

ONKYO M-510 AMPLIFIER

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For literature, circle No. 94

Top-quality power amplifiers have gotten harder to review in recent years. The classic power-amplifier problems—a lack of drive capability in the deep bass, a lack of sweetness in the upper midrange, and an inability to handle the loudest and lowest passages—are still around, but few new designs have serious flaws in these areas. Virtually all contemporary power amplifiers are at least listenable, and most are quite good. Sonic differences are still important, but they now tend to be differences in nuance and in the ability to deliver power into the extremely demanding loads presented by some top-quality speakers.

This capability to drive diverse loads is particularly important. As amplifiers have gotten better, it has become clearer and clearer that amplifiers form a "system" with the speakers they drive. Many of the audible differences between amplifiers change when the speaker is changed, often in unpredictable ways: An amplifier with a lean lower midrange on one speaker can be just right on another. A transparent midrange can suddenly become a bit hard and analytic. Tight bass can become too full, and vice versa. Imaging can shift from realistic to overetched and dramatic.

The causes of such interactions are far from clear in spite of ongoing technical research in this area. When one changes amplifiers, speakers that present seemingly simple resistive loads behave as differently as do ribbon speakers, which often show a load under 2 ohms, or electrostatics, which generally are a complex reactive load. Sound character also changes as much at low and moderate levels as it does at the high levels, where clipping might become a problem.

These problems are a good reason to take any amplifier or speaker review with a large grain of salt, and to insist on auditioning any amplifier with your



choice of speaker. They also make it almost mandatory that you find a good dealer who will actually pay attention to the sound of what he sells and work with you to get a proper "system balance." You cannot buy a high-end amplifier "off the rack" and expect to get the sound you pay for. Dealer support is critical.

The best amplifiers can, however, minimize these problems and risks by providing the capability to drive almost any load. The Onkyo M-510 is a particularly good case in point. Though Onkyo is known largely for more basic electronics, along with some exceptional FM tuners, the M-510 is very definitely a high-end product. It is one of those flagship designs—created without regard to cost and market size—that rarely leave Japan, but command worldwide recognition when they do.

The M-510 lists for \$4,200, but its performance justifies its cost. It delivers an incredible amount of power into even the most demanding loads. It is conservatively rated at 300 watts per channel into 8 ohms, 500 watts into 4 ohms, and 800 watts into 2 ohms. Its dynamic power rating is greater than 400 watts into 8 ohms, 750 watts into 4

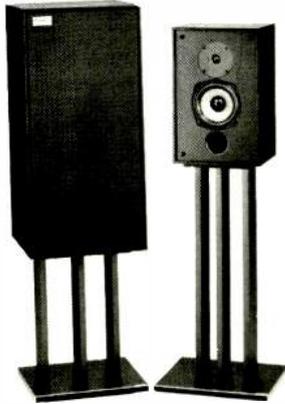
ohms, 1,300 watts into 2 ohms, and 2,100 watts into 1 ohm. Harmonic and IM distortion are specified as below 0.005% for a bandwidth of 5 Hz to 100 kHz. The rated damping factor at 50 Hz into 8 ohms exceeds 300.

Onkyo is known for its good basic electronics, but this amplifier is definitely high-end, beautifully made and styled, and offering exceptional features.

Big power means a big amplifier, and the M-510 comes in a package that weighs about 150 pounds and measures 20 inches wide × 10½ inches high × 20½ inches deep. The amp is beautifully made and styled, with exceptional features. It comes in silver trimmed with the champagne gold that is currently fashionable with Japanese high-end audiophiles, and it has rosewood side panels. The M-510 has peak-reading meters with switchable gain and individual power supplies. There is a choice of direct inputs or inputs with variable gain. Switchable

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The bass is tight and deep, the midrange is natural and balanced, and the treble is very smooth and clear, with outstanding air and detail.

relays allow the choice of either of two speaker pairs, or both. The cabinetry is excellent, and the speaker connectors are massive binding posts that can take virtually any speaker cable.

The M-510 has a number of other outstanding design features. A dual-mono design, the amp has separate power supplies which use a complex combination of a large toroidal transformer and a small "real phase" transformer said to smooth out fluctuations in the charging current coming from amplifier/speaker interactions. If you are a capacitor lover (someone must be!), there are two 33,000- μ F power-supply capacitors per channel. All inputs are direct-coupled, and a servo system is used to protect against d.c. and against a.c. below 3 Hz. Speaker protection is also exceptionally good, as suits an amplifier rated as capable of surge powers of 2.5 kilowatts. While the owner's manual does not describe the circuit topology in detail, the M-510 uses Class-A drive and Class-AB circuitry which is specially designed to reduce switching distortion, with 14 output devices per channel.

Most important, the sound of the M-510 lives up to its features and technology and does so with a very wide range of speakers. The amp not only works well with speakers which are comparatively easy loads, such as Thiel CS2s and Magnepan MG-IIIBs, but delivers outstanding performance with such far more demanding speakers as Infinity RS IB panels and Apogee Scintillas. Although the M-510's sound character does vary slightly according to the speaker being used, performance is uniformly good.

The bass is always tight, deep, and realistic. The Onkyo's performance in this area is better than that of any tube amplifier I have yet heard, and equals that of any transistor amplifier I know of except the 200-watt Krell mono amplifiers—which cost \$7,500 a pair. The difficult transition from upper bass to lower midrange is well handled, and there is only a slight trace of leanness—excellent performance in this area for any transistor power amplifier.

The midrange is natural and well balanced, and the transition to the upper midrange and upper octaves is also exceptionally smooth. Timbre is convincing, although with a slightly for-

ward character. This amp slightly emphasizes the upper midrange without creating hardness or an aggressive sound character. The treble response is very smooth and clear, and there is exceptional air and detail in the top octaves.

The handling of dynamic contrasts—rapid shifts from low to high levels, and sudden transients—is uniformly excellent. The M-510 is very detailed and transparent, and the imaging is clear and well spread. The sound seems to extend to the right and left of the speakers without clustering around them or leaving an apparent hole in the middle. Sound-stage height and width are very good indeed, and depth is good to very good. Unlike some other high-power amplifiers, the M-510 has a very live and dynamic character even at moderate listening levels. This adds to the excitement in the music without exaggerating it.

The M-510 is a world-class product. Its sonic colorations are minor, and its overall performance compares favorably to some of the most expensive and most favorably reviewed American-made transistor designs. In my opinion, the Onkyo is clearly superior to most of its high-end competition in its ability to deliver a consistent sound character into a wide range of demanding loads. All its features would be useful in any sophisticated, high-end system, and are a real pleasure for anyone (such as a reviewer) who wants to rapidly switch between speakers, confirm power levels, or correct consistent small imbalances in level.

If I have any practical reservations about the M-510, they concern the need to pay attention to overall system balance. Like most top-ranking transistor power amplifiers, the Onkyo is transparent and accurate to a demanding degree. It requires proper attention to system adjustment and balance, and is not the amplifier for any audiophile searching for a soft or forgiving design. Nevertheless, the M-510 raises Onkyo to a whole new plateau of high-end sound quality. One has to hope that this same amplifier technology can be made available in a less costly version, and that Onkyo will develop an equally good preamp!

Anthony H. Cordesman

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