



MUSICAL FIDELITY M5si

INTEGRATED AMPLIFIER

In the early days British amplifier manufacturers were renowned for building low-powered amplifiers. Exceptionally high-quality low-powered amplifiers, but low-powered all the same. It was their penchant for this that provided American amplifier manufacturers with their first foothold in the audio industry, because they became equally renowned for building high-quality high-power amplifiers. So if you wanted a low-powered amp you bought British and if you wanted a high-powered amp you bought American.

One person who never bought into this paradigm was Antony Michaelson, who founded Musical Fidelity in the UK in 1982 and is still its sole owner and managing director. His first power amplifier, the strangely named Dr Thomas, was rated at 120-watts per channel, his second (the A370) at 185-watts per channel and he later went on to build the Titan which was rated at 1,000-watts per channel into 8 Ω and was tested as delivering 4,000-watts into 2 Ω .

Musical Fidelity's M5si isn't in the Titan's power league, but with a power rating of 150-watts continuous per channel into 8 Ω , it does fall midway between the Dr Thomas and the A370... at least in terms of power output.

THE EQUIPMENT

Musical Fidelity is renowned for changing the appearance of its products, so there's no real 'signature style' to which the M5si could conform, but although I liked the company's 'cylindrical' period, during which time almost all its products were built in tubular form, the M5si's comfortably rectangular shape is far more practical... and unlike some previous models, it's also tastefully classy, with its large volume knob and badging contrasting nicely with the black of the front panel. Along with the new look comes a new way of putting the chassis together, because the M5si seemed a lot more solid and 'high-end' than, say, the M3i, for example, and it was also a lot harder to get into in order that I could check the components inside it.

When I finally did, I discovered that the power amplifier section is essentially dual mono, with a separate power supply for each channel but with both fed by the single toroidal transformer apparently made specifically for Musical Fidelity by the Chain Mate Industrial Company. Each channel's power supply comprises a pair of 10,000 μ F 80V bipolar Jamicon capacitors and a bridge rectifier. There are two pairs of output devices per channel: Sanken STD03P/STD03N pairs, which have drivers and temperature compensation diodes built in.

The front panel controls are also very tastefully done: small push-buttons with tiny blue tell-tale LEDs above to show circuit status, the exception being the STBY button, which has two LEDs, blue for 'On' and orange for 'Standby'. From left to right, the input buttons are: CD, USB, Phono, Tuner, Aux1/HT and Aux2. What at first glance looks to be a button over at the far right of the panel is in reality an infra-red receiver 'window' that's been bulged outwards to enable the remote control to be used from a wider area in front

Musical Fidelity is renowned for changing the appearance of its products, so there's no real 'signature style' to which the M5si could conform

of the amplifier. The USB input is to take the feed from a computer and supports up to 24/96. The 'HT' (Home Theatre) input allows you to bypass the M5si's volume control so you can integrate with a home theatre set-up by using the M5si to drive the front-channel speakers in a home theatre set-up.

The remote supplied with the M5si is a multi-function type that can also be used to control Musical Fidelity's five CD players, which range from the M3CD right up to the Nu-Vista Reference, and because of this has many more buttons than are required to operate the M5si. Unlike on some remotes, Musical Fidelity has very sensibly grouped the buttons that control the M5si into the one spot on the remote and coloured them blue so you can't confuse them with the other buttons, which are grey-coloured. The remote is plastic and not particularly good-looking, but the buttons for the amp are all able to be easily reached with a single thumb. The remote is powered by two AAA batteries, and Musical Fidelity includes two high-quality Panasonic-branded alkaline cells, for which it is to be commended, since these days so many manufacturers use cheap, carbon-zinc 'no-name' batteries. (Always check the batteries in any product immediately after purchase, and if you find carbon-zinc batteries, I'd recommend replacing them immediately with alkaline cells immediately, lest the carbon/zincs leak and destroy your remote control... which, unfortunately, they're renowned for doing.)

The rear panel has just a single pair of multi-way loudspeaker terminals and, in addition to the inputs you'd expect to find, adds both line and pre-amplifier outputs as well as trigger inputs and outputs. The M5si amplifier measures 400x100x405mm (WHD) and weighs 14.6kg.

