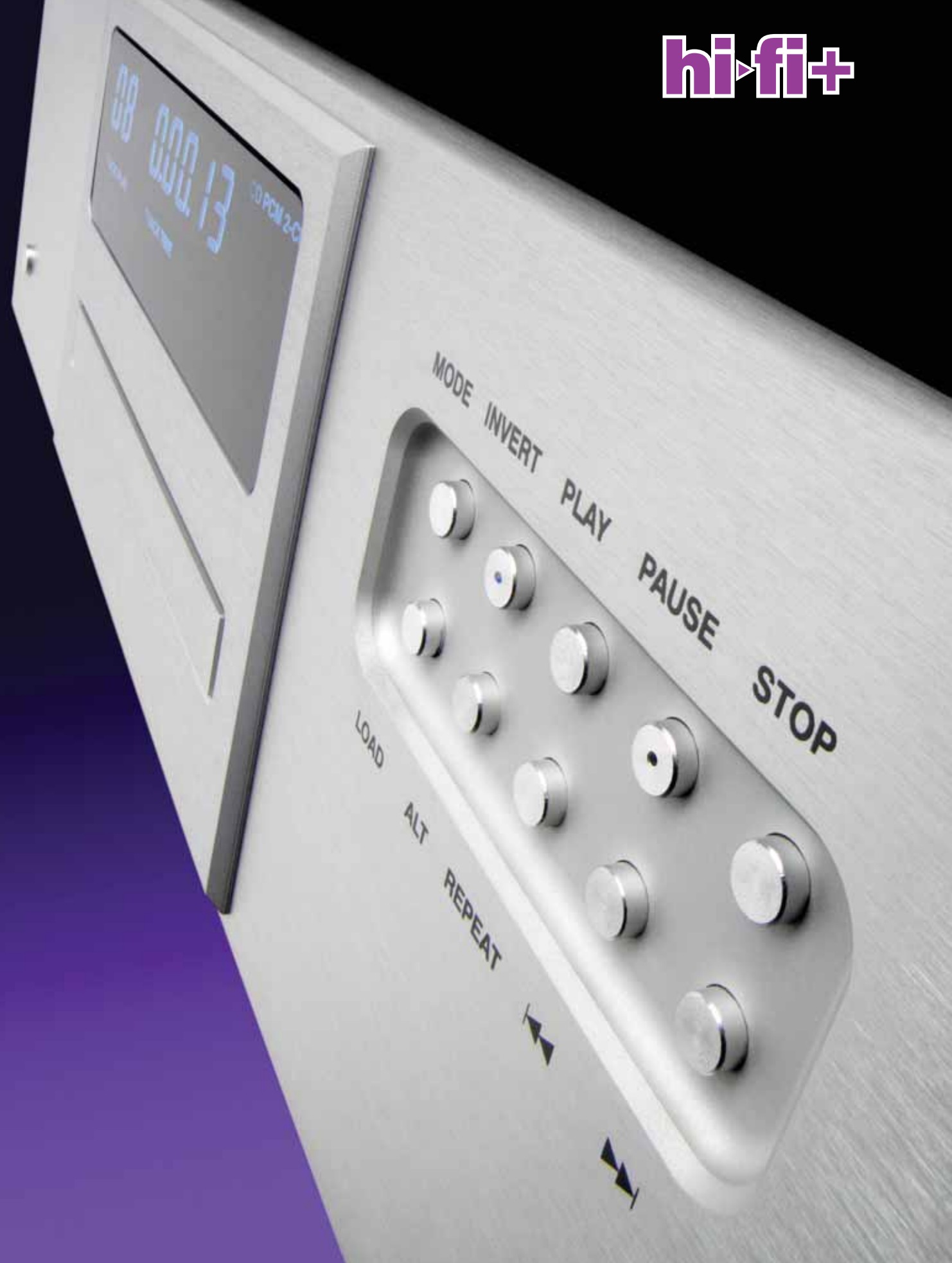
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Dog Day Afternoon...

