Meridian 808.3 Signature Reference

CD PLAYER/PREAMPLIFIER

UK manufacturer Meridian has been at the forefront of digital playback since the first CD players became available. Meridian's Technical Director, Bob Stuart, is one of the world's foremost authorities on digital electronics, particularly digital-to-analogue conversion, has a sheaf of white papers to his name, and is a regular contributor of technical articles to the Audio Engineering Society's conferences around the world. As well as his work at Meridian, he is a visiting Fellow at Essex University. It was Stuart who developed the digital technology that's used for the 'advanced resolution' multi-channel audio tracks on DVD. This system is known worldwide as 'MLP', but few people realise that the initials actually stand for 'Meridian Lossless Packing.' It's MLP that enables DVD manufacturers to encode up to six channels of 96kHz/24-bit audio, or two channels of 192 kHz/24-bit audio onto a DVD-Audio disc, losing absolutely no audio quality in the encode/decode process. You can read all about it in Stuart's paper *'Coding Methods for High-Resolution Recording Systems*' which was presented at the AES Conference in New York in 1997.

In the years since Bob Stuart and Alan Boothroyd co-founded Meridian in 1979, the company's products have won 160 awards, and one Meridian product is on permanent display at the New York Museum of Modern Art. Unlike many UK manufacturers, which have very little cash to finance expensive research and development departments, Meridian is backed by Reinet, a sister company of the luxury-goods group Richemont, which owns a swathe of world-famous companies, including Cartier and Alfred Dunhill.

THE EQUIPMENT

The Meridian 808.3 is the latest generation of a CD player (but in this generation, it's now a pre-amplifier as well!) that has been gradually evolving since 2004, when the original 808 first saw light of day (well, at least what passes for 'day' in foggy England). Look at the rear panel and you can see that it's largely a 'modular' design based on so-called 'card-frame' circuit boards that can be plugged in and out as necessary. This is an extremely cost-effective technology for what is still a relatively small company by world standards, but more importantly, it makes it easy to 'upgrade' the player with the latest circuitry, because performing an upgrade is as simple as pulling out the old card and replacing it with a new one. Note that 'simple' does not necessarily mean 'low-cost'. One difference between the 808.2 and this new 808.3 model is that the 808.3 now uses a CD-ROM drive (made by specifically for Meridian by Teac). Older 808.2 models can be upgraded with this new drive, but it's a relatively expensive process. Another important technical difference is the inclusion in the 808.3 of a Sooloos board, which enables it to act as a high-resolution source for Meridian's Media Player.

Like the old 808.2, the new 808.3 has a three-stage 'FIFO' clock circuit, but reportedly uses different circuitry to achieve a better result. FIFO is an acronym for 'First In First Out' and can have a number of meanings depending on the device in which it's used. In electronics, 'FIFO' is most often used to describe the buffering and flow control process between hardware and software stages. The 808.3 also uses Meridian's software-controlled 'apodizing' filter technology, but apparently although the actual software is relatively unchanged, the hardware implementation is new. Meridian's proprietary DSP circuit operates at 150MIPs and upsamples the 16-bit/44.1kHz data from the CD to 24-bit/176.4kHz. This signal is sent to the DACs that drive the analogue outputs.

The other very important differentiating feature of Meridian's proprietary processing of the digital signal from the CD is that it eliminates 'pre-echo'. Pre-echo is, literally, exactly what it sounds like, and it's the most completely unnatural artefact of digital

processing. To see why, think of what happens if you're up in the mountains, and you shout the letter 'I' into a nearby canyon. The echo will come back with a loud initial 'I' followed by smaller 'i's diminishing in level, rather like this: Iiii etc. However, if you were shouting into an imaginary 'digital' canyon, you'd hear a series of small echos first, followed by the loudest echo, then more small echoes, like this: iiiIIIiii. If you view an echo as a complete reconstruction (i.e., a recording!) of what you originally shouted into the canyon, what is really happening is that you're hearing what you were about to shout before you actually shouted it! That's why I think pre-echo is the most unnatural of all the digital artefacts.

If you agree that pre-echo is unnatural, and accept on the evidence of Meridian's processing that it's possible to eliminate pre-echo, you might be forgiven for wondering why DACs don't eliminate pre-echo routinely. One reason is cost and complexity, but another is that in order to eliminate pre-echo, a non-pre-echoing filter has to dig down into the audio band, so you 'miss out' on some of the very highest frequencies it's possible to record on the CD. I put 'miss out' in inverted commas because it really is only a few kHz you miss out on, some of which is above 20kHz itself and all of which is above the generally-accepted high-frequency limit of adult human hearing. Yes, it is still a compromise, but most audio experts agree that given having to make a compromise between optimising either the frequency domain or the time domain, music will sound more 'real' and 'natural' if you get the time domain right, which is what Meridian is doing.

