MTX TE1501D

Text and Measurements by **Garry Springgay**

MTX has long been known for building quality high performance products. The company has been around for a long time and enjoys a great reputation as one of the cornerstone American amplifier / subwoofer companies. This month we're going to have a look at one of the new big bad boys from their Thunder Elite series, the TE1501D. The piece is a Class D subwoofer amplifier rated at 500 watts into 4 ohms, 1,000 watts into 2 ohms, and 1,500 watts into 1 ohm. Power like this is what MTX is known for, and this powerhouse of an amplifier is designed to match perfectly with the MTX 9500 series subwoofers.

The fully customizable Prizm EFX feature allows the amplifier's lighting to be adjusted to almost any colour, so you have an amp that can blend in with your installation, or alternately be made to really stand out as the centerpiece.

COSMETICS

I like the new look of the MTX Thunder Elite amplifiers. Finished in high-gloss piano black and chrome, the amps look expensive and well put together. Combine those attributes with the fully customizable Prizm EFX feature that allows the amplifier's lighting to be adjusted to almost any colour, and you have an amp that can blend in with your installation, or alternately be made to really stand out as the centerpiece.

Measuring about 21 inches long, 10 inches wide, and 2.5 inches tall, the TE1501D will fit in most normal installations quite easily. One reason an amp capable of this much power can be built in a medium-sized chassis is the use of the Xtant cooling technology, which I'll explain in a bit more detail later. The wire connections and the four 35A fuses are all placed along one edge of the amplifier, and all the controls are top-mounted for easy access. The main power connections will accept 1/0 gauge wire, and there is also a set of 4-gauge connectors to make hooking up an external capacitor very easy.

MTX thoughtfully includes clear plastic insulators to cover the electrical terminals once the amp is connected, thus preventing any accidental short circuits which can be the kind of excitement no one really needs. Heck, they even included a little piece of polishing cloth to keep the gloss finish looking its best. »

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FEATURES & DESIGN

In terms of features, the TE1501D has everything you'd expect and a bit more. The amp uses an "always on" 40-200Hz adjustable low-pass filter that is designed with a slope of -24dB per octave. There is also a -12dB switchable subsonic filter that is fixed at about 30Hz.

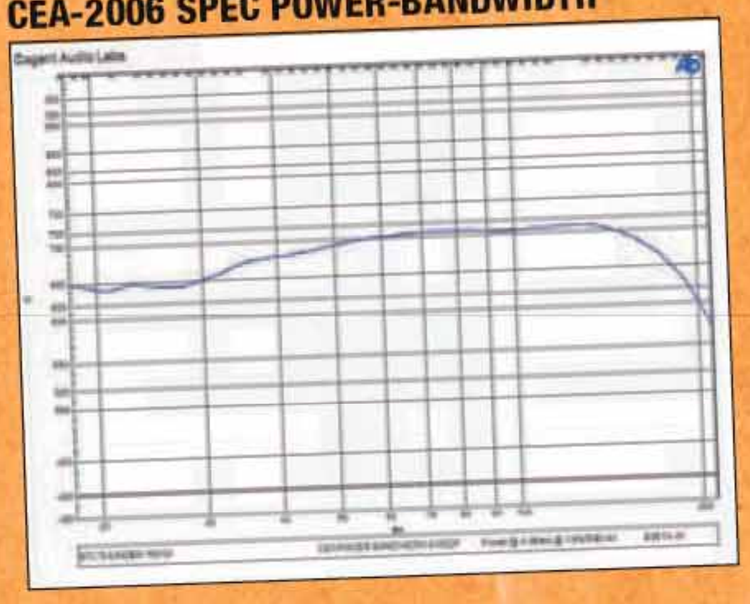
One feature that's quite different and unusual on a subwoofer amp – or any amp for that matter – is the parametric-style EQ with a full 12dB of boost or cut at any desired frequency between about 38- and 80Hz. This EQ feature can come in handy when tuning the sound of your woofer system, as unlike any other amp-mounted system, it's capable of reducing unwanted resonances, instead of just providing boost. The gain control includes a "x10" switch, ensuring compatibility with virtually any input signal voltage, from the weakest aftermarket pre-outs to the hottest OEM-amplified systems. A remote gain control is included, so you can adjust the relative "volume" of your woofer system from the driver's seat.

Another convenient feature found on the big MTX is something they call "Smart Engage," which allows the amplifier to turn on via the signal inputs and eliminates the need for a separate remote turn-on wire. This can be pretty handy when interfacing the amp into an OEM system, where a dedicated remote-on wire doesn't exist, for example.

