



## MUSIC HALL mmf 1.5

### TURNTABLE

**R**oy Hall, the founder of Music Hall, is the person responsible for the very modern trend for quality turntables to be supplied all set up and ready to go. Before Music Hall started to build its 'plug 'n play' machines, the manufacturers of audiophile-grade turntables worked on the principle that one of the indicators of the quality of a turntable was how much work the buyer had to do before being able to play an LP.

At the extreme high end of the turntable market, this meant not only assembling the turntable by putting oil into the bearing, fitting the platter, locating the motor and wrapping the belt around both the drive pulley and the platter, but also fitting the tonearm, then attaching the phono cartridge to that tonearm and aligning it. Ensuring correct alignment involved purchasing test records and alignment tools. For machines using springs for isolation, even more tuning was required. Some manufacturers say their machines are so complicated they'll only work correctly if installed and tuned by a factory-trained technician.

Even at the opposite end of the market, most turntable buyers were required to fit the platter and dustcover and install and align the phono cartridge and Hall realised that even this level was a hurdle for many buyers and as a result they were buying cheap, poor-sounding turntables simply because they were 'ready-to-go' out of the box. According to Hall, the result of this was that the best-selling turntable in the

United States was the Crosby Executive Black turntable, which sold for \$109 with tonearm and cartridge and was, in Hall's personal and considered opinion, '*a heap of rubbish!*' Hall designed his Music Hall USB-1 turntable as a direct competitor to it.

Music Hall's new mmf 1.5 turntable isn't exactly a 'turn-key' model, because you do have to do some assembly and alignment yourself, but it's pretty straight-forward, as you'll soon learn...

#### THE EQUIPMENT

The Music Hall mmf 1.5 is a three-speed (33.33, 45 and 78rpm), belt-driven turntable—with dustcover—that comes complete with a tonearm into which has been pre-installed a 'Melody' moving-magnet phono cartridge, and also has a built-in phono pre-amplifier, so the mmf1.5 can be connected directly to the line input of any amplifier... quite handy given that not a few amplifier manufacturers are not including phono inputs on their products these days.

If you don't think there's anything at all remarkable about the previous paragraph, it's because you haven't peeked at the recommended retail price of the Musical Hall mmf 1.5. No need to peek. I'll tell you. You'll get change from six hundred bucks.

Why do I think that's remarkable? Because I have reviewed a great many turntables whose dustcover is an optional extra that will set you back around \$100. And most turntables don't have a phono preamplifier built in, so if you need one, you'll be up for anything from \$150 for a basic no-frills Rek-O-Kut model, to maybe \$350 for a Musical Fidelity V90-LPS.

Then there's the cartridge that comes supplied with the mmf 1.5. The Melody is made especially for Music Hall by Audio-Technica, so I have no idea what it costs Music Hall, but Audio-Technica's most popular low-cost cartridge is its AT-95, which usually retails for around \$80. So if you had to buy a dustcover, a preamp and a cartridge, you'd be up for \$330, which is already more than half what Music Hall is asking for its mmf 1.5 which comes standard with all three.

But there's something else that's remarkable about the Music Hall mmf 1.5 turntable. Whereas most companies that manufacture budget turntables seem to feel that it's necessary to make those turntables *look* like budget turntables by compromising their 'fit 'n finish', Musical Hall has instead seemed to have gone overboard making the mmf 1.5 look as flash as possible, from its high-glossy cherry-wood veneered finish and nicely engineered S-shaped tonearm (which has a removable headshell, about which more later) to its high-quality hinged Perspex dustcover.

**Musical Hall has instead seemed to have gone overboard making its mmf 1.5 look as flash as possible**

It even has a high-quality heavy-duty rubber platter mat in place of the flimsy felt ones that are usually supplied at this end of the market. The result of all this is that the Music Hall mmf 1.5 looks like it's a high-end turntable.