Meitner's CDSA-SE SACD Player finally makes sense of Digital Sound

by Anthony H. Cordesman

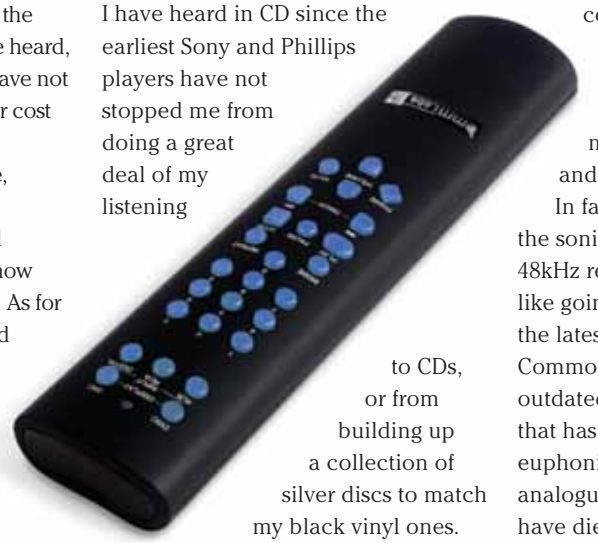
High quality digital replay is a mess. Conflicting formats and their competing claims have created a complex and confusing field in which the all too prosaic realities of everyday digital performance have been obscured and glossed over. I have severe reservations about most of the claims I have heard manufacturers and other reviewers make regarding "advances" in the sound quality of CD players and about the merits of SACD in general. In far too many cases, I have not heard the benefits that other reviewers have heard, and high cost, high-end players have not differed enough from much lower cost units to justify their price tag.

Underpinning this is the simple, inescapable truth that no player can ever correct the fundamental sonic limitations inherent in the now hopelessly outdated CD medium. As for SACD, far too many highly praised players have offered only limited sonic benefits over CD, and far too many SACDs are simply bitstream versions of recordings made using much older and less advanced equipment.

Yet here I am, listening to (with considerable pleasure) and about to praise (in considerable depth) the Meitner CDSA-SE. It's not a path I undertake lightly. The Meitner has its own limitations and it also can't overcome the inherent limitations in what should be a redundant format – but it does do a better job than anything else I have heard to date. It gets more out of CD and mediocre CD recordings that any other player I know. Equally important, it shows just how good SACD can be when the data on the disc is a true, high quality bitstream recording. And those things combined make this the only high cost player I have yet heard that clearly justifies its price tag.

Never Trust a Digital Recording Process Older Than You Are (At Least in Dog Years)

I am not a "digiphobe." The problems I have heard in CD since the earliest Sony and Phillips players have not stopped me from doing a great deal of my listening to CDs, or from building up a collection of silver discs to match my black vinyl ones.



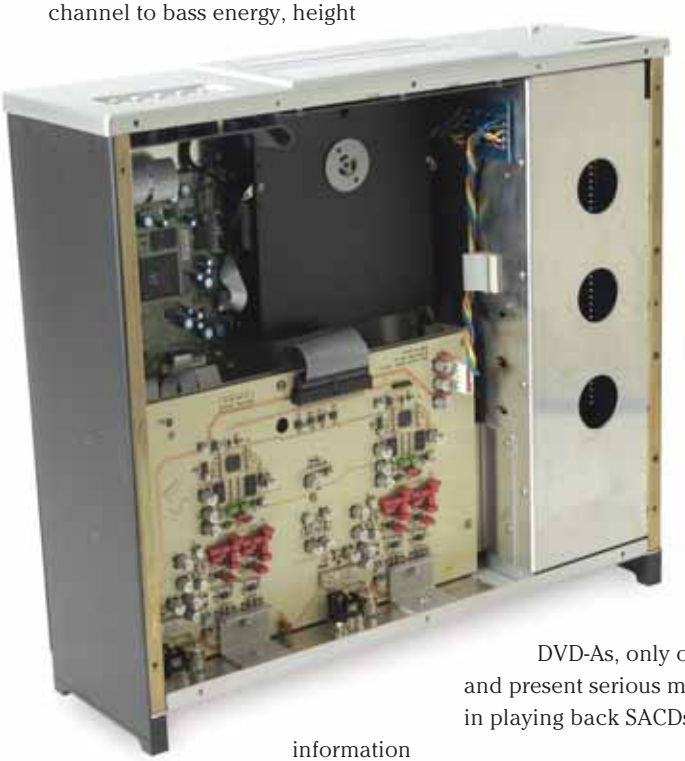
I use an iPod and Apple lossless compression, and even put up with those original Telarc and Denon LPs made from the first, crude digital masters. The fact is, however, that anyone who listens seriously to 24-bit/96 or 192kHz or advanced bitstream recordings quickly realizes that 16-bit/44.1kHz CDs come at a sonic cost that no CD player can possibly correct.