IN USE AND LISTENING SESSIONS

The volume control of the Musical Fidelity M5si is motorised, but unlike many motorised remotes, it doesn't 'feel' like one when you're turning it manually... plus there's not the usual backlash of a motorised control,

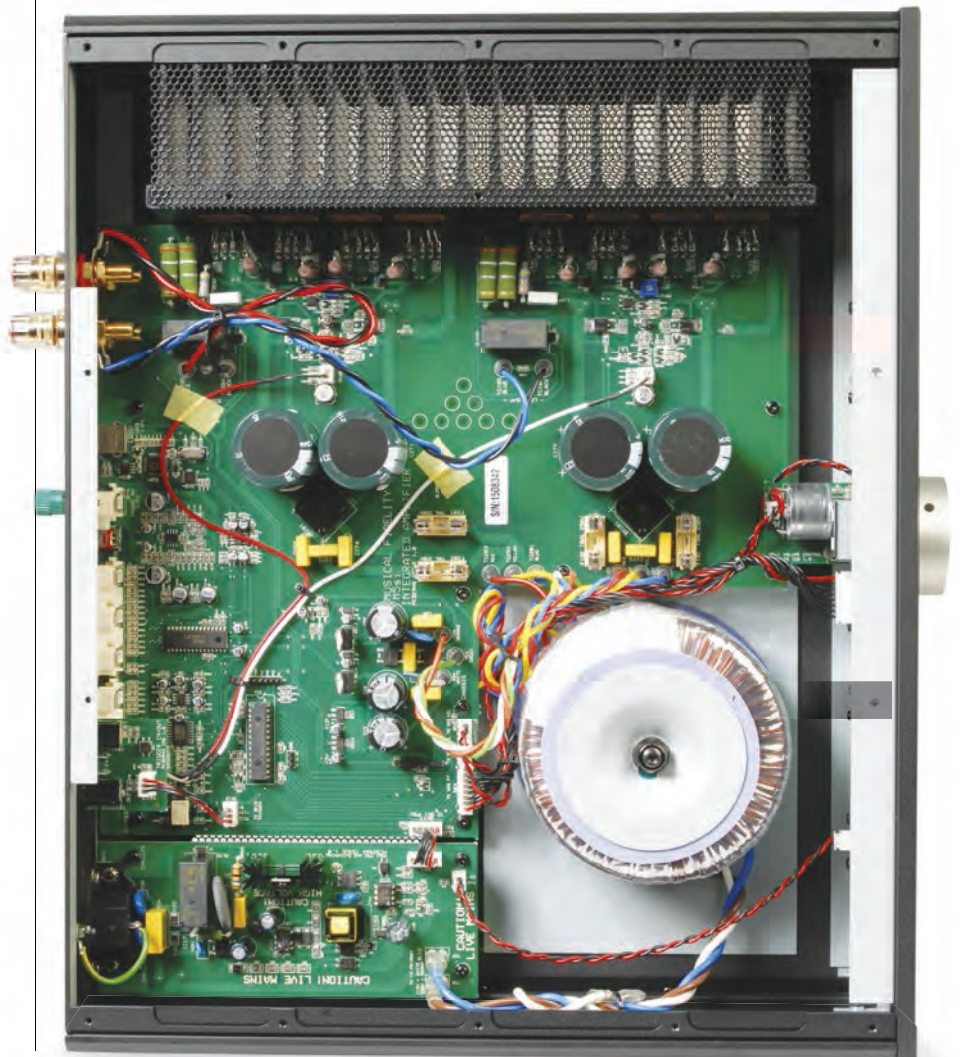
so when you set it at a particular volume level manually, that level doesn't go down slightly when you release the knob. There's a slot etched into the knob so you can see where over its travel it's set, but I would have preferred a small LED as this would have been more visible, especially from a distance.

Although the M5si has a muting circuit, it can only be activated via the remote control.