To get the review turntable into action, I had to place the aluminium platter over the spindle and then wrap the drive belt around the motor shaft. This is made easy for you because the belt is pre-fitted to the platter, and there's a little section of red cloth under the belt, so if you pull the cloth to the other side of the motor shaft you're able to complete the installation quickly and easily without ever having to touch the belt itself. The thick rubber platter mat can then be placed over the platter.

I was a bit confused about cartridge installation, because my review unit came with the cartridge pre-installed into the headshell—which is supplied separately in the packaging—so all I had to do was 'push n twist' the headshell into the tonearm. However the manual has full instructions that detail how to install the cartridge into the headshell prior to fitting it to the tonearm. I subsequently learned that all cartridges will be pre-installed, so the instructions in the manual about it are superfluous.

So far as the tonearm is concerned, it doesn't come completely pre-assembled or aligned either. I had to fit the counterweight, and then adjust the tracking force to 2 grams, which is the recommended tracking force for the Melody cartridge. Then I had to set the anti-skating dial, which is simply a matter of turning it to the '2' calibration mark. I should also remark at this point that it's great that the tonearm on the Music Hall mmf 1.5 actually has anti-skating at all. In the rush to deliver ever-cheaper turntables, many manufacturers are not providing anti-skating devices, which is not only bad for sound quality, and bad for your stylus, but bad for your LPs as well.

Music Hall makes much of the shape of its tonearm (which looks suspiciously like it came from a Technics SL-1200 turntable) with its publicity material seeming to say that so-called 'S-shaped' tonearms are 'superior' (presumably to straight or J-shaped tonearms) in some way. The truth of the matter is that the shape of any tonearm has zero effect on the performance of the cartridge it's supporting. So long as a tonearm's effective length and mass are correct for the cartridge it's supporting (and there are no untoward tonearm resonances), it would not matter if the tonearm were shaped like a pretzel... it would still do the job.

To finish my install I had to attach the dustcover hinges to the dustcover, and then fit the dustcover hinges into the supports that



are already fitted to the turntable plinth, and lastly connect power to the mmf 1.5, that power being supplied in this case by a wall-mount plug pack (sometimes rather unkindly called a 'wall wart'). This device (which also must also be assembled, by the way, by selecting and fitting the correct 240V pin arrangement for your country, delivers 12-volts d.c. to the mmf 1.5 to power both the drive motor and the internal phono stage.

The Music Hall mmf 1.5 turntable feels very solid, and sits on four very solid vibration-absorbing feet. The only problem you might have is that although these feet certainly absorb unwanted vibration, they're not height-adjustable, so the surface on which you place the mmf 1.5 needs to be perfectly flat and level, otherwise the turntable could rock... which you most certainly don't want it to do.

## IN USE AND LISTENING SESSIONS

Before I started using the Music Hall mmf 1.5 I thought I'd better do some basic alignment checks, the first one being for cartridge alignment, since it's the most important thing to get correct on any turntable. It turned out that although the Melody cartridge had certainly been *pre-installed*, it had not been *pre-aligned*. In fact the calibration was several millimetres in error.

Using my own cartridge protractor, I found that to get correct alignment I had to move the cartridge mounting bolts to the extreme end of the tracks in the headshell. This means that if you change to a different cartridge,

you'll have to make sure the stylus-to-mounting-hole distance is 11mm or more, otherwise you will not be able to correctly adjust that cartridge in this particular headshell.

The misalignment made me realise that Music Hall does not provide any type of cartridge alignment tool in the packaging. This would normally mean you would need your dealer to loan you their own protractor, or have them align the cartridge correctly for you, but in this case, because the correct alignment is with the cartridge bolts at the extreme end of the track in the track, you'll easily be able to align the cartridge correctly without need for a protractor. Very fortuitous.