You hear those sonic limitations even using direct live recording masters of 16-bit/48kHz digital tapes, or listening to the best 16-bit/44.1kHz CDs. As good as the best CD recordings are there is still less clarity in low-level passages, less articulation of dynamic contrasts and less musical life. There is a loss of harmonic detail in the upper midrange and treble that simply isn't evident on higher resolution digital discs. More contentiously – as it is less obvious and I can find no technical explanation to justify it – modern digital media produce more powerful and detailed deep bass.

In fact, it's hardly surprising that the sonic shortcomings of 16-bit/44 or 48kHz recordings are so apparent. It's like going back in digital time from the latest PC or Mac to a Sinclair or Commodore. CD isn't just based on outdated technology, it's technology that has none of the compensating euphonic characteristics of LP or analogue tape. In fact CDs should have died at least half a decade ago, when it became possible to make 24-bit/96kHz recordings just as cheaply, and CD players with 24-bit chipsets to play them without down-sampling.

Unfortunately, the sonically excellent efforts of a few recording companies like Chesky and Classic Records to pioneer 24-bit/96kHz discs died in the rush to SACD and DVD-A, and the format wars that followed; wars that effectively killed DVD-A

and turned SACD into a niche format for a small number of audiophiles. The impact of higher resolution digital formats was further undermined by the quality of too many of the discs that did appear. Frequently mastered from 48-bit or old analog tapes, often bedeviled by musically unrealistic surround sound effects and by the almost arbitrary assignment of the 5.1 effects channel to bass energy, height information or not at all, results were variable to say the least – often made worse by unusual menus that made proper set up difficult or didn't really explain the options they presented.



As a result, 16-bit/44.1Khz is still the de facto high-end standard for most recordings, and for most "high-end" digital listening. If anything, the popular trend is away from higher resolution towards various forms of MPEG and digital "lossy" media. A whole generation is growing up having heard nothing better than a digital recording format that is now older than they are; after all – digital ages in dog years.

There may be hope in True Dolby and DTS-HD – at least virtually every new Blu Ray player and decent receiver or AV processor will provide the capability to play back the equivalent of lossless 24-bit/96khz recordings, and many will play direct SACD bitstream inputs, via HDMI 1.3). My preliminary experiences with such players and receivers are promising. But, no high-end processors and decks are as yet available that can play True Dolby and DTS-HD, and no firm has as yet announced a commitment to issuing high-end music recordings on these formats. Moreover, some receivers that can play True Dolby and DTS-HD don't play the 24-bit/96khz signal from DVD-As, only ordinary Dolby, and present serious menu problems in playing back SACDs.

Taking the Sonic "Dog's Breakfast" Out of Digital "Dog's Years"

How ironic then that the purist, two-channel "high-end" is still largely locked into "upper mid-fi" digital. Audiophiles, particularly the vast majority that remain committed to stereo, are going to be living with the technological equivalent of a "dog's breakfast" for years to come – particularly those of us with over 1,000 CDs.

