



Arc Audio MOTO 600.4 Amplifier Review

BY GARRY SPRINGGAY

Many of us are just as into motorcycles as we are cars. If you are also a motorcyclist that enjoys good tunes in your ride, you will be very happy to learn that the folks at Arc Audio have released a new amplifier that was specifically designed for Harley-Davidson touring bikes, but it can also be used in a wide variety of motorcycles and UTVs as well.

The amplifier carries the appropriate moniker MOTO 600.4. It is rated at 150 watts x 4, at either 4 or 2 ohms. The MOTO 600.4 has a U.S. suggested retail price of \$649.

Features

The MOTO 600.4 is a Class D amplifier, selected specifically to maximize power efficiency. That means the amp delivers more power per watt consumed from the battery than other types of amplifiers. A very high efficiency rating also minimizes the amount of heat developed, a real problem when the amp is mounted under a tight fitting fairing. Speaking of tight fitting, Fred Lynch, the product guru at Arc Audio explained to me that this amplifier's size and shape were chosen specifically to make the amplifier fit on the top

of the radio in a Harley-Davidson touring bike. As a result, the 600-watt amplifier measures a very compact 8.125 x 5.4 x 1.8 inches.

To further enhance the amp's cooling capability, a fan cooling system draws air in and over the components and exhausts it out the rear of the chassis. As a result, the amp is claimed to be capable of several hours of high output operation without shutting down. Thoughtfully included with the amplifier is a remote mounted status LED that shows the amplifier's status should any of the amp's multiple protection circuits ever be activated.

Because of the proximity of the amplifier to the bike's radio and antenna cable, great care was taken to reduce the electromagnetic interference (EMI) that is common in many Class D amplifiers. To minimize the possibility of any radio interference, the MOTO 600.4 uses fully encapsulated output inductors and filtered power connections. The chassis is designed to block high frequency emissions and even the fuses have been moved inside the chassis to reduce interference.

Some bikes come with 4-ohm

speakers, some come with 2-ohm speakers and many times, the choice of amplifier has been limited to only the ones that are compatible with your speakers. Arc Audio has a solution for this dilemma via an unusual, but incredibly handy feature that allows the user to select the intended load impedance for the front and rear channels individually. This not only allows you to run differing impedance speakers, but you could also take advantage of it to run the amp in bridged mode. This feature, coupled with the ability to adjust crossover points from 50 to 500 Hz and a variable bass boost means that this amp is also an excellent candidate for use in UTVs, boats, or any other type of vehicle.

Listening

Because of my ridiculous schedule (as I write this, the clock has just struck midnight), I don't have as much time to listen to this amp as I would like, but I do manage a good hour-long session. Even in that short period of time, I come away quite impressed with the performance of the MOTO 600.4. The amp proves to have an

abundance of power headroom, even when pushed pretty hard on complex orchestral passages. Dynamics are very good, and with this much power on tap, the amplifier is just plain fun to listen to. In terms of its sonic signature, the amp sounds very transparent and has commendable detail and stereo imaging. I also notice

MEASURED PERFORMANCE SPECIFICATIONS

| | |
|--|-------------------------------|
| Signal-to-noise ratio referenced to 2 V output (IEA-2006A) [1 W @ 4 Ω] | -76.6 dBa |
| Signal-to-noise ratio referenced to full output | -98.4 dBa |
| THD+N at rated 4 Ω power | 0.04% |
| Maximum efficiency at full 4 Ω power per channel | 91.6% |
| Maximum efficiency at full 2 Ω power per channel | 86.2% |
| Idle current | 1.4 A |
| Input sensitivity | 198mV- 3.4 V |
| Maximum current @ full power, lowest rated impedance | 49.3 A |
| Frequency response (-3 dB) | 15 Hz -> 30 kHz |
| High-pass crossover | 52 Hz - 500 Hz -12 dB/Oct |
| Low-pass crossover | 52 Hz - 500 Hz -12 dB/Oct |
| Subsonic filter | None |
| Bass boost | Variable; 0 to +12 db @ 46 Hz |

TECHNICAL DATA

| Manufacturer Rated Power | Actual Measured Power @ 1.0% THD+N // @ 12.6 V Battery | Actual Measured Power @ 1.0% THD+N // @ 14.4 V Battery |
|--------------------------|--|--|
| 150x4 @ 4 Ω | 95x4 @ 4 Ω | 151x4 @ 4 Ω |
| 150x4 @ 2 Ω | 151x4 @ 2 Ω | 153x4 @ 2 Ω |



that even after an hour of enthusiastic listening, the amp is only warm to the touch. In fact, it impresses me enough to give it a try in my own Ultra Classic for a while for a long term test.

On the Bench

On the test bench, I run the MOTO 600.4 through the usual battery of tests and it performs to specification in every regard. Distortion is very low. I do some radio interference testing as well, and I can report the amp does not cause the loss of a single station.