Another difference with the new 808.3 is that unlike previous models, it comes standard with a built-in preamplifier. Previously, you had to 'option' this in, in which case the 808 model number was suffixed with an 'i' as in the CD player alone was '808.2' whereas the CD plus preamp was the 808i.2. The preamplifier has six unbalanced analogue inputs, all with adjustable sensitivity. They can also be re-named to more properly reflect the components in your system. There are also three coaxial digital inputs, and two optical digital inputs, all also re-namable, and all capable of accepting up to 24-bit/96kHz data. There's also a 'SpeakerLink' input for use with Meridian digital speakers. On the output side, there are balanced and unbalanced audio outputs, a coaxial digital output, and SpeakerLink outputs.

Yet another feature of this player, though it's really of interest only to those who already own other Meridian components—or plan to assemble a complete Meridian system—is that the 808.3's MHR output encrypts data using Meridian's proprietary 'Meridian High Resolution' (MHR) format which, by virtue of the way it 'packetizes' the data in the process, also effectively eliminates jitter.

As you can probably see from the photograph accompanying this review, arrayed along the bottom right of the front panel are the CD transport keys. At the far right of these is an 'Off' button which is literally this, because it only turns the 808.3 off (or, more accurately, to Stand-by). To switch it on, you need to press one of the other keys.

So where are the controls for the pre-amp section? They're all hidden underneath a fold-down flap located immediately above the transport keys. When you fold this flap down, you'll discover why the 808.3 is a 'signature' player, because on two panels are the actual signatures of Bob Stuart and Alan Boothroyd: that is, they're not screen-printed, they're actually individually signed. Also underneath the flap are elongated pushbuttons for CD repeat functions (Track, Disc, A–B), fast-forward and fast-reverse, memorise track (Clear and Store), Input Selection (preamp section), Muting (all output stages), and Display (changes the information shown in the front-panel display). There are also two pushbutton volume controls: the uppermost for volume up, and the bottommost for volume down.

All the controls mentioned in the previous paragraph are hidden underneath a flap because in normal day-to-day use, Meridian expects you will use its 51-key MSR+ remote control. This unit is what I'd call a 'coffee-table' remote, because it's not small. In fact it's around the same size as three ordinary palm-sized remote controls. However, if you have an MSR+ you can dispense with your other remotes, because the MSR+ comes pre-programmed to control hundreds of products made by other manufacturers, and if you have an 'odd-ball' brand that isn't covered, and can't find a code that seems to let the MSR+ control it, the Meridian remote is also

MERIDIAN 808.3 SIGNATURE REFERENCE
CD Player/Preamp

Brand: Meridian
Model: 808.3 Signature Reference
Category: CD Player/Preamp/DAC
RRP: $24,995
Warranty: Two Years
Distributor: Amber Technology Pty Ltd
Address: Unit B/5 Skyline Place
Frenchs Forest NSW 2086
☎ **1800 251 367**
☎ **(02) 9452 8600**
🖷 **(02) 9975 1368**
✉ custom@ambertech.com.au
🖳 www.ambertech.com.au

- State-of-the-art sound
- Three components in one
- Upgradeable
- Disc drawer door
- Remote battery life

LAB REPORT

Readers interested in a full technical appraisal of the performance of the Meridian 808.3 Reference CD Player/Preamplifier should continue on and read the LABORATORY REPORT published on page 58. 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.

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a 'learning' type that can learn up to 120 commands from other remotes. The remote has a backlight, so you can use it under low-light conditions. However, even without the backlight, it's rather power-hungry, so that despite needing four AA-size batteries to operate, these batteries will last only around six months before requiring replacement… at least that's according to the manual, because I didn't have the opportunity to evaluate the 808.3 for six months (though local Australian distributor Amber did allow me a generous three-month on-loan period!) To ensure you do get good battery life, Meridian kicks you off with high-quality name-brand Alkaline batteries. I'd suggest you do likewise, though upgrading to Lithium would extend life further—albeit at a significant increase in running costs. In order that you don't lose any of your programmed functions, the MSR+ will warn you when its batteries are getting low. The MSR+ also offers a wonderfully 'low-tech' method of assigning keys to your source devices. Meridian simply supplies additional 'key caps' to replace the standard keys on the MSR+'s keyboard.

The Meridian 808.3 is extraordinarily attractive, thanks to that classic 'Meridian' paint finish, which on my sample was Ferrari Grigio Silverstone (aka 'high gloss graphite'). The other 'classic' standard Meridian finishes are High Gloss Black, High Gloss Silver and White Aluminium. However, Meridian has a unique system known as 'Meridian Select', which allows you to optionally order any colour scheme you like, based on the RAL Classic system, the most popular European colour reference standard in use today. You can see for yourself the incredible range on offer at www.ralcolor.com. This site also allows you to download a colour chart, which will give you an even better idea of the exact shade and intensity of each colour variation. This is an additional cost option, however, commanding a 15 per cent premium above the standard retail price.