I then checked tracking force using an external digital tracking force gauge and found that if you use the 'short-cut' method described in Paragraph 6 (Page 3) of the Instruction Manual, the tracking force will be incorrect (too high). If, however, if you use the tracking force adjustment instructions described in Paragraph 7 (Page 3) of the Instruction Manual, the tracking force will be exactly right!

I checked that the anti-skating force applied was correct using a GN Records Turntable Set-Up & Test LP and established that setting the anti-skating gauge to the same numerical value as the tracking force (that is, at '2' for a tracking force of 2 grams, and at '1.5' for a 1.5 gram tracking force, etc) will result in the tonearm applying the correct amount of anti-skating force to the stylus to give proper playback and least record wear.

My last check was for platter speed using my own strobe card, and I was a bit flum-



moxed to find that the speed was 'way out as well, at both 33.33 and 45 rpm... being rather too high in both cases. I checked using my own strobe card, because Music Hall does not provide a card. I think it should, but your dealer should be able to give you a card (or loan you a strobe disc). Alternatively you could just buy your own (a dual-speed, dual-frequency KeyStrobe Reference Standard Turntable Stroboscopic Disc costs around \$40) or just print out your own strobe card by downloading this one: [www.tinyurl.com/ahf-strobe-card](http://www.tinyurl.com/ahf-strobe-card) (but you should note that this strobe is only for setting rotational speed at 33.33rpm and will only work correctly in Australia and other countries with a 50Hz mains frequency).

However it didn't really matter that the 'out-of-the-box' platter speed was incorrect, because adjusting the platter speed on the Music Hall mmf 1.5 is very simple. You simply press and hold the platter speed knob at the rear of the turntable (it's just alongside the d.c. input socket) until the red LED alongside it illuminates (about two seconds) then turn the knob clockwise to increase speed or counter clockwise to decrease it. When the speed is correct, wait until the red LED turns off, which indicates that the motor control unit (MCU) has memorised the setting. You need to do this separately for all three speeds. (But if you only intend to play 33.33 and 45 rpm records, you need not bother setting the 78 rpm speed at all... it won't make any difference to the other adjustments.) Any speed adjustment you make will be retained in memory even if you turn off the turntable, or power it down, but I would recommend making it a habit to check the platter speed fairly regularly.

A final quick comment on speed adjustment. The fact that you can adjust the speed on the Music Hall mmf 1.5 is a boon for anyone who can play (or who is learning to play) a musical instrument, because it means you can 'tune' the speed of whatever record you're playing to be in exact tune with the instrument you're playing, so you can 'play

**That you can adjust the speed on the Music Hall mmf 1.5 is a boon for anyone who plays a musical instrument...**



Although the cartridge comes pre-installed in the headshell, it does not come pre-aligned. The correct alignment is with the screws at the extreme end of the track.

along' with an LP for fun, or for instructional reasons. If a turntable doesn't have adjustable speed, this can't be done. Just saying...

Since I was using my own external phono preamplifier (at least for most of the time), I set the rear panel Phono/Line selector switch on the rear of the Music Hall mmf1.5 to the 'Phono' position, which bypasses the mmf 1.5's own phono preamplifier. If you don't have your own phono preamp and your amplifier does not have a dedicated phono input, you'd instead set this switch to 'Line' and connect the mmf 1.5's interconnecting cables to the 'Aux' input of your amplifier or AV receiver. (Don't forget to also connect the ground wire or you'll end up with mains frequency hum.)

I started off my listening sessions listening to the Music Hall Melody cartridge, which is fitted with a conical stylus. I initially wondered why Hall had specified a conical stylus, rather than an elliptical one, until I twigged that conical styluses are tougher than the more commonly-encountered elliptical styluses and they'll generally sound better than elliptical styluses when replaying LPs that are worn and/or scratched. Also, a conical stylus is really the only stylus shape that should be used when playing 78 rpm records, which are much rougher on styluses than ordinary LPs... and the mmf 1.5, as we discovered in the opening paragraph of this review, is capable of playing 78 rpm records. This means that if Music Hall had fitted an elliptical stylus to the Melody cartridge, and someone damaged it when playing a 78, they'd have a claim on Musical Hall.

