare their low-ends would be unfair. It is only in the middle, the traditional domain of SET strength, that the Jota attains qualities beyond the reach of the MP150s (and even beyond other mid-powered SETs). Both amps are very lively in that band, but where one is full of dynamic life and responsiveness, the other is more about nuance and timbral richness. The Jota has this liquidity, this string tone, and the mysterious SET intimacy and involvement. And remember: the Jota is a mid-powered SET amp (24 watts). The single-digit-wattage SET amps bring to the table even more body, tonal richness, palpability, luxuriant ease, and can entangle you even further in their embrace.

The MP150 has plenty of body, more weight than most amps, and a good bit of warmth. (About the same tonal balance and warmth as the ATM-211 SET tube mono-blocks, but more body. But less warm and tonally lighter than the Jota). It can step out of character like no solid-state Class A/B amp and give you a taste of this SET voicing, to the extent that half way through the audition I caught myself in the middle of a session only to realize I was playing one vocalist after another. That's funny I thought, isn't this the turf of the SET amps?

In the end, each amp's topology defines its sound. The new Class D devices don't sound much like solid-state as I know it; nor are they exactly like tubes. Imagine if you would, solid-state to be at the extreme right of a continuum, with low-powered SETs at the other extreme. Push-pull tube amps sit somewhat left of center. The warm Class D devices come in a little further left, placing them even closer to the SETs

than push-pull. These Class D amps sound distinctive enough that we're going to need a new classification for their mid-left sound.

Break-In

Treble is suppressed for the first 24 hours or so. After about 50 hours, the MP150 begins to come to life. The switch mode design is either on or off—low volumes will break them in just as effectively as high. Then there is a daily break-in. When I come home and flippa-da-switch, the amps sound dark, slightly hard, less warm, and less tube-like. This is the case even if they were left powered on, but without signal. They require at least one hour at full listening volume to return to what you heard the night before.

Design & Cosmetics

I'm not an engineer. I don't get my jollies from examining circuit schematics and specs. For those who are curious, this is from the website: "The Matrix MP150 amplifier is a proprietary switching amplifier. It uses a unique pulse control scheme that takes feedback only from the speaker terminals. No feedback loop from the switching output is used. The result is extremely low output impedance over the entire bandwidth. Damping factor is >400 up to 2kHz and >100 at 20kHz. The frequency response is DC-50kHz (+0,-3dB) and is completely independent of the load impedance. THD and IMD are very low (<0.02%) and completely independent of frequency, like a good zero-feedback amplifier. The amplifier operates without an oscillator, which removes all problems associated with oscillator jitter. This translates into very good SNR >110dB. Construction is entirely using discrete transistors and FETs. Input impedance: 220K!"

Bruno Putzeys, the lead engineer behind the Class D project at Dutch giant Phillips Electronics, and the man who developed the patent on which the MP150s are based, now works for Kharma and headed up the MP150 design team. He would like to dispel some of the dense fog enshrouding the subject of Class D design and open the window for some much-needed fresh air.

First, it is not the case that everyone is employing one of the three or four basic, off-the-shelf, chip sets (Tripath, ICE, UdC, etc), and just plops it onto a circuit board. When you decide to work in Class D, the starting point is (or should be) a concept on paper. You are faced with two areas of major design decision points: 1) Control Strategy, which has some 14 parameters, each of which requires a decision, and 2) Power Conversion Strategy, with an additional three. Bruno figures these work out to 432 thinkable "concepts", or combinations. About 100 of these have actually been attempted. Then, once beyond the schematic, there are hardware and circuit board level decisions. There is enormous variation—Class A amp designs actually present fewer permutations!

The MP150 casework is CNC milled from a solid block of aluminum. The screw-in spikes are also quality aluminum. Binding posts are Cardas sourced for Kharma—attach both speaker cable spades and then tighten one screw-down cap nut to clamp both sides. Close inspection reveals a high grade of manufacture. I had a peek inside and was very impressed with parts quality and the clean, intelligent circuit layout. Blackgate caps and Wima resistors surround the simple, Spartan pathway of pure-silver-gold wiring on the input and output signal paths.

The MP150 is a purist design with minimal parts in the signal path. (Which was a surprise. Not so sure why, maybe it's because their appearance is so unassuming.) Like other purist designs, the MP150 eschews the usual DC protection. Most amps have a capacitor buffer stage up front to cancel any stray DC from the preamp. Especially when there are tubes upstream, there's the potential for DC leakage. If your pre-amp causes the MP150s to cycle on and off repeatedly, two minutes on your dealer's workbench is all it takes to engage the protection. The amps are shipped with the buffer stage in place but disengaged, because Kharma feels the extra capacitors degrade the signal. (I had to activate the buffer when I used my vGA preamp.)