LISTENING SESSIONS

During the months I had the 808.3, most of my listening revolved around CDs, although, because I took the opportunity to link other source components in my system to it, so it was truly functioning as a pre-amp for those sources, I did spend quite a few hours listening to high-res tracks, analogue from a CD player's output, digital from a CD player's output, and 16-bit/44.1kHz digital from a computer. What I didn't have to hand were any other Meridian components, so I could not, for example, try out Meridian's Speak-Link with its active 'digital' loudspeakers. In the end, this was a bit disappointing, because if I'd known how breathtakingly good the 808.3 was going to be, I certainly would have 'gilded the lily' by asking for a loaner pair of Meridian DSP loudspeakers!

If I'd known how breathtakingly good the 808.3 was going to be, I certainly would have gilded the lily

That 'breathtakingly good' in the previous paragraph was a bit of a spoiler for what I'm about to say now, wasn't it? In fact it's so breathtakingly good that, if you're at all familiar with the superior sound of hi-res music files, you'd be forgiven for thinking, while you're playing back a bog-standard Red Book CD on the 808.3, that it had been magically transformed into a high-res file. Indeed after listening to just the first track of *Hymns of the 49th*, I was reminded of the very first time I listened to an open reel studio master being played back. The difference in the 'quality' of the sound from the open reel master was a revelation. For the first time I actually 'heard' dynamic range, instead of just intellectually understanding why it should improve the auditory experience. But it was more than just dynamic range… the music from studio master tape had a kind of ethereal clarity that I'd never heard before, it just leapt from the speakers. And even though that particular tape was of a fairly ordinary rock band, with the usual bass, lead, rhythm, drums, vocalist format, so there were only five individual strands and they weren't difficult to separate, I was still amazed to hear that I could actually hear that each instrument (and the vocalist) was actually in a separate 'acoustic' as if they were cocooned from each other, such was the detail conveyed by the tape. Another standout was the 'immediacy' of the sound. Anyway, to get back to the Meridian, this is what I perceived that it was doing to every single CD I played. No, it wasn't as revelatory as my master tape experience, and the sound from the 808.3—outstanding though it was—was not at the same level as an original master tape, or high-res digital file, but for the first time since I have been listening to CD, I finally felt the hairs on the nape of my neck rise, and began to think that, after all these years, we're finally getting there… we're just a gnat's whisker away from fulfilling Philips' original—somewhat boastful!—promise of 'perfect sound' from CD.

I can guarantee that playing your CDs on the 808.3 will improve the sound of every single one of them, irrespective of genre. You will hear more, and you'll hear it more naturally than you have previously. However, of all the discs that I played, the stand-out for me was actually a demo CD made by the Australian piano manufacturer, Stuart & Sons. It has only eight tracks, all played on the latest 102-key, 2.9 metre grand piano developed by Stuart & Sons [www.stuartandsons.com]. Extra keys on this piano's keyboard extend the frequency range of the piano so that it ranges from 16Hz (low C) to high F (5.587kHz). This piano also has a unique fourth foot pedal, rather than the usual three. This pedal's primary function is to reduce the travel of the action, thus reducing the potential velocity of the hammer, but it can also be used independently or simultaneously with the shift pedal to allow the pianist far greater control over tone colour, texture and intensity than on any other piano. The recording is also unique in that it was recorded using Earthworks' new 'PianoMic' system, along with some Earthworks TC omnis to capture the room's acoustic (that acoustic in this case being Stuart & Sons' dedicated music room at its factory on the central coast of NSW). On six of the tracks well-known Australian pianist Bill Risby plays his own compositions. Track 4 sees the even better-known Kevin Hunt playing the Evans/Mann composition *No Moon at all* and, on Track 7,

Keith Jarrett's *Country*. Yes, this is an unusual piano, and a wonderful recording space, and a superb recording (the playing ain't half bad either!), but in the end, it's an ordinary CD, so just wait until you hear the sound in your own living room. Turn up the volume and you'll have to close your eyes to prevent the salt tears from leaking out… the sound field is enormous, the dynamics insane, and the harmonic complexity simply breathtaking… always assuming your power amplifier(s) and loudspeakers are up for the challenge, of course!

When I sat down to ponder as to why the 808.3 performed so well, the only conclusion I really came to was that it's a perfect example of the old adage of 'the whole being greater than the sum of its parts'. In other words, there is no single thing that is delivering the goods here. It's not just the apodizing filter, because I have heard CD players with apodizing filters that don't sound like this. It's not just the CD-ROM drive either, because I've heard CD players with CD-ROM drives that don't sound like this (or even close, actually!) and it is certainly not the upsampling, because there are many, many excellent upsampling CD players out there, and they don't sound like the 808.3 either. It's also not the DAC architecture. Yet even though none of these individual attributes is solely responsible for the sound, each in its own way obviously contributes to the end result.