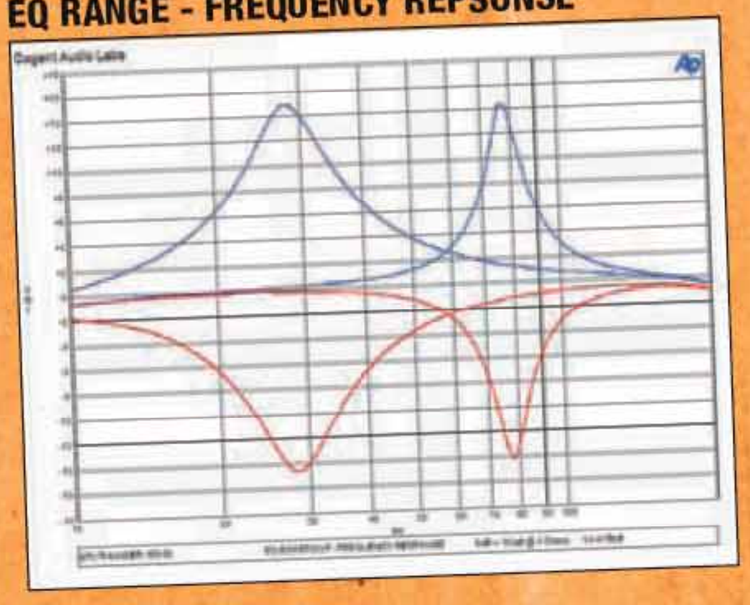
Internally, the amp uses a large, fan-cooled "bonded fin heatsink" that is incredibly effective at getting rid of the heat generated by the 10 high-current power supply MOSFETs and the 12 TO-264 size output MOSFETs. As heat increases, the fan speed is adjusted automatically, providing the optimum cooling at any temperature. This bit of "cool" technology was originally developed for the Xtant brand, but it has found its way into many of the MTX designs as well. Big-power amps like this can get really hot really quick, but these designs with a great amount of fin surface area, coupled with a fan to move the air across those fins, have historically been among the best available at dissipating the heat and virtually eliminating any thermal problems.

The MTX TE1501D is constructed with primarily surface-mount parts, which provide the maximum flexibility in PCB layout and extremely tight part value tolerances. The amp I took apart was very well constructed and there were no "fixes" or "afterthoughts" on the well laid-out PCB. The quality of the soldering was very good and the whole amplifier showed signs of intelligent engineering when it came to the mechanics of the design.

CEA-2006 SPEC POWER-BANDWIDTH



EQ RANGE - FREQUENCY REPSONSE



LISTENING

Whenever I listen to big powerful subwoofer amps like this one, I usually find myself sitting there with a big stupid grin on my face, and the MTX amp did that for me in spades.

The TE1501D proved more than capable of driving any type of subwoofer load I connected it to, including at one point, four 4-Ohm 15s all wired in parallel. Talk about output! And just as importantly, the amp sounded fine. The amp showed great control and provided tight, accurate bass regardless of what type of music I played.

Even if it's not your taste in music, just for fun sometime, listen to some well-recorded classical music on a system with a powerhouse amp like this one, hooked up to multiple large woofers. Until you have heard the Telarc recording of the Atlanta Symphony Orchestra's version of Fanfare for the Common Man with over 1,500+ Watts and four 15-inch woofers, you don't know what real bass is: astonishing and awe-inspiring. »

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BENCH PERFORMANCE

On the revealing Cogent test bench, the MTX amplifier surpassed every one of its published specifications. It made more power than advertised at all impedances, and the signal-to-noise ratio was better than quoted. It's really nice to see a product that actually is rated a little conservatively after testing so many products that barely meet (or simply don't meet) the expected / quoted performance.

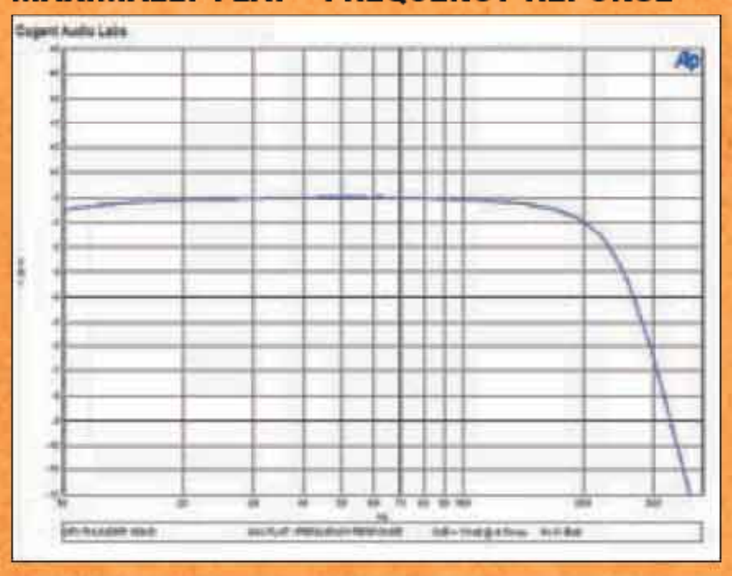
Distortion at rated 4-Ohm power was good for a large Class D amp, at just 0.17%.

The amp was quite efficient also, with a 78% rating at full power into 2 Ohms. I can also tell you that at 1-Ohm, I measured over 1,600 watts and the amp never blew the 140 amperes of factory-installed fuses. That says a lot for the efficiency of this amplifier.