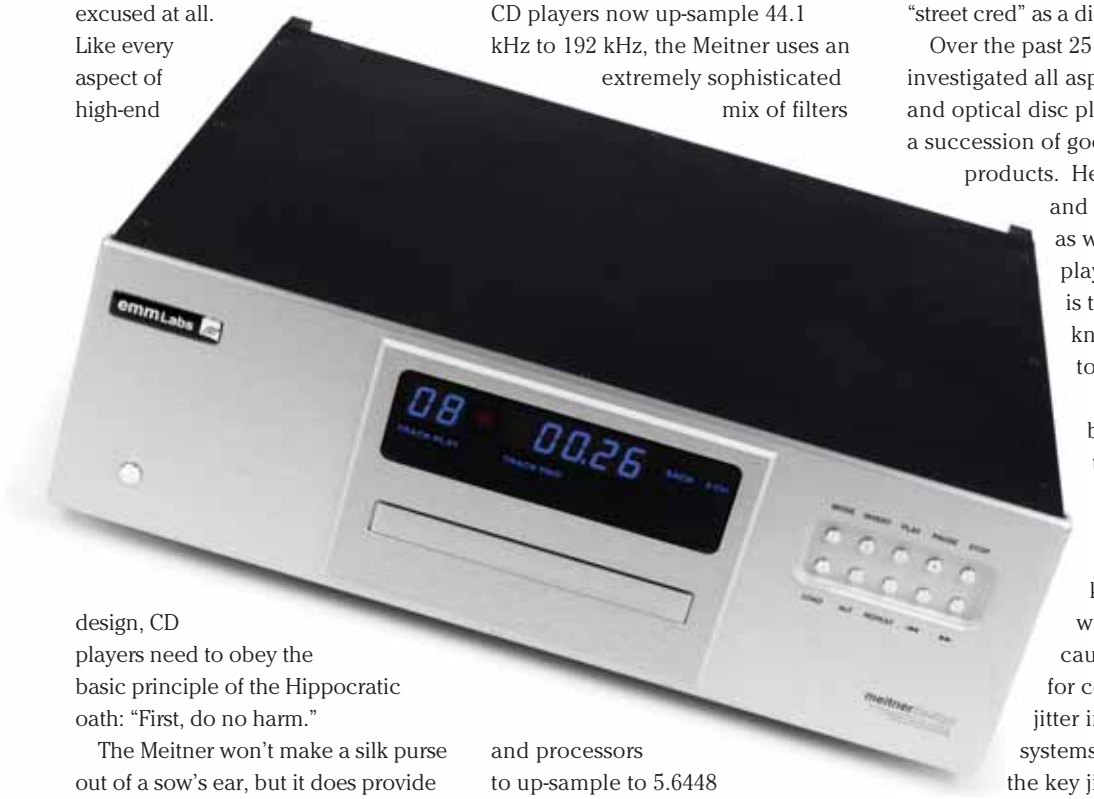
There are a few glimmers of hope. The good news for classical music buffs is the growing number of really good stereo and multi-channel SACDs coming from small recording labels. These recordings are replacing the flood of mass label dross that did so much to discredit SACD in its early years, and offer sound quality that is at least up to the 24/96 level. But they don't answer the essential conundrum facing today's digital listener; how to get the most out of the best or most interesting performances trapped in the "upper mid-fi" purgatory of bad to mediocre CDs?

This is the backdrop against which I find myself viewing the Meitner CDSA-SE player, as well as the context that reveals its greatest strength. In this day and age it is a practical impossibility to acquire in-depth experience of every CD player or DAC on the market, but none I've used (including the top-of-the-line dCS and Esoteric units) does as consistently good a job of making the upper octaves of strings, woodwinds, bass, and percussion as musically clean, realistic, and life-like as the Meitner. The CDSA-SE provides more life, more air, cleaner dynamic contrasts, and more harmonic integrity with a wider range of recordings, and not simply with obvious targets like massed strings, cymbals and snare drums, or untrained soprano voice. The soundstage is less two-dimensional and has more depth, and imaging is cleaner, particularly with complex musical passages. And, at least to my ears, the mid and deeper bass is cleaner.

Moreover, the Meitner gets the best out of early and mediocre CDs – which must make up at least 80% of the CD inventory. It does not impose its character on recordings, and it does not exaggerate any given aspect of timbre, dynamics or the sound stage that is not on the originally recording. Above all, it does not harden recordings in an effort to create more apparent detail. To me at least, the worst aspect of some players that seek to get the best out of CD is that they sharpen harmonics in the search for

information. It is the sonic equivalent of making excessive use of the "sharpen" control on digital photo processors. They may provide more apparent "detail" with the cleanest possible recordings, but that detail is not present in live music or the original recording, and the end effect is to make most CDs sound worse rather than better. One reviewer has called this the "cut glass effect," and this kind of sound is sometimes excused as revealing the limits of ordinary CDs. It shouldn't be excused at all.

Like every aspect of high-end design, CD players need to obey the basic principle of the Hippocratic oath: "First, do no harm."