For example, one very definite advantage of using a CD-ROM drive to pull information from CDs is that ROM drives often work far better with older discs, and particularly with discs that have been damaged—even by quite minor scratching. The reason is that they work differently to standard CD drives. Whereas the laser on a standard CD drive just tracks the spiral of pits and lands on a CD from inside to outside, never stopping or going back, CD-ROM drives will go back if they detect some missing or erroneous data (such as would be caused by a scratch, or some dirt on the disc) and make another attempt to 're-read' the data correctly. This can often—but not always—result in the delivery of more accurate data for decoding, and thus more precise sound quality. Thanks to extremely clever design and planning (remember the technical standards for the CD format were laid down in the late 1970s, well before computers had become widely available!) CDs have two levels of inbuilt error correction, which allow a player to recover data that's gone 'missing' due to a scratch or dirt. The first level recovers data perfectly: it's as if the data were still there. The second level, known as 'interpolation', is just a 'best guess' based on looking at the signals either side of the damaged section. It's this second level where a CD-ROM drive can sometimes strut its stuff, potentially recovering the original signal, rather than just allowing 'best guess' data to slip though to your loudspeakers. Since I am writing about the CD-ROM drive, one thing I was uncomfortable about on the 808.3 was that the door on the front fascia Meridian is just a hinged flap, which is normally kept closed by a simple spring mechanism. When you press the 'Open' button, the CD-ROM tray moves forward and simply 'pushes' the flap out of the way, so that as it continues to move outwards, the bottom of the disc tray slides (somewhat noisily!) across the top of the flap. On the plus side, it's simple, reliable, and it works, and it means the flap fits the front panel perfectly.

If the 808.3 were just a CD player, the remote control would probably not be particularly important, and not worthy of much mention in a review, but because the 808.3 is a pre-amplifier as well, the remote starts to loom large in the overall scheme of things—particularly since if you don't use the remote, the pre-amp controls are 'hidden' underneath the front panel flap. Which brings me to a conundrum, which is if the 808.3 were just a CD player, I'd have criticised it for being too big. Because the 808.3 is a pre-amp as well, I found the remote was perfectly sized, because what I found myself doing was not holding the remote at all, but instead placing it either on a coffee table, or on a small side-table alongside my listening position, and using just one hand (or even both hands) to punch the buttons. The 'feel' when you use it like this is rather satisfying… a bit like using a desk calculator. In the end I became so familiar with the remote that I came to like it a lot, and to use it all the time, and to even come around to thinking that I wouldn't have minded at all if it were even bigger than it is!

CONCLUSION

The Meridian 808.3 is by no means inexpensive, but then again, you're not buying just a state-of-the-art CD player, but also a state-of the art pre-amplifier as well… and, of course, it is a state-of-the-art high-res digital-to-analogue converter too, so it's essentially three components in one. So, for the sake of argument, let's assign equal dollar values to all three components and, viewed in this light, you're paying just $8,332 for the CD player, $8,332 for the pre-amplifier and $8,332 for the DAC. When we're looking at components of this design and build quality—and which by virtue of the unique modular architecture are also upgradeable—that's excellent value in today's high-end audio market…and that's before we factor in the 808.3's inherently good looks! It is obvious that the 808.3 would be a superlative 'front-end' (and middle) in any audio system, but if you were considering a pair of Meridian's active loudspeakers as well (and in my opinion, that would be an excellent move on your part!), then the final decision to purchase it is, literally, the proverbial 'no-brainer.' ***greg borrowman***

LAB REPORT ON PAGE 58

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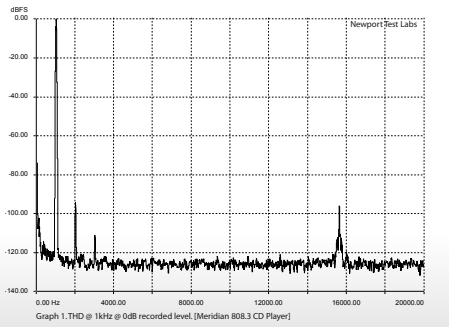
TEST RESULTS

Meridian's 808.3 returned superb results on *Newport Test Labs'* test bench, no matter whether the lab was testing the CD transport section or the DAC section (both of which necessarily also involved having the pre-amplifier section in-line). One matter has to be dealt with first, which is that on most of the graphs accompanying this report, there is a signal at 15.625kHz which is nothing at all to do with the 808.3, and is in fact some interference breakthrough into the lab's test equipment that was caused by a nearby TV monitor, so you should ignore it. Let's look at some of these graphs straight away, and you can see that at 0dB recorded level (Graph 1), there's a second harmonic distortion component at –95dB, and a third at –110dB, and that's about it. This represents an overall THD+N level of just 0.008%. This distortion remains about the same at –3dB, but at –6dB, the third harmonic component has disappeared entirely below the noise floor, and the second drops to –105dB. At –10dB, the second harmonic drops still further, to –112dB. At –20dB (Graph 2) even the second harmonic distortion component disappears, so all that's visible on the graph is noise itself, which hovers just above –110dB. This remains the case all the way down to –60dB where, although the converter is starting to have difficulty with the data, the noise is mostly confined below –120dB, as you can see for yourself on the graph (Graph 3). However, though the converter is having some difficulties, it's still first-rate performance.

