THE SMc AUDIO ULTRA DAC-1 UPGRADE:

A REVIEW

by Francis Baumli, Ph.D.

In early April of this year, 2009, I received back from SMc Audio my McCormack DAC-1 "Deluxe" which had just been upgraded to an SMc Audio Ultra DAC-1. Being a vinyl addict, I had been aware that this upgrade might prove to be the most disappointing investment I have ever made in audio. However, matters turned out quite the opposite. Before I discuss these superlative pleasures, allow me to note some initial impressions.

The unit arrived with minor changes such as the balanced outs on the back, along with two new RCA "outs" (WBT nextgen gold-plated copper), a new RCA digital "in" (WBT nextgen platinum-plated silver), an updated fuse holder with a Furutech fuse (copper with rhodium plating), three new grounding switches, a new Furutech gold-plated IEC receptacle that had been slightly repositioned, and an added reset switch. Before hooking the DAC in to my system I checked it for absolute polarity using an Elfix polarity tester. As has been the case with all my McCormack and SMc Audio gear, this unit's polarity was correct.

ADJACENT GEAR

For transport I use the McCormack SST-1 with its bottom-threaded chassis spike and its patented hold-down puck. For digital cable I use the McCormack Wonder Link. Power cords to both the DAC and transport are Acoustic Zen "Tsunami." And the interconnect to my pre-amp (McCormack ALD-1 with outboard power supply) is an Audio Research Litz Line One with locking WBT RCA's. It deserves being mentioned that, for damping, I have on the DAC two small leather bags of sand—each shaped like, though slightly larger than—a man's wallet, and I use similar though heavier damping on the transport. Also, since the DAC does not have a spike, I use two small items called "Door Stops." They are hemispherical in shape, made of a soft silicone-like material, and are normally used for gluing to bathroom tile walls so a door handle won't slam into the tile and crack it. They are just the right size for fitting beneath the DAC, and place a very slight upward pressure which cancels any vibration coming from the bottom of the chassis. I use two, spaced about ten inches apart. The transport and DAC are both plugged into a Cardas power strip, which itself is plugged into a hospital-grade outlet, connected to a dedicated circuit on 10-gauge wire.

HONEYMOON PROBLEMS

I turned the units on, i.e., plugged in the Cardas power strip, and left everything at "idle" for several hours. At this point, even before listening to music, I noted one decided improvement: namely, the new transformer (Axel Lindberg toroidal) is dead quiet. Before, in my almost silent listening room, I could hear a slight buzz from the DAC's transformer. That buzz was now gone.

Later that night came the music along with the break-in "aural artifacts." The first, and most startling, problem was something I had never encountered in any system with any piece of equipment. Let me momentarily digress: There are audio engineers who swear that there is no such thing as soundstage "height." They say it is not theoretically possible, and they swear they can not hear it. If any one of these dogmatists had been in my listening room that night, they would have come away with altered views on this subject. Why? Because at the beginning the sound was coming from right at the floor, or at most, six inches above the floor. I sat there thinking, "I can't live with this. How can I, in a polite way, let Steve McCormack know that this simply is not acceptable. Everything is on the floor! I have tower speakers and before I always had amazing height!"

I decided that even if I could not live with this, at least I could listen to

it for one night. So I listened, and then, after about 15 minutes, a miracle. The image began rising up off the floor, about 2-4 inches per minute, and after about 15 minutes the imaging height was up to where it should be. Such a relief that was. Meanwhile there was a slight stridency and brightness going on. This was familiar, and I knew what was causing it. I had, with a Duo-Tech unit, burned in the digital cable and the interconnect, but the power cords had been sitting unused for too long and they needed to burn in. After they got their due, the bright edge went away. Also, amidst this listening, the bass had been weak, but after about an hour it took on appropriate heft. Also the soundstage width had started out very narrow, and this took about two hours to widen out to where it had always been before.

But there was another problem which would prove to be quite a hurdle. Since I am blessed with perfect pitch (and cursed with it—believe me, it is a curse when playing with, say, a guitar player who stubbornly believes he is in tune when he isn't), I was able to locate this problem with accuracy—which caused me to be aware of how uncanny it was: the musical information in the 1400-1900 Hz range was awry. It was recessed about -6 to -8 dB, and that is a lot. Moreover, this spectrum, and only this spectrum, kept shifting around in location. A bit of work by the drummer on the high-hat would be about half-way over toward the left channel, and then

on a second listening three minutes later, it would be dead center or even a bit toward the right channel. In the somewhat famous song by Enya called "Orinoco Flow," from her Watermark CD, toward its beginning there are the words "let me crash upon your shore" which end with the sound of waves crashing upon a shore. Always before this information was precisely located just slightly over toward the left channel. Now it might be anywhere—from the far left channel over to the center. After about three nights of this, it even moved to the right channel. How could this be possible? I phoned SMc Audio and Steve McCormack made several suggestions. I followed them all. I removed the Caig ProGold contact enhancer. I tried different interconnects, different power cords, and nothing changed. I couldn't try a different digital cable because although I own two others they both were out on loan. I was in despair, but listened longer, and then a vague idea came to me and I slowly realized that this vague idea was actually a vague memory: I had experienced this before. When? Where? I finally remembered. About 15 years ago, with a different pair of speakers, I had had them rewired with better wire—a relatively heavy 14-gauge. During the first few hours of listening, those rewired speakers had done exactly this same thing—their image had shifted around, and the shifting was in that same 1400-1900 Hz range. Something almost identical was now going on, but it wasn't going away as it had with those speakers. And this time