Once I started listening to the Melody, I really forgot about what shape its diamond stylus was, because the sound it was delivering was excellent. It's a really smooth, lovely-sounding cartridge, presenting admirable

detail, good channel separation and excellent frequency extension in both the bass and the treble. It also tracks remarkably well... though noticeably less so on the innermost tracks of an LP, particularly when there's material that's difficult to trace (such as on Emerson Lake and Palmer's Tarkus LP).

Listening to the lovely-sounding electric piano triplets on *Everybody Hurts*, from REM's wonderful album 'Automatic for the People' was thoroughly enjoyable, and as Stipe's voice becomes more powerful and pervasive as the track builds, you can feel the foreboding as he sings: 'When you're sure you've had too much of this life, well, hang on.' The Melody reproduced guitarist Peter Dinklage's deft finger-picking perfectly clearly and the cartridge's bass delivery was more than up to delivering the rhythmic underpinnings of Mike Mills (bass) and Bill Berry (drums) in a tight, forceful manner. It was also up to delivering the myriad sonic complexities of the album's two finest tracks, *Nightswimming* and *Find the River*. On vinyl, the 'mood' of these songs is completely different than when you hear them played from a digital file, even when it's on a budget spinner like the Music Hall mmf 1.5.

You'll hear the way vinyl can deliver 'mood' better than digital no better than on the late Leonard Cohen's 'Popular Problems'. Even the best songs on this album—*Born in Chains* and *Samson in New Orleans*—do not touch his early masterpieces—at least for my money—and his voice is not even a shadow of his younger self, but the emotional delivery is superb... the songs actually sound tired, and you can really hear the suffering behind the lyric, yet at the same time you can also hear that there's redemption waiting just around the corner, even if that light on the corner lamppost is flickering erratically. Popular Problems on vinyl just takes you to a place that Popular Problems on digital does not.

My feeling is that you're going to be so happy with the sound and tracing ability of

the Music Hall Melody cartridge, that you'll be listening to it quite happily until the stylus needs replacement (usually around 1,000 hours of listening... assuming you're not playing 78s!).

When the time for a stylus replacement does come around you have a few options. One is to buy an elliptical replacement stylus for the Melody cartridge. The 'Carbon Fidelity' CFN3600LE stylus sold by US outfit LP Gear will slot straight in. Another is to buy a brand-new cartridge already fitted with an elliptical stylus (Audio Technica's AT-95E or AT100E, for example) and a new headshell with slots that allow correct alignment. One option you won't have in Australia is to buy a replacement stylus, because the local distributor sells only complete cartridges for \$80 (RRP) and not replacement styli. The advantage of having a second cartridge fitted to a separate headshell is that because you can swap headshells in a matter of seconds on the Music Hall mmf1.5, it would be easy to use your more expensive, elliptical stylus on your newer records, and the Melody with its conical stylus on your older records (and when playing 78s).

If you do decide to buy a new cartridge and headshell you'll also need to purchase an alignment tool. The tool I always recommend is the Pro-Ject 'Align-It' which retails for around \$199 (RRP). If you don't want to spend this much, Turntable Basics sells one for \$20 (plus shipping, as it's only available on-line). If even this is too much, grab yourself a Garrott Bros cartridge alignment card for \$10. (It would have been so much easier if Music Hall had included an alignment card.)

Incidentally, if 1,000 hours from a stylus doesn't seem very long to you (despite the fact that it would involve listening to three albums per night, five days a week, for two years), consider the fact that when playing an LP, essentially what's happening is that you're dragging a diamond through a ditch (groove) made of vinyl. If you straightened out the 'ditch' on both sides of an LP and joined them together, that ditch would be around 1 kilometre long, so 1,000 hours of playing time equates to dragging your stylus around 1,560 kilometres.