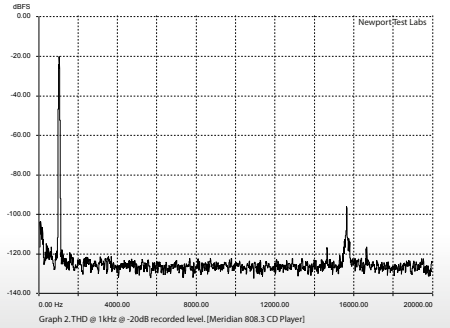
The same statement would be true when looking at performance with a test signal of 1kHz at a level of –80.59dB (Graph 4). The result you can see is associated with the test signal not being dithered. Graph 5 shows how the Meridian handles almost exactly the same signal when it's been dithered. You can see that the noise floor is higher, but this obscures all the low-level distor-

Meridian 808.3 Signature Reference CD Player

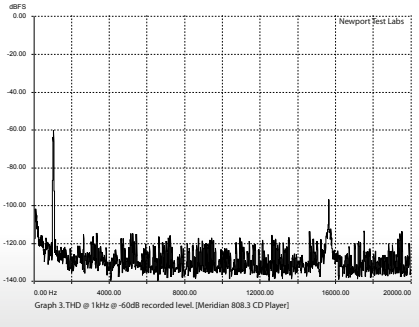
Analogue Section	Result	Units/Comment
Output Voltage	2.3255 / 2.3236	volts (Left Ch/ Right Ch)
Frequency Response	See Graph	dB (20Hz – 20kHz)
Channel Separation	130 / 131 / 103	dB at 16Hz / 1kHz / 20kHz
THD+N	0.008%	@ 1kHz @ 0dBFS
Channel Balance	0.007dB	@ 1kHz @ 0dBFS
Channel Phase	0.30 / 0.00 / 0.00	degrees at 16Hz / 1kHz / 20kHz
Group Delay	+4.32 / –17.83	degrees (1–20kHz / 20–1kHz)
Signal-to-Noise Ratio (No Pre-emph)	101	dB (weighted)
De-Emphasis Error	0.00 / 0.01 / 0.23	at 1kHz / 4kHz / 16kHz
Linearity Error @ –60.00dB / –70.00dB	0.03 / 0.03	dB (Test Signal Not Dithered)
Linearity Error @ –80.59dB / –85.24dB	0.00 / 0.02	dB (Test Signal Not Dithered)
Linearity Error @ –89.46dB / –91.24dB	0.06 / 0.10	dB (Test Signal Not Dithered)
Linearity Error @ –80.70dB / –90.31dB	0.06 / 0.13	dB (Test Signal Dithered)
Power Consumption	21.04 / 26.76	watts (Standby / On)
Mains Voltage During Testing	243 – 254 volts	(Minimum – Maximum)
Digital Section	**Result**	**Units/Comment**
Digital Carrier Amplitude	49mV	Audioband
Digital Carrier Amplitude	0.97V / 2.53V	Differential / Common Mode
Audioband Jitter	5.7 / 0.079	nS (p-p) / UI (p-p)
Data Jitter	5.7 / 0.079	nS (p-p) / UI (p-p)
Deviation	+9.9	ppm
Frame Rate	88200.878	
Eye-Narrowing (Zero Cross)	2.7 / 0.036	nS (p-p) / UI (p-p)
Eye-Narrowing (200mV)	11.8 / 0.129	nS (p-p) / UI (p-p)
Absolute Phase	Switchable	Normal / Inverted
Bit Activity at Digital O/P	23	



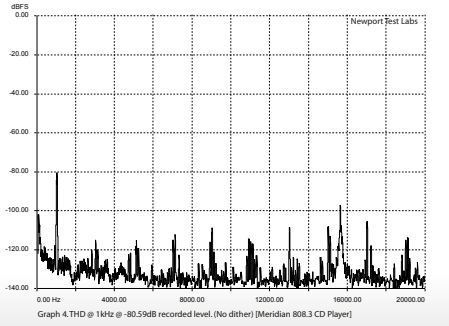
Graph 1. THD @ 1kHz @ 0dB recorded level. [Meridian 808.3 CD Player]



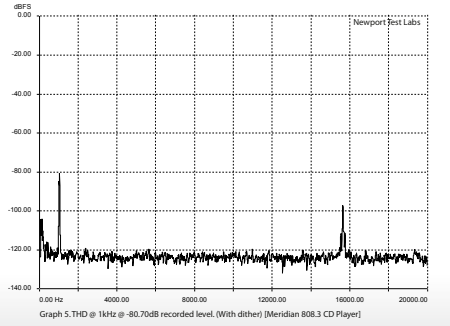
Graph 2. THD @ 1kHz @ -20dB recorded level. [Meridian 808.3 CD Player]