This is a truly balanced signal path—XLR input is standard, but it can be ordered with RCAs. It does not use a switching power supply, like other Class D amps, but instead uses a donut-core transformer along with Kharma-branded electrolytic caps. They can be left on 24/7/365 and get merely warm to the touch, while contributing minimally to your monthly AC bill. Quiet as a church mouse… you can put your ear right up against the drivers… and not hear a peep. I'd say the noise floor has bottomed out—it has never been this low before. This is testimony to the competency of the schematic and the quality internals.

The MP150s look like many of the shoebox-size amps around now, nothing fancy, no frills, and utilitarian—the most impressive visual is the briefcase they arrive in. You can choose from a rainbow of standard colors, or even a custom color: the color you choose will also be the color of the matching anodized aluminum briefcase. (Lack of) size has its advantages, no doubt, but it also means all the ins/outs are crammed on one short side. Beyond the inconvenient access, it can't be good to have the IC signal wire hugging the AC power cord.

They went in where all amps start life, on the Harmonix TU-888 tuning boards, and plugged straight into the wall—no conditioning or accessory footers. I enjoyed them this way for a month or so, and then got the bright idea of slipping some Harmonix RF-66ZX between them and the TU-888 tuning board. YOWZER, man, if you're looking for that extra bit of liquidity and warmth—or whatever you want to call it that takes you further from the sound of a mechanical process—this is the ticket. (This is also more of the euphony). They also enjoy hook up to the TARA Labs PM/2 passive conditioner.

The pair of MP150s can be tucked away on a single shelf, or even under your speakers, if they're up on spikes. In the evening's half-light, the little MP150, with its dim blue headlight (fiber optic indicator light on the front) and its brighter red tail light (the On/Off rocker switch), reminds me of a scale-model car parked at the filling station, fuel line (power cord) attached.

Conclusion

Audiophiles come in many stripes. Attend the next meeting of your local audio society. About the only thing this diverse group has in common is their tight-fisted concern for their billfolds. The MP150s will cut the mustard for a wide swath of those tastes, ranging from the PRAT Flat Earth types, to the precision and control technophiles, to the reluctant *tube-ophile*, just stopping short of the tone, gotta-have-more-tone, lover of beauty. The amps are dead quiet, without a hint of grain, stridency or other solid-state symptom. They actually sound closer to quality SET amps than to transistors, with a large dollop of fleshy, fulsome images, and a wonderfully integrated treble. In looking over this copy, I realize I didn't stress enough

just how musical the little MP150s are. You may have minor quibbles about that voicing—decisions were made biased in favor of musicality, especially in the shaping of their dynamics. Still, if you have a taste for a sweetened sound, with a touch or more of euphony, don't look to the MP150s—you won't find it there—they measure flat as a pancake.

The issues have been addressed. I can vouch that the MP150s are wish fulfillment for owners of Kharma speakers. (I would have loved just a touch darker tonal balance—for my taste, that would have been ideal.) This is the Kharma *Ceramique* sound fully realized. I'm not sure if you'll ever find a better synergy—certainly not at this price point. Subjectively, based on what I'm hearing, I'd venture the amp has the ideal electrical characteristics for the Kharma CRM 3.2 speakers. It fulfills the speakers' potential. (I had to put qualifiers in this paragraph, because the MP150 is aimed at the Matrix and Ceramique levels, Kharma's lower rungs. An Exquisite level amp will be available soon.)

The Kharma MP150 offered at $6800/pair is a freak occurrence, a rare marketplace anomaly. This is a case of extreme value. Had they been packaged in a larger, fancier chassis, I have no doubt they would have no problem selling at $10,000 or more. I can't think of a competitive solid-state amp at anywhere near this price. The one that comes to mind is the darTZeel NHB-108 with its $18,000 MSRP. The MP150 is better. **Marshall Nack**

Specifications

- Pulse control amplifier using Entirely discrete transistor and FETs
- Power 100 watts at 8 Ohm, 150 watts at 4 Ohm
- Input: XLR or RCA
- Output: Kharma Binding Posts
- Dimensions (without spikes): 2.0"H x 10.9"D x 4.9"W
- Weight: 7.1 lbs

Kharma Matrix MP150 mono power amplifier
Retail: $6800/pair
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