Also, I was also being rather generous when I stated stylus life at 1,000 hours. Stylus manufacturer's suggestions regarding stylus life usually range between only 400 hours and 800 hours, with all of them noting that actual stylus life will depend on the alignment of the stylus (overhang, azimuth, etc) as well as the tracking and anti-skating forces you use... plus, of course, the condition of your records and the playback speed.

Stylus life also depends on stylus shape. Conically-shaped styluses wear out faster

than elliptically shaped ones, for example. Serious audiophiles have their stylus examined under microscope (100x magnification required) every 100 hours after they've notched up around 400 hours of play. This is why I always factor replacement stylus cost into my buying decision whenever I am purchasing a cartridge. It's far better to buy a cheaper cartridge on which you can afford to regularly replace the stylus, than to buy an expensive cartridge and not replace the stylus regularly because you can't afford it!

But no matter what cartridge or stylus you use, its performance would be for naught unless the basic performance of the turntable to which it's fitted is not up to par, and I'm happy to report that the performance of the Music Hall mmf 1.5 is not just 'up to par', but exceptionally good!

Despite me using the slowest piano music I had available, I could not hear anything in the reproduced sound that I could attribute to either wow or flutter. The pitching was rock-steady and sustained high-frequency sounds were perfectly pure. Neither could I hear any low-frequency contributions from either the main platter bearing or the drive motor whilst I was listening to music. The sound was as clean as a whistle.

## CONCLUSION

The Music Hall mmf 1.5 is a superb turntable whose performance belies its price... big-time. And it's not only an exceptional performer; it also looks exceptionally good into the bargain. Best budget turntable of the year? It certainly has my vote! *Nigel Cullen*

## CONTACT DETAILS

**Brand:** Music Hall  
**Model:** mmf 1.5  
**RRP:** \$599  
**Warranty:** Three Years  
**Distributor:** Convoy International Pty Ltd  
**Address:** Unit 2, 314 Horsley Road  
 Milperra NSW 2214  
**T2:** (02) 9774 9900  
**E:** info@convoy.com.au  
**W:** www.convoy.com.au

- Performance
- Appearance
- Phono stage built in
- Adjustable speed
- Stylus availability
- Strobe card
- Alignment card
- Non-adjustable feet

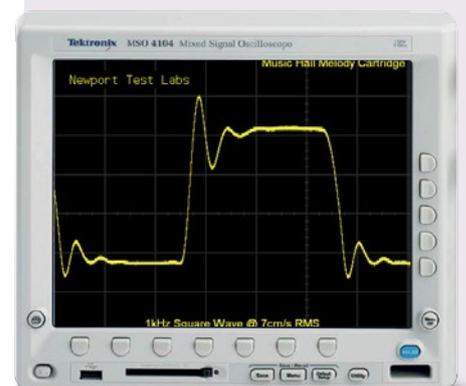
Readers interested in a full technical appraisal of the performance of the Music Hall mmf 1.5 Turntable should continue on and read the LABORATORY REPORT published on the following pages. Readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.

## LABORATORY TEST RESULTS

Newport Test Labs is now measuring the frequency response of phono cartridges using two different measurement techniques. Graph 1 shows the frequency response and channel separation of the Music Hall Melody moving-magnet phono cartridge when is reproducing a pink noise test signal. This is a particularly difficult test for any cartridge because pink noise means that the cartridge is simultaneously reproducing all frequencies between 20Hz and 20kHz. Reproducing this pink noise test signal you can see that the Music Hall Melody cartridge delivered a very flat frequency response between 70Hz and 1kHz, where the response was within  $\pm 3\text{dB}$ . The overall frequency response was 22Hz to 20kHz  $\pm 5\text{dB}$ . You can see the overall flatness of the response was pulled down by the low-frequency boost centred at 55Hz and the high-frequency roll-off above 15kHz. Across the range between 150Hz and 14kHz the frequency response was a truly excellent  $\pm 1\text{dB}$ .