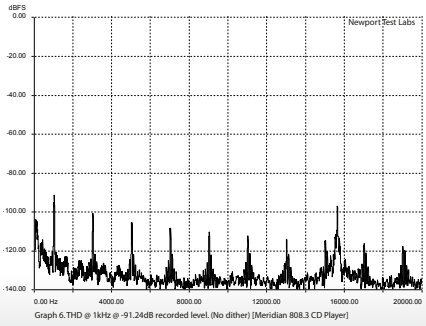
Graph 3. THD @ 1kHz @ -60dB recorded level. [Meridian 808.3 CD Player]



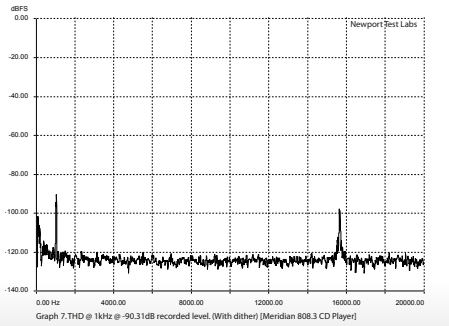
Graph 4. THD @ 1kHz @ -80.59dB recorded level. (No dither) [Meridian 808.3 CD Player]



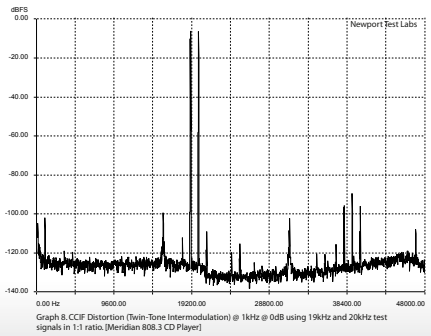
Graph 5. THD @ 1kHz @ -80.70dB recorded level. (With dither) [Meridian 808.3 CD Player]



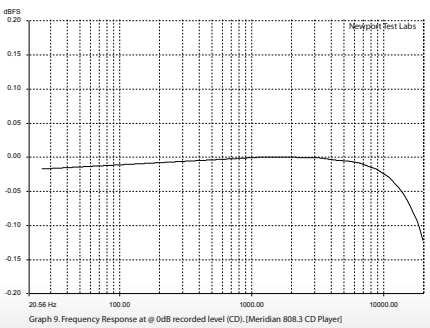
Graph 6. THD @ 1kHz @ -91.24dB recorded level. (No dither) [Meridian 808.3 CD Player]



Graph 7. THD @ 1kHz @ -90.31dB recorded level. (With dither) [Meridian 808.3 CD Player]



Graph 8. CCIF Distortion (Twin-Tone Intermodulation) @ 1kHz @ 0dB using 19kHz and 20kHz test signals in 1:1 ratio. [Meridian 808.3 CD Player]



Graph 9. Frequency Response at @ 0dB recorded level (CD). [Meridian 808.3 CD Player]

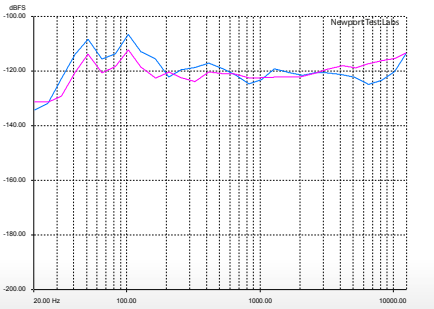
tion components. Here they're not visible to the eye, but if you were listening, they would not be audible to the ear. Note, too, that the noise floor is 'higher' only in relative terms. As you can see on the graph, it's sitting down at –125dB, so lower noise than you'd expect from an amplifier. Graphs 6 and 7 show the same effect, but right down around the –90dB limit of the CD format.

CCIF distortion is shown in Graph 8.

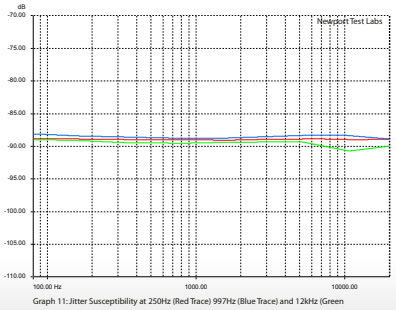
The two test signals at the centre of the graph are reproduced exactly, and although there's some unwanted signal regenerated at 1kHz, it's more than 100dB down. The sidebands at 18kHz and 21kHz are more than 110dB down. Some sampling products are visible up around 40kHz, but they too are nearly 100dB down. All in all, excellent performance. You can see, too, the frequency response (from CD) in Graph 9. It shows an earlier roll-off

Meridian 808.3 CD-P (AES-17 Standard using 48kHz/24-Bit)