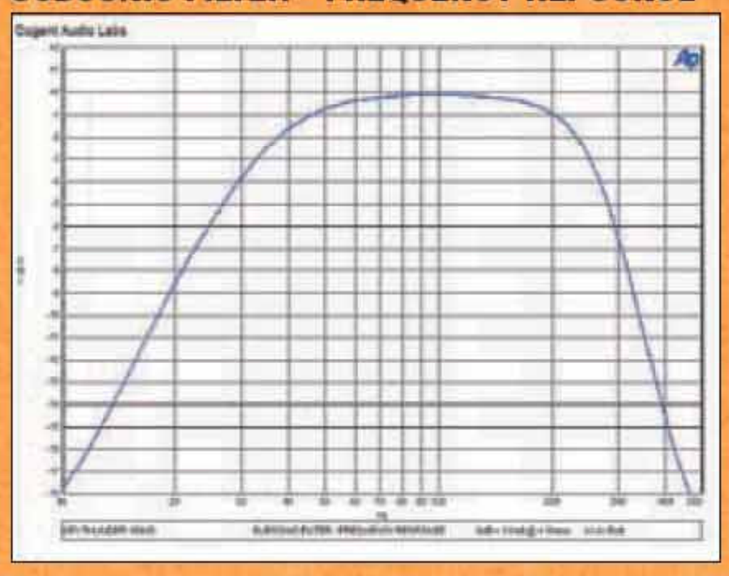
Idle current was a bit higher than what you'd expect for an amp this size, at 3.5A.

At turn-on, I did notice a very slight "tick" in the woofer system, but it was not loud enough to be concerned about unless you are extremely concerned with this type of noise.

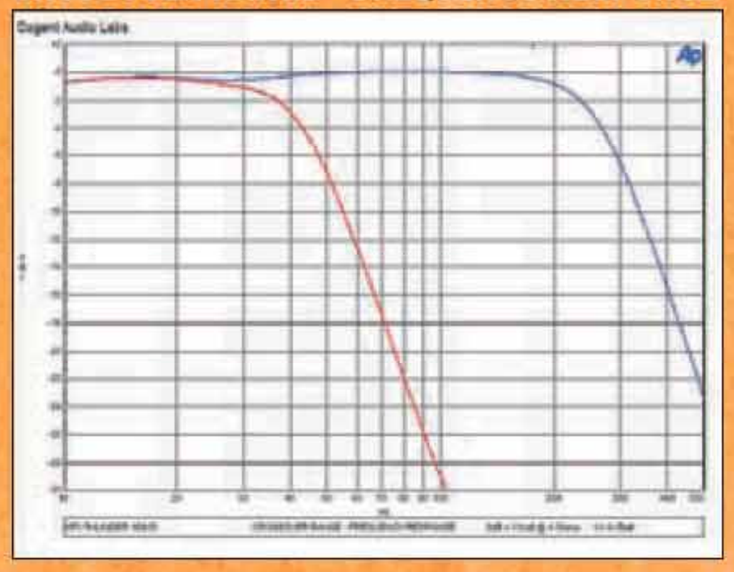
MAXIMALLY FLAT - FREQUENCY REPONSE



SUBSONIC FILTER - FREQUENCY REPSONSE



CROSSOVER RANGE - FREQUENCY RESPONSE



The following power measurements were obtained using industry standard methods.
(100Hz @ 1.0% THD+N - Battery voltages shown +/- 0.2V)

MEASURED PERFORMANCE SPECIFICATIONS

MANUFACTURER'S RATED POWER	ACTUAL MEASURED POWER @ 1.0% THD+N @ 14.4V Battery	ACTUAL MEASURED POWER @ 1.0% THD+N @ 12.6V Battery
500 x 1 @ 4 ohms	702 x 1 @ 4 ohms	597 x 1 @ 4 ohms
1,000 x 1 @ 2 ohms	1,207 x 1 @ 2 ohms	944 x 1 @ 2 ohms
1,500 x 1 @ 1 ohm	1,625 x 1 @ 1 ohm	1,257 x 1 @ 1 ohm

Signal to Noise Ratio referenced to 2V output. (CEA-2006A) (1 watt @ 4 ohms)	-79.1dBA
Signal to Noise Ratio referenced to full output. (1,188 watts @ 4 ohms)	-107.5dBA
Distortion at rated power	0.17%
CEA-2006A rated 4 ohm Power (minimum power per channel developed between 10Hz and 100Hz)	600 watts
Maximum Efficiency at full 2 ohm power per ch.	78.2%
Idle Current	3.5A
Input Sensitivity	118mV – >13V
Maximum Current @ full power 1 ohm	181A
Frequency Response (-3dB)	<10Hz – 253Hz
High Pass Crossover	N/A
Low Pass Crossover	40-248Hz-24dB/oct
Parametric EQ boost/cut	+14dB @ 28-78Hz
Stereo Separation (Crosstalk)	N/A

CONCLUSION

The MTX Thunder Elite 1501D is a full-featured, good-looking, nicely-designed and well-built amplifier. This is a real-world, everyday, high-performance amplifier that can be used in virtually any system.

And with more than 1,500 watts available, it'll make more than enough power for all but the real crazies out there. Its power output is matched by a very effective cooling system, and it has all the features you'll need to get it dialed in with your system. PAS

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