The Meitner won't make a silk purse out of a sow's ear, but it does provide very different sonic benefits from the kind of tweaking you get by simply changing filter types or eliminating the filter altogether, tweaking the roll-off of the upper octaves, or subtly boosting bass a bit. There are a lot of very good CD units out there, particularly those that make effective use of up-sampling, but I find their benefits to be smaller and some to be tweaked in ways that produce synergy with some recordings and systems and not with others. After several months of using the Meitner in my own system and those of my friends – and using everything from the latest audiophile CDs to the earliest Sony and Philips discs – the performance attributes outlined above are utterly consistent with any system and CD good enough to reveal them.

I am not a digital engineer, and it has been a long, long time since I opened an electronic engineering handbook, but the Meitner CDSA-SE player does have a unique technology that may explain these benefits. Where most CD players now up-sample 44.1 kHz to 192 kHz, the Meitner uses an extremely sophisticated mix of filters and processors to up-sample to 5.6448 MHz – twice the frequency of the bitstream process used in making SACDs. In crude terms, it converts the CD signal to a bitstream signal with a 120 dB signal to noise ratio and then uses 5th order noise shaping to push high frequency digital noise above 40kHz and far outside the audible spectrum. It then converts to analogue using a gentle filter slope.

If you want more technical data, particularly an explanation of FIR filtering, you are going to have to go to someone more qualified than me. If you open the unit, however, you find some extremely sophisticated circuit boards, a specially converted Philips drive mechanism, and top quality components in the analogue stages. It is also interesting for the non-geek to know a little of the Meitner Labs history. The following description (from the company itself) is no more self-effacing than any other audio bumpf – and one has to be as cautious of buying a manufacturer's line as ever – but it does underline that Ed Meitner has real "street cred" as a digital engineer,

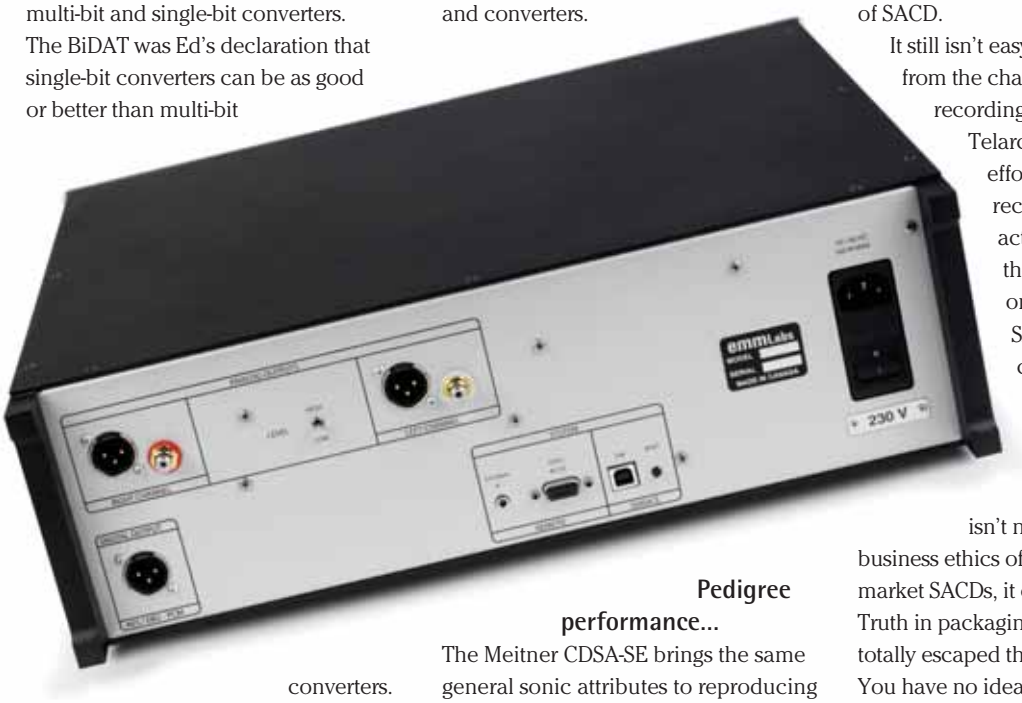
Over the past 25 years, Ed has investigated all aspects of vinyl and optical disc playback and built a succession of good sounding products. He has built transport and converter separates as well as integrated players. The CDSA-SE is the finest player he knows how to build today.