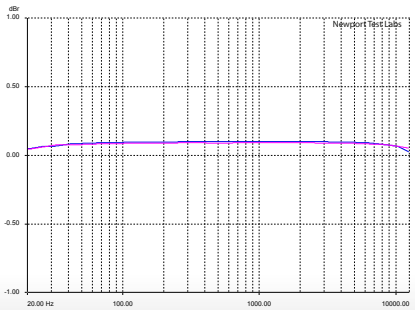
Digital Section	Result	Units/Comment
Out of Band Spurious Components	–104.793dB	
Suppression of Imaging Components	–104.518dB	(Worst Case)
Level Dependent Logarithmic Gain	–8.466dB	
Intermodulation Distortion (1)	–99.143dB	18kHz/20kHz 1:1 Ratio
Intermodulation Distortion (2)	–87.813dB	41Hz/7993Hz 4:1 Ratio
Low Level Noise Modulation	+4.354dB	Worst Case
Idle Channel Noise	–110.104dB	CCIR-RMS weighting
Signal-to-Noise Ratio	110.598dB	CCIR-RMS weighting
Power Line Products	–112.732dB	50Hz
Non-Linear Interchannel Crosstalk (a)	–106.660dB	3kHz (2nd-order ref 17kHz/20kHz)
Non-Linear Interchannel Crosstalk (b)	–119.480dB	6kHz (3rd-order ref 17kHz/20kHz)
Non-Linear Interchannel Crosstalk (c)	–103.919dB	10.040kHz (2nd re 40Hz/10kHz)
Non-Linear Interchannel Crosstalk (d)	–112.217dB	10.080kHz (3rd re 40Hz/10kHz)
Absolute Phase	Switchable	Normal/Inverted



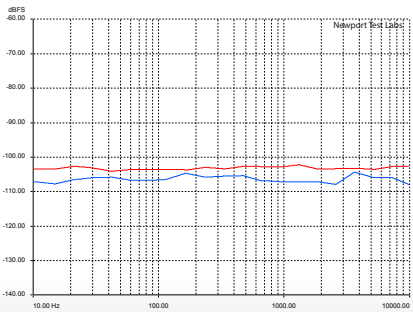
Graph 10: Idle Channel Noise Spectrum. Left (Blue) Vs Right. [Meridian 808.3 CD Player]



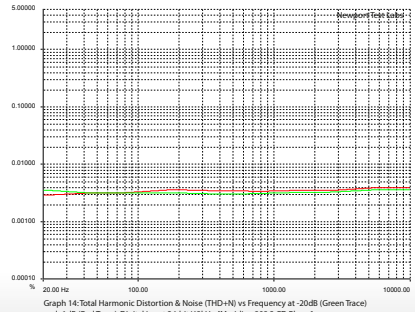
Graph 11: Jitter Susceptibility at 250Hz (Red Trace) 997Hz (Blue Trace) and 12kHz (Green



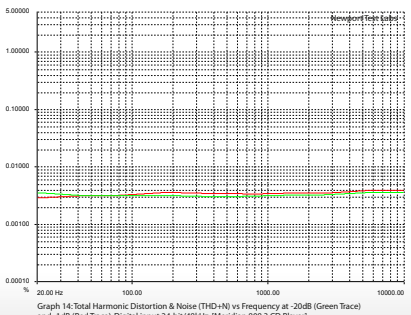
Graph 12: Frequency Response @ 0dB. Digital input, 24-bit/48kHz. [Meridian 808.3 CD Player]



Graph 13: Suppression of Imaging Components.
Left channel (Red Trace); Right channel (Blue Trace). [Meridian 808.3 CD Player]



Graph 14: Total Harmonic Distortion & Noise (THD+N) vs Frequency at -20dB (Green Trace) and -1 dB (Red Trace). Digital input 24-bit/48kHz. [Meridian 808.3 CD Player]



Graph 14: Total Harmonic Distortion & Noise (THD+N) vs Frequency at -20dB (Green Trace) and -1 dB (Red Trace). Digital input 24-bit/48kHz. [Meridian 808.3 CD Player]

than usual, but response is still only 0.025dB down at 10kHz and 0.12dB down at 20kHz. In other words, imperceptible. (The frequency response using an external digital signal—Graph 12—is superior, but this is due to the longer word length (24-bits) and the higher sampling rate of 48kHz.)

Channel separation was exemplary, exceeding 130dB all the way up to 20kHz, where it diminished slightly, to be 103dB. This is still between 13–60dB better than many of its competitors. This is impressive numerically, but it's far more than needed for either channel separation or stereo imaging, so it falls into the realm of overkill. Channel balance was equally impressive, at 0.007dB, which if memory and my incomplete spreadsheet serve me, is the best result *Newport Test Labs* has measured for this parameter. Interchannel phase is in equally impressive territory, being perfect (or, to be more accurate, so low it couldn't be measured!) above 1kHz, and just 0.3° in error at 20Hz.