Then, once muting is activated, you need the remote to turn it off, because moving the volume control doesn't do this (it should, really, but few do). Rest assured that if you mislay the remote while the amplifier is muted, you can de-mute the circuit by switching the amplifier to standby, then back on. In this case the amplifier will stay muted for seven seconds, after which it will de-mute. Whenever you switch the amplifier off, it will always reset to the same input source that was being used when you switched it off, and also to the same volume level.

My listening sessions got off to a brilliant start because I started off with Sean McMahon and the Moonmen's 'Shiner', (playing

The power amplifier section is essentially dual mono, with a separate power supply for each channel but with both fed by the single toroidal transformer. Each channel's power supply comprises a pair of 10,000µF 80V bipolar Jamicon capacitors and a bridge rectifier. There are two pairs of output devices per channel: Sanken STD03P/STD03N pairs, which have drivers and temperature compensation diodes built in.





the title track before moving on to the opener *House of Mirrors* because it sounds better this way). Gotta love that guitar riff and the M5si gave it the grunt it needed: raw, natural and with perfect timing. *Broken Hill* allowed the M5si to prove how transparently it can reproduce male vocals, something many amps don't do well, because their designers have concentrated on the more popular female vocal range during their circuit fine-tuning sessions. But the M5si shone with female vocals equally well: I just loved the sound of Emily Lubitz's gorgeously sensual tones on 'Love is a Dog' as well as her somewhat-strained falsetto. I particularly loved the cello sound on the track *Diary*. The spare sound of this album also made it easy to appreciate how quiet Musical Fidelity has been able to make the circuitry of M5si: the silence behind the music makes it stand out all the more.

The M5si is superb at allowing you to hear detail, and there's plenty of detailing to be heard in Wild Feathers' album 'Lonely is a

A beautifully-engineered amplifier that combines great sound quality with high power output

Lifetime', whether it's multi-tracked vocals (*Overnight*), harmonised vocals (*Don't Ask Me to Change*), or sheer aural strangeness (*Hallelujah*). Wild Feathers changed its musical direction on this album, so you'll hear echoes of everyone from Bob Dylan to The Eagles via the Rolling Stones and Pink Floyd. But it's a great album, and it sounded fabulous via the Musical Fidelity M5si.

When music sounds good the words 'turn it up' are the most-used around my place,

and it was heard constantly during my time with the Musical Fidelity M5si. That said, the M5si was powerful enough that I could easily get a follow-up comment to the effect of 'maybe not that loud' before I'd even started exploring the upper reaches of the amplifier's power output capabilities.

CONCLUSION

The Musical Fidelity M5si is a beautifully-engineered amplifier that combines great sound quality with high power output and has 'sultry' looks that will integrate perfectly with any décor. Highly recommended. 

Ernest Denman

Readers interested in a full technical appraisal of the performance of the Musical Fidelity M5si Integrated Amplifier should continue on and read the LABORATORY REPORT published on the following pages.

CONTACT DETAILS

Brand: Musical Fidelity

Model: M5si

Category: Integrated Amplifier

RRP: \$3,695

Warranty: Two Years

Distributor: Audio Marketing Pty Ltd

Address: Unit 14L, 175 Lower Gibbes Street
Chatswood NSW 2067

T: (02) 9882 3877

E: info@audiomarketing.com.au

W: www.audiomarketing.com.au



- High power
- Great sound
- Sultry looks



- Auto standby
- Speakers A
- Remote control

LAB REPORT ON P 34



LABORATORY TEST REPORT

Newport Test Labs measured the power output of the Musical Fidelity M5si with both channels driven into 8Ω as 153-watts per channel at 1kHz, an output that dropped to 150-watts when 20Hz or 20kHz test frequencies were instead employed. This meant that Musical Fidelity could rate the M5si at 150-watts per channel, which it does... exactly... which means there's not a lot of leeway for production variations, so the company is obviously confident about its quality control.

When only a single channel is driven into 8Ω loads, power output increases slightly except when the test frequency is up at 20kHz, at which frequency the M5si is only capable of delivering 150-watts of power. That said, 150-watts per channel is 'way more than most people are ever going to need... and no-one, anywhere, is ever going to need 150-watts of power at 20kHz!'