In 1992, years before the rest of the industry came to understand what he had done, Ed published a little-known AES paper which explained the causes and solutions for common types of jitter in digital audio systems, he identified the key jitter phenomenon later called program-related jitter and solved it. Ed was able to make those leading discoveries by constructing his own ultra-sensitive jitter measurement device called a LIM Detector years before conventional instruments achieved a similar resolution.

Also in 1992, Ed launched the IDAT D-to-A converter, at that time the most radical audio converter ever made. (He) used a new type of up-sampler he called a "Digital Audio Translator." To this day, no

other up-sampler has matched the sophistication and sonic authenticity of Ed's. An advanced 21st-century version of that up-sampler, now called MDAT (for Meitner Digital Audio Translator), is incorporated into the EMM Labs CDSA-SE.

Then in 1993 Ed built the BiDAT single-bit D-to-A converter, a unit so well loved that many BiDAT owners still prefer it over other converters. This was after Ed had already built earlier multi-bit and single-bit converters. The BiDAT was Ed's declaration that single-bit converters can be as good or better than multi-bit converters.



Several years later, the great sound of the BiDAT was the reason that Sony/Philips commissioned Ed to build professional converters with which to drive recognition of their new DSD format as an audiophile and archival quality technology.

For that 1997 Sony/Philips DSD commission, Ed went beyond the BiDAT and invented a discrete D-to-A converter which do not require any of the monolithic converter chips the entire audio world is stuck with. Ed's unique EMM converter is the only audio converter meeting today's high-resolution requirements which is made from discrete components, allowing Ed a degree of quality control and fine-tuning which no other audio converter can hope to match.

All this and we have yet to mention how Ed builds power supplies like no other, how he carefully builds matched dual circuits in his purely-balanced designs, how he employs 21st-century circuit board materials, how he builds audio clocks which outperform dedicated master clocks, plus a myriad of other refinements Ed has gleaned from decades of crafting fine players and converters.

Pedigree performance...

The Meitner CDSA-SE brings the same general sonic attributes to reproducing SACD recordings that it does to reproducing CDs. Everything depends, however, on the quality of the recording that goes onto the disc. A low grade or mediocre digital recording or analogue master won't sound much better – if at all – on SACD than it does on CD. This is particularly true if the stereo layer of the recording is an afterthought while the engineer has concentrated on the multi-channel mix, or if the mastering engineer gets careless with his handling of the upper octaves in the final mix. It is also a fact of life that a 48-kHz recording is not going to sound much better on SACD than in a really good transfer to CD.

This may explain why many serious high-end audiophiles have yet to become SACD converts. They have never really heard what SACD can do, partly because much of the initial reviewing of SACD focused more on expectations than actual sound quality. SACD players got praise despite mediocre upper octaves, dynamics and dynamic contrasts, and analog stages. Re-mastered and older recordings got praised that at best reflected better re-mastering rather than the sonic benefits of SACD.

It still isn't easy to separate the wheat from the chaff. Onlya handful of recording companies – notably Telarc – make a serious effort to identify those recordings that are actually made using the bitstream process on the outside of the SACD package. Most companies still provide almost no data as to date, venue, and technology on the inside. While it isn't necessary to have the business ethics of a syphilitic hyena to market SACDs, it certainly hasn't hurt. Truth in packaging seems to have almost totally escaped the recording industry. You have no idea of what you are really paying for in terms of recording quality or the level of digital technology involved.

That said, I still found that the Meitner CDSA-SE produced cleaner results than the other SACD players I have auditioned, even when I played older SACDs that were based on early digital masters or which were clearly based on 16/48 recordings, like some on the Naxos label.

The sonic differences between the Meitner CDSA-SE player and the best competing SACD players I have heard where not as dramatic in reproducing low to medium quality SACDs as the improvements the Meitner CDSA-SE made in CD playback. I still,

however, kept coming back to the upper octave clarity and harmonic integrity of the Meitner.

Almost all of my home listening is classical or jazz, and much of it is to chamber music or vocal recital. I want acoustic instruments and voice to sound as live and unprocessed as possible, and I am particularly sensitive to the residual problems in digital sound with violin, viola, clarinet, and flute. Once again, the Meitner gave me superior realism to the extent the recording permitted it, as distinguished from artificial detail or "digital sharpening." This superiority also increased significantly during the review period when Meitner sent me a new upgrade to the firmware in the player. (It has both an Ethernet input and a replaceable internal board layout.)