The overall signal-to-noise ratio was compromised by the unwanted interference signal mentioned previously, which limited the 'wideband' measurement capability to 101dB, so for an indicative figure, you should instead prefer to 'eyeball' the noise floor of the graphs, which would indicate you could expect around 125dB. Indeed a measurement on the digital section, using a different test methodology returned a result of slightly better than –110dB.

Newport Test Labs' tabulated results show that Meridian has fitted a de-emphasis circuit to the 808.3—making it one of the few manufacturers still providing this feature, and meaning that you can accurately replay CDs that have been pre-emphasized. (In the 80s, quite a few CDs were thus encoded, but since the 90s, almost no discs use pre-emphasis.) Linearity error was negligible, as you can see for yourself from the tabulated results.

The output of the digital section shows that Meridian hasn't provided a standard SPDIF output, but an upsampled digital signal instead. Jitter at this output is very low, but a bit higher than I expected. Eye-narrowing at zero cross is very, very low, but at 200mV it, too, is a bit higher than I expected.

Meridian's 'apodising' filter certainly eliminates 'pre-ringing'. To illustrate the effect for you I have included oscillograms showing pulse responses with these results. The first oscillogram shows the response of a 'typical' filter you'd find on a CD player or DAC, and you can see that there is ringing *before* the impulse, as well as after it. The second graph shows exactly the same signal as reproduced by the Meridian 808.3. This time, there's only ringing *after* the impulse—there is no pre-ringing. However, the level of ringing after the impulse is both relatively high and quite extended.

The unusual filter response is also visible in the square wave response, where you can't see the typical time-reversed ringing. Again, there are two oscillograms. The first one shows the response from a 'typical' filter and you can see that the trailing edge is like a mirror-reversed image of the leading edge. The second oscillogram shows the same square wave as reproduced by the 808.3. There's no time-reversed ringing but, as with the impulse test, there is a quite high and extended ringing effect visible.

The second set of tabulated results show the performance of the Meridian 808.3 as a DAC, using external 24-bit/48kHz test signals. As you can see, the results are superb across the board, and the same high levels of performance are reflected in the graphs, so the performance of the DAC section is, like that of the performance of the transport/DAC combination itself, state-of-the-art.

Steve Holding

INTERVIEW Ken Kantor (Part II)

CONTINUED FROM PAGE 33

SW: *And because of that we miss the point?*

KK: I don't know that audiophiles miss the point, but they don't relate to the rest of the world in a meaningful way. Therefore, if you're designing equipment in this business professionally you have a choice. You either try to play the audiophile game, or you don't play the game. If you don't play the game you will not get the support of the vocal extremists. That's the Catch-22. If audio people want to see progress, in their hearts they need to start supporting companies that are not playing the audiophile game.

SW: *For a lot of people that would be a big adjustment.*

KK: It's an impossible adjustment. Fortunately, there's a generation of people fresh to this, so it's probably better to try to win new hearts than to try to change the minds of audio clubs populated by…

SW*: The old guard?*

KK: Right, which is just going to lead you into interminable and occasionally productive—but mostly psychotic—arguments and off-the-mark evangelism.

SW: *What about the various on-line sites?*

KK: I don't think the essential paradigms are different between the sites, merely the particular fetishes and gurus. It's like the 'thong panty' site versus the 'black lace' site. There aren't too many sites out there where people are talking about basic issues of theory, or giving beginners really helpful gear information free of hazing rituals.

SW: *Based on the discussion to this point, I don't see a great potential for the marketplace to steer the industry. Do you see a potential for the industry to educate the marketplace and would the industry be willing to do that?*

KK: I think that most of the industry that has current significance is not hardware based. It's involved in digital distribution of music and people in the business are generally cynical that hardware-based companies are viable. I think it's an interesting question, whether the need to keep people employed in the US and things like that will cause a renaissance of companies that actually make things, or will we continue to just distribute? So, who leads progress? One possibility is for a ground-swell of desire, and if this happens I think it will come from music itself and from consumers' desire to have a richer experience. Another possible place of leadership comes from the manufacturers, and the only thing that would motivate a manufacturer is competitive advantage. The third place progress would come from is from a lone inventor who magically pops up with a new way to do something.

SW: *What about artists collaborating with manufacturers?*

KK: Certainly. Cooperation between the artists and the makers of gear could be really powerful, but it's going to eventually have to involve the distribution world, too. I don't think it's sufficient, but if you get a big enough name, maybe it will start spreading. Potentially it's great.

SW: *Do you see yourself designing loudspeakers again?*

KK: Well, from my perspective, loudspeaker design is a major part of what I do now. I certainly could imagine doing future research that would find its way into home audio applications. But I don't want to go back to designing home hi-fi components.

Scott Wilkinson

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About the Author

Scott Wilkinson (a.k.a. dingus) has been a music lover since the mid 1960s and began developing a keen interest in audio after purchasing his first system in 1979. You can find him on the net at the Sound Thinking audio discussion forums where he fulfils the duties of site admin. <http://www.sound-thinking.org.>

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