The Musical Fidelity M5si was able to deliver more power when driving 4Ω loads, but fell short of the theoretical ideal of doubling power when load resistance is halved. Nonetheless it still managed a handy 2dB increase, delivering 220-watts per channel at 20Hz, 241-watts per channel at 1kHz and 248-watts per channel at 20kHz.

Musical Fidelity does not specify the M5si's power output into 2Ω loads, but *Newport Test Labs* tested into this load anyway and the amplifier's output stage rose to the challenge, delivering both-channels-driven test results of 278-watts per channel at 20Hz, 297-watts per channel at 1kHz and 307-watts per channel at 20kHz. This is only a little more than it could deliver into 4Ω loads, but serves to show that the M5si is quite comfortable with low-impedance loads, and thus will easily drive 'difficult-to-drive' loudspeakers. The amount of power on tap also means that you won't have to be too fussy about speaker sensitivity because the M5si will drive even the most inefficient loudspeakers to satisfactory listening levels.

Frequency responses were flat and extended, but not overly so, with the M5si's low-frequency 1dB downpoint measured as

being at 8Hz, and the -3dB point at 4Hz. The high-frequency -1dB and -3dB downpoints were further out, at 58kHz and 115kHz respectively, which is more than adequate, even for hi-res music applications. Within the audio band (Graph 6) the frequency response into a standard 8Ω non-inductive resistive load extended from 20Hz to 20kHz ±0.1dB (the black trace on Graph 6). Tested into a load that simulates that of a typical two-way loudspeaker, the M5si's frequency response (red trace on the graph) was not quite so flat as with the resistive load, but still measured 20Hz to 20kHz ±0.15dB. This is sufficiently linear that the variations would not be audible, even to a trained ear.

Channel separation was good, with *Newport Test Labs* measuring 105dB at 20Hz and 95dB at 1kHz. It fell to just 66dB at 20kHz, but although this is a little less than I am

used to seeing at this frequency, it's still far more than required to guarantee excellent stereo imaging. Interchannel phase was a little errant at low and high frequencies (0.1° and 1.56° respectively) but once again, these differences are too small to be audible. Balance between the left and right channels was excellent, at 0.011dB at 1kHz, and was maintained at around this level right across the audio band.

Harmonic distortion at an output of one watt was very low, as you can see from Graphs 1 and 2, which show distortion with a 1kHz test signal into 8Ω and 4Ω loads. Into 8Ω loads, there is a second harmonic at -110dB (0.00031% THD), a third at -112dB (0.00025% THD) and a fourth at -115dB (0.00017% THD). The second-order and third-order harmonic distortion components increase slightly in level when the M5si is

Musical Fidelity M5si Integrated Amp – Test Results – Power Output

Channel	Load (Ω)	20Hz (watts)	20Hz (dBW)	1kHz (watts)	1kHz (dBW)	20kHz (watts)	20kHz (dBW)
1	8 Ω	161	22.0	170	22.3	150	21.7
2	8 Ω	150	21.7	153	21.8	150	21.7
1	4 Ω	222	23.4	256	24.0	248	23.9
2	4 Ω	220	23.4	241	23.8	248	23.9
1	2 Ω	312	24.9	338	25.2	364	25.6
2	2 Ω	278	24.4	297	24.7	307	24.8

Note: Figures in the dBW column represent output level in decibels referred to one watt output.

Musical Fidelity M5si Integrated Amp – Laboratory Test Results

Test	Measured Result	Units/Comment
Frequency Response @ 1 watt o/p	8Hz – 58kHz	-1dB
Frequency Response @ 1 watt o/p	4Hz – 115kHz	-3dB
Channel Separation (dB)	105dB / 95dB / 66dB	(20Hz / 1kHz / 20kHz)
Channel Balance (Direct/Tone)	0.011	dB @ 1kHz
Interchannel Phase (Direct)	0.10 / 0.07 / 1.56	degrees (20Hz / 1kHz / 20kHz)
THD+N	0.006% / 0.004%	@ 1-watt / @ rated output
Signal-to-Noise (unwghted/wgghted)	81dB / 86dB	dB referred to 1-watt output
Signal-to-Noise (unwghted/wgghted)	84dB / 94dB	dB referred to rated output
Output Impedance	0.2Ω	at 1kHz
Damping Factor	40	@1kHz
Power Consumption	0.49 / 38.55	watts (Standby / On)
Power Consumption	71.44 / 491.52	watts at 1-watt / at rated output
Mains Voltage Variation during Test	241 – 249	Minimum – Maximum