Channel separation was 21dB @ 1kHz, which is good, as well as being better than specification. More importantly, channel separation was maintained at 15dB or better all the way from 300Hz up to 9kHz.

Graph 2 shows the frequency response of the Music Hall Melody cartridge measured using a spot frequency



technique, where *Newport Test Labs* measured only one frequency at a time, then presented the results as a contiguous graph. This is obviously a much easier task for any phono cartridge because at any given time it's only reproducing one frequency, and only in one channel. As you can see, the Music Hall Melody cartridge returned a much flatter frequency response using this measurement technique: 20Hz to 16kHz  $\pm 1.5$ dB, but the response above 15kHz rolls off quite steeply to be 1dB down at 16kHz and 6dB down at 20kHz.

In real terms, the actual frequency response of the cartridge when it's reproducing music will fall somewhere between the responses shown in Graphs 1 and 2. When replaying undemanding music, the response is going to be closer to what's shown in Graph 2, while as the music becomes more demanding (more instruments plus a greater range of different types of instruments) the response will start to approach that shown in Graph 1.

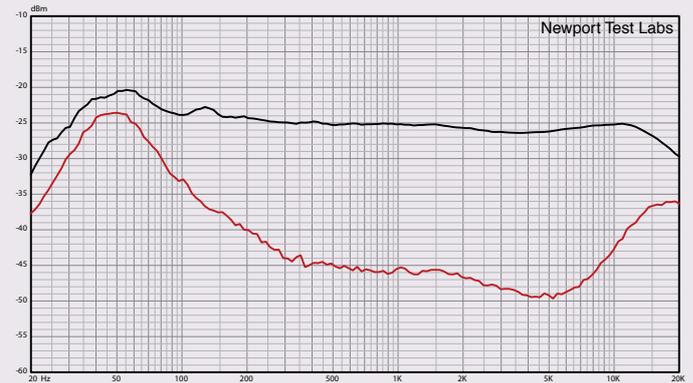
In Graph 3, *Newport Test Labs* has measured harmonic distortion of the Musical Hall Melody cartridge when it's reproducing a single 1kHz tone. Performance is fairly typical of a moving-magnet phono cartridge, with a second harmonic at  $-35$ dB (1.77%), a third harmonic at  $-57$ dB (0.14%), a fourth at  $-61$ dB (0.08%), a fifth at  $-65$ dB (0.05%), a sixth at  $-77$ dB (0.01%) and a seventh at  $-75$ dB (0.01%). If there were any higher-order harmonics, they were buried beneath the record surface noise at those frequencies, which was at around  $-85$ dB.

Square wave performance was very good, as you can see from the oscillogram, with well-controlled ringing and the only noticeable anomaly being that the overshoots and ringing are not symmetrical on both halves of the waveform.

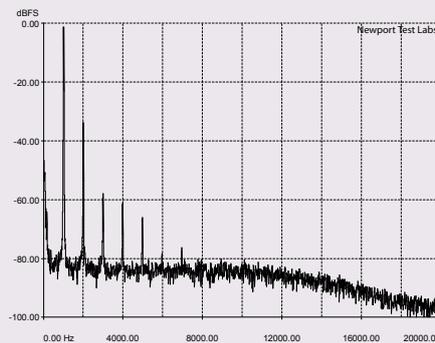
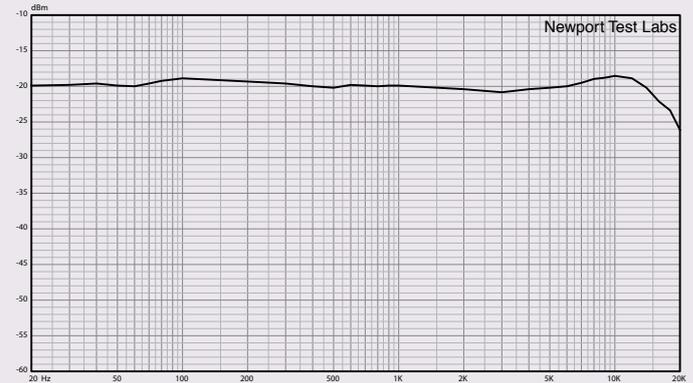
When the turntable's adjustable speed control was in its default (detent position) *Newport Test Labs* measured platter speed as 2.4% fast at 33.33rpm and 1.8% fast at 45rpm. This means that a 3kHz signal played back at 3,073Hz at 33.33rpm and at 3.054Hz at 45rpm. From a musical perspective, this difference represents less than one quarter of a semitone in pitch, so it might just be audible to someone with perfect pitch, but not to anyone else.