Although the MOTO 600.4 measures higher in efficiency than any other motorsport amp I have tested to date, it still needs some juice to make all that power. This means that maximum current draw is on the high side for an amp that has to rely on a motorcycle charging system, particularly if you have already added other electrical accessories, but unless you are absolutely flogging the thing 100 percent of the time, it should be fine. One more point of caution: this amp is a powerhouse for its size and should not be confused with some bargain brands that advertise 500 watts, but have a 10-amp fuse. There is 600 watts of clean power available, so you better make sure your speakers can handle it!

Conclusion

With excellent installation flexibility, very high efficiency and a true compact size, the Arc Audio MOTO 600.4 is a serious contender when it comes to everyday use amplifiers that fit under a Harley batwing - or in your boat, tractor, UTV, dune buggy, or whatever else you may need a well-made, good sounding and very powerful amplifier for. **PAS**

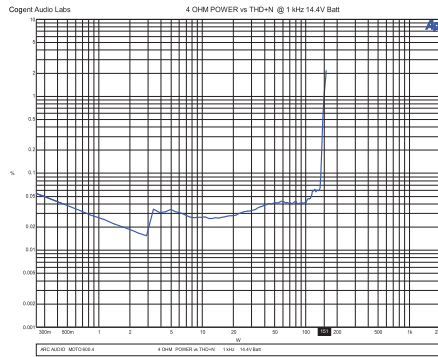


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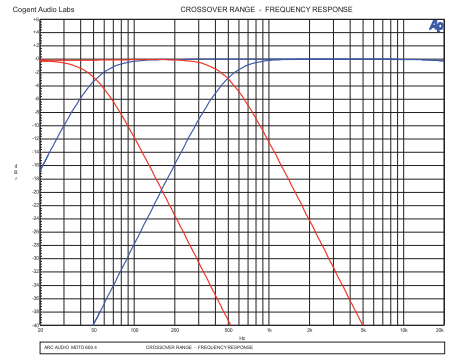
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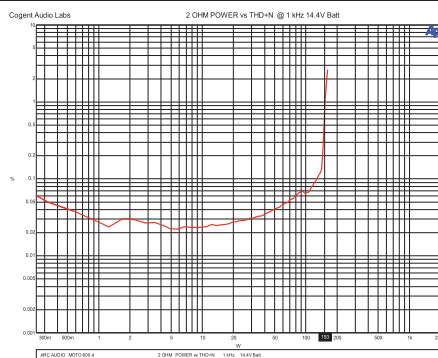
4 OHM POWER VS THD+N @ 1 KHZ 14.4 V BATT



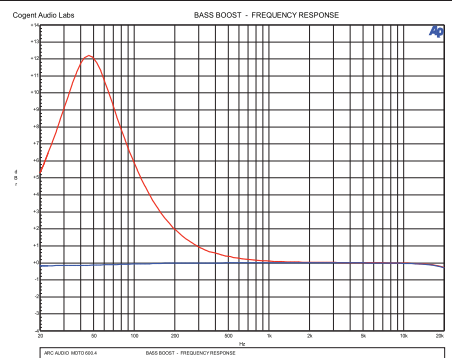
CROSSOVER RANGE - FREQUENCY RESPONSE



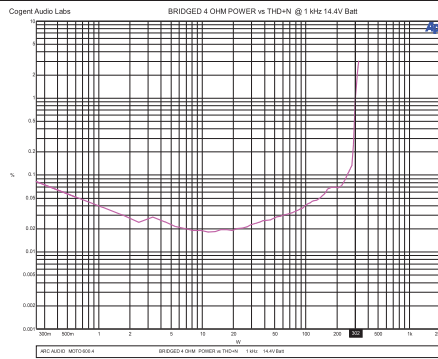
2 OHM POWER VS THD+N @ 1 KHZ 14.4 V BATT



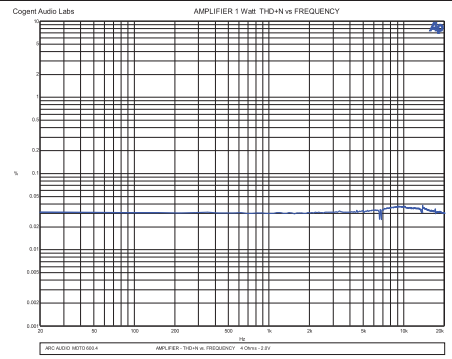
BASS BOOST - FREQUENCY RESPONSE



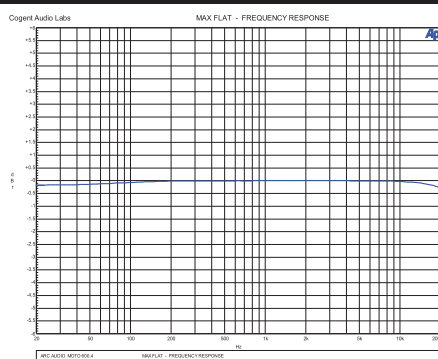
BRIDGED 4 OHM POWER VS THD+N @ 1 KHZ 14.4 V BATT



AMPLIFIER 1 WATT THD+N VS FREQUENCY



MAX FLAT - FREQUENCY RESPONSE



SEPARATION OR CROSSTALK VS FREQUENCY