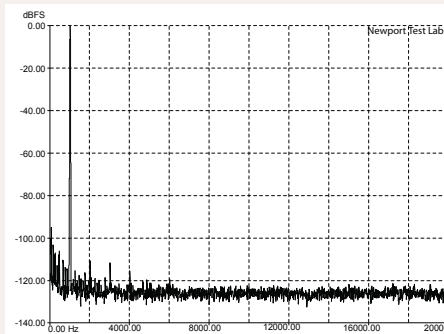
driving 4Ω loads, with the second rising to -103dB (0.0007% THD), and the third to -104dB (0.00063% THD), but the fourth drops a little, to -117dB (0.00014% THD). As you can see, the noise floor is more than 120dB down on both graphs except at low frequencies. There is some noise and harmonics from the power supply (the spikes at the extreme left of the graphs).

Distortion increases when the amplifier is operating at its rated output, but it's still very low... particularly so when the amplifier is driving 8Ω loads, as you can see in Graph 3, where there's a second harmonic at -104dB (0.00063% THD), a third harmonic at -96dB (0.00158% THD) and a fourth at -122dB (0.00007% THD). Into 4Ω loads,

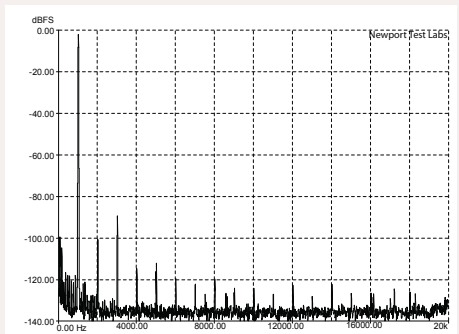
The Musical Fidelity M5si exhibited excellent performance across all the tests and can therefore be highly recommended

the second is at -100dB (0.001% THD), the third at -90dB (0.03% THD), the fourth and fifth at around -111dB (0.00028% THD) and a sixth at -119dB (0.00011% THD). Higher-order harmonics are also visible, but they're all more than 120dB down, or better than 0.0001% THD. Overall summed THD+N was measured by *Newport Test Labs* as being 0.006% at one watt and 0.004% at rated output.

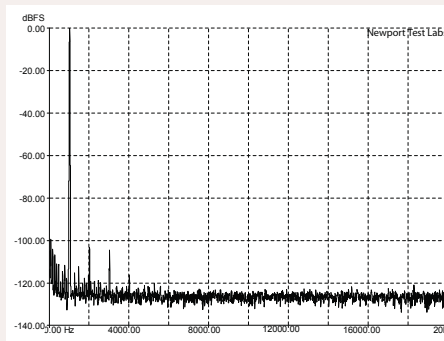
Intermodulation distortion, shown in Graph 5, was very, very low. There were only two sidebands either side of the 19kHz and 20kHz test signals (at 18kHz and 21kHz) and both were 100dB down, contributing only 0.001% to THD.



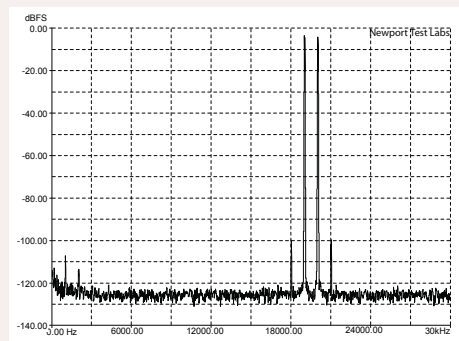
Graph 1: Total harmonic distortion (THD) at 1kHz at an output of 1-watt into an 8-ohm non-inductive load, referenced to 0dB. [Musical Fidelity M5si Integrated Amplifier]