After the rotational speeds were correctly adjusted (necessary in order to be able to perform accurate wow and flutter measurements), via the speed control at the rear of the turntable plinth, *Newport Test Labs* measured the total wow and flutter of the Music Hall mmf 1.5 turntable as 0.05% RMS unweighted at 33.33rpm and 0.04% RMS unweighted at 45rpm, both of which are excellent figures, and 'way better than

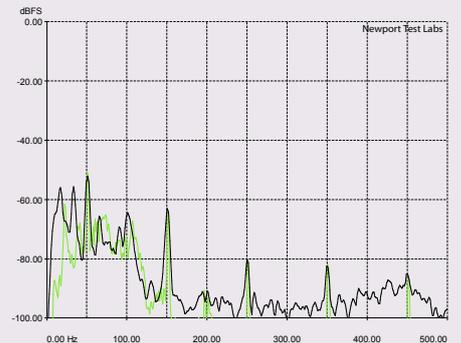
**Graph 1.** Graph 1. Frequency Response and channel separation using pink noise test signal at  $-10$ dB re 3.54cm/second RMS at 1kHz. Music Hall Melody Cartridge.



**Graph 2.** Frequency Response using spot frequencies at  $-14$ dB re 3.54cm/second RMS at 1kHz. Music Hall Melody Cartridge.



**Graph 3.** THD at 1kHz @ 3.54cm/sec RMS. Music Hall Melody Cartridge.



**Graph 4.** Rumble and noise re 1kHz at 3.54cm/sec RMS. Green trace shows background noise and hum (disc not rotating). Black trace shows noise and hum when record is rotating. Music Hall mmf1.5 Turntable fitted with Melody moving-magnet cartridge.

the Australian standard, which is 0.15% RMS unweighted. When *Newport Test Labs* measured the wow and flutter components separately, the result for wow came in at 0.12% (unweighted) at 33.33rpm and for flutter, at 0.08% (unweighted). Again, both are excellent results.

Turntable rumble is shown in Graph 4. The green trace shows measured noise when the platter is stationary, so it's just showing mains hum (the peaks at 50Hz, 150Hz, 250Hz, 350Hz and 450Hz.) Except for the 50Hz and 150Hz hum components, all others are more than 80dB down. You can see that at low frequencies, the background noise is sitting at around  $-70$ dB, so this represents the limit of the measurement. Once the platter is rotating (black trace) you can see there's

a bit of low-level noise below 30Hz, though the left-most of the two peaks is the tonearm resonance frequency, but otherwise, below 150Hz, any noise from the turntable itself is indistinguishable from the background environmental noise. Above 150Hz bearing and motor noise is essentially more than 90dB down, which is an excellent result.

Power consumption of the Music Hall mmf 1.5 is negligible, with the turntable pulling 2.9-watts when playing at 33.33 rpm or 45 rpm, and 3.05-watts when playing at 78 rpm. When the turntable is switched off via the plinth control, the power pack continues to consume 0.16-watts of power on its own.

Overall, both the Musical Hall mmf1.5 turntable and the Melody cartridge returned excellent results in all tests. *— Steve Holding*