As for the best SACD recordings, the Meitner is the first player that I have heard that competes with, and sometimes surpasses, the sound quality of the best DVD-As played back through Meridian players. I don't mean in saying this that the best SACDs are better than the best DVD-As. I still don't hear any reason for creating a proprietary SACD technology instead of making 24/96 or 192 recordings. The best Chesky, AIX and Tacet DVD-As and Classic Records 24/96 or 192 HDADs are as good as any SACDs I have ever heard.

That said, the Meitner CDSA-SE was still so good that I couldn't stop re-exploring my Telarc and Chesky SACDs, and I now have a much larger collection of new classical SACDs, with issues from Bis, BSO, Challenge, Channel Classic, Chesky, Harmonia Mundi, Etcetera, Linn, Pentatone, and Telarc; as well as Chesky and Telarc jazz recordings.

I can't tell you how most such recordings were miked, processed, and mixed. Only Telarc explicitly advertises Pure DSD on its SACDs. (Try Los Angeles Guitar Quarter, Lago Brazil Telarc SACD 60686 and Atlanta Symphony Orchestra, Vaughn Williams, A Sea Symphony, Telarc 60588). No label – no matter how "audiophile" it claims to be – provides the necessary level of detail or a diagram showing how the musicians and singers were placed or mixed to provide a given kind of imaging. As a result, some may be digital hybrids or really good 48-bit recordings. What I can tell you, is that most of the newer SACDs on these labels came close to the best 24/96 recordings, and their sound quality is notably higher than CD.

With the best SACDs, I could get a level of musical life and natural harmonic realism that I have not yet heard from any other SACD player. Dynamics were outstanding at every level, and once again, bass detail seemed superior. These are all matters of nuance and limited superiority – not "night and day," epiphany causing, or "life changing" differences – but real enough to allow the performance to compete directly with my best LPs, while offering all of the advantages of digital in terms of noise, background, and signal to noise ratio.

The Meitner isn't just for Christmas...

The sincerest form of flattery or praise a reviewer can give a product is to actually buy the review unit. This is particularly true given the £9495 a pop cost of the Meitner CDSA-SE. I did buy the review unit, and I'm glad I did so. It does the best job of elevating CD to its upper mid-fi potential of any player I know of, and when playing top quality SACDs it helps define the digital state of the art in the home. Only the best Meridian equipment seems to provide similar musical realism.

As for caveats, I would like just a touch more bass energy and dynamic life. I have heard units that provide this, although none that provide as good an overall mix of sound qualities. The Meitner is also a stereo player, not a multi-channel unit: it is not a universal player and can't play DVD-As. It has a pretty basic display with little data on the recording, and the remote is one of the few I've ever encountered that only controls by full track rather than has a forward and reverse capability within a given track.

That said, it works just fine for stereo listening, And, the future of multi-channel almost certainly lies with Blu Ray and combo players that can directly input bitstream, True Dolby, and DTS-HD to a high-end processor via HDMI. At least for now, this is not a viable alternative. Until new units with these playback features become available, there isn't a single piece of high-end multi-channel digital playback equipment available to consumers that isn't obsolete. Some current units may be upgradeable, but this has yet to be demonstrated. If you are into high-end multi-channel, wait. Patience may not be an audiophile virtue, but buying an instant antique is not the answer. Fortunately, at least as far as two-channel goes, the Meitner certainly does deliver, and whilst there's still life in stereo, life is just what it will deliver from your discs.

TECHNICAL SPECIFICATIONS

Type:	CD/SACD player
Outputs:	1pr XLR balanced
	1pr RCA mono
	1 x AES/EBU XLR digital
Output Level:	4V/7.2V (balanced)
	2V/3.6V (unbalanced)
Software Port:	USB
Dimensions(WxHxD):	435 x 140 x 400mm
Weight:	12 kg
Price:	£9495

UK Distributor:
Musicology
Tel. (44)(0)1273 700759
Net. www.musicology.co.uk

Manufacturer:
EMM Labs
Net. www.emmlabs.com