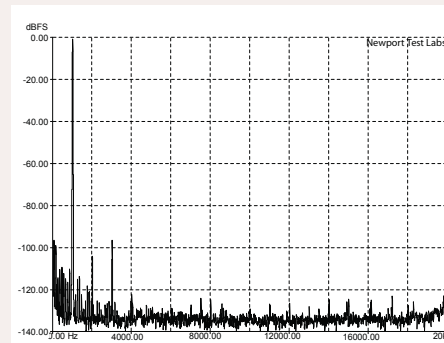
Graph 4: Total harmonic distortion (THD) at 1kHz at 210-watts into a 4-ohm non-inductive load, referenced to 0dB. [Musical Fidelity M5si Integrated Amplifier]



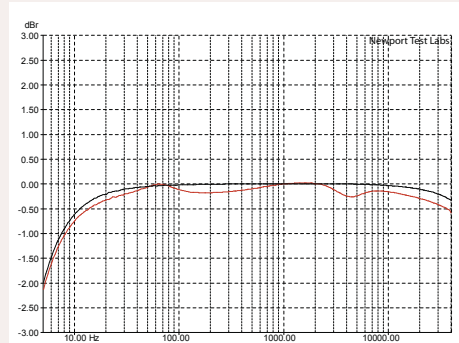
Graph 2: Total harmonic distortion (THD) at 1kHz at an output of 1-watt into a 4-ohm non-inductive load, referenced to 0dB. [Musical Fidelity M5si Integrated Amplifier]



Graph 5: Intermodulation distortion (CCIF-IMD) using test signals at 19kHz and 20kHz, at an output of 1-watt into an 8-ohm non-inductive load, referenced to 0dB. [Musical Fidelity M5si Integrated Amplifier]



Graph 3: Total harmonic distortion (THD) at 1kHz at 136-watts into an 8-ohm non-inductive load, referenced to 0dB. [Musical Fidelity M5si Integrated Amplifier]



Graph 6: Frequency response of line input at an output of 1-watt into an 8-ohm non-inductive load (black trace) and into a combination resistive/inductive/capacitive load representative of a typical two-way loudspeaker system (red trace). [Musical Fidelity M5si Integrated Amplifier]



There is a small regenerated signal at 1kHz, but it's 108dB down (0.00039% THD).

The signal-to-noise ratio of the M5si, referred to an output of 1-watt, was measured by *Newport Test Labs* as being 81dB unweighted and 86dB with A-weighting. Referred to rated output, these already good S/N ratios improved to 84dB unweighted and 94dB A-weighted, but the best of these results falls short of Musical Fidelity's specification of 100dB A-weighted, so the company obviously uses a different test methodology (probably a higher-voltage test signal).

The output impedance of the M5si, as measured by *Newport Test Labs*, was fairly high, at 0.2Ω , meaning its damping factor was just 40, somewhat lower than that returned by most solid-state amplifiers, but still twice the amount required to satisfactorily damp the back-emf from your loudspeakers, according to no less an authority than Floyd E. Toole, whose research and tests showed that any figure above 20 will be more than sufficient for the purpose.

Square wave tests on the M5si showed excellent performance right across the frequency range. The 1kHz waveform is near-perfect, and the 10kHz waveform shows very little rounding.

Particularly impressive is the way the Musical Fidelity handles highly reactive loads, with barely any overshoot at all, and negligible ringing. Amplifiers that respond to square waves in this fashion in this test are generally found to 'sound better' in subjective testing than amplifiers that have large overshoots and excessive ringing. The tilt on the 100Hz square wave is due to the limitations of the M5si's low-frequency response, as discussed earlier (a 3dB downpoint of 4Hz). There is no bending on the sloping part of the waveform, therefore there are no low-frequency phase issues.

Power consumption was less than half-a-watt in standby mode, and around 38-watts when the amplifier is switched on, but not amplifying a music signal. When delivering its maximum power output, the Musical Fidelity M5si will pull nearly 500-watts from your mains supply.

Overall the Musical Fidelity M5si exhibited excellent performance across all the tests conducted on it by *Newport Test Labs* and can therefore be highly recommended. *— Steve Holding*

Readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.