the problem couldn't be with my current speakers; things sounded fine with vinyl. Surely the problem was not in the power cords; they were almost broken in by now. Maybe the digital cable? Might I have burned it in backwards by mistake? (The directional markings on the Duo-Tech can mislead. Do they refer to the cable itself or to the signal flow inside the unit? They actually refer to the latter, but one can forget this.) So I hooked the digital cable up to the Duo-Tech, making sure the signal flow was correct, and burned it in for a full five days. Then the cable went back to where "de good lawd intended it" and lo! The problem was solved. Utterly. Just to experiment, I would later burn the cable in backwards, encounter the problem again, then solve the problem again by burning the cable in correctly. The lesson learned from all this: The SMc Audio Ultra DAC-1 is so sensitive you need to pay attention to every adjacent component, especially your wire. Be careless, and it will give your audio nerves the spanking they deserve.

A DISCUSSION OF CLASSIC CD PLAYERS

Thus far I have only discussed problems and solutions. I've yet to speak of the DAC's positive aspects. I shall; but first, a digression to put the subsequent discussion in context:

Many years ago I read an article in which the writer dogmatically,

even pompously, claimed that there will never be such a thing as a "classic" CD player because they were so awful back at the beginning, and every improvement in CD players is so dramatic, that every earlier player sounds decidedly inferior. I didn't agree. Yes; there have been significant improvements, and yes, some of those early CD players were quite bad. But some were very good and deserve being remembered because what they achieved endures. Even though most new players have surpassed them they have not eclipsed them. Several times I have listened to systems using the latest and the greatest, and I could hook in my humble Rotel 955 and people's eyes would go wide, their ears would go wider, and someone would warily say something like, "You know, some of those early CD players were pretty good." Someone else might humbly say, "They had a sound all their own that still appeals." But then, always—and I mean always—someone would say, "Is this a trick? Has that CD player been upgraded?" I would sweetly state that no, nothing had ever been done to it; rather, it is just a fine-sounding player.

What were some of those early classics? As for the relatively cheap ones, there was the humble Rotel RCD 855 AX which sold for $450 back in the early 90's. It would be replaced by the 955 which, except for the model number, was exactly the same player and cost the same. I bought one—my third CD player—and would use it with considerable satisfaction for several

years. Its strengths were dynamics, rhythm, pacing, and excitement. The player is still in my home, now being used by my 18-year-old son. Another relatively cheap classic was the Pioneer "Elite" or "PD-65" which sold for $800 back in 1994. It had the strengths of the Rotel but was somewhat smoother in presentation. Many people liked it because those who upgrade players enjoyed applying their "clip 'n snip" approach to it. (Usually, in my opinion, with retrograde results.) But the original Rotel or Pioneer players can even today run the race with some of the most expensive players in the world.

There was a second level of classics in what I call the mid-price category. One was the Audio Research CD 1 which came out in 1995 and retailed at about three grand. It was very dynamic, smooth, and though a little strident in the lower midrange (an area where few components are ever strident) it was nevertheless a very fine player well worth the cost then and still worth owning now. It was one of the first players to have some degree of what grateful reviewers called "an analog-like sound," and it was impressively rugged and reliable. There also came on the scene, in this mid-price range of classics, the Sony CDP-X779ES. Introduced in 1992 and selling for $1900, it would, in but one year, be replaced by the CDP-X707ES which was identical in every way to the 779 except for the model number and the fact that it retailed for $2000. These were very fine players. They

had a smooth sound, excellent soundstaging, and an unusually good (for a CD player) onboard headphone amp. At the time I was needing a different CD player, because in writing liner notes for classical CDs, I needed a player that not only had track selection but also had indexing access. There was only one player being made in England which had indexing access, and I did not much like its sound. The only player in the U.S. I knew about which had this feature was the Sony, but their cheap players sounded bright and thin, and their middle-of-the-road players sounded too soft and ill-defined. So I bought a 707, and was quite satisfied with it, even though it did not have the dynamics and rhythm of the Rotel. Its soundstage was gorgeous, and it had a smooth presentation that was beguiling, although I soon came to feel it was too smooth; in fact I would soon be describing it as "oily." But I appreciated this player's merits, it was the best player I could find with indexing, so I stuck with it for over a decade. A third classic in this price-range was the McCormack "separates." I refer to the DAC-1 with the SST-1 transport; these came out in the early '90s. When I was seriously considering buying this set, the DAC-1 retailed at $995 and the SST-1 for $1995. That was three grand, which didn't include the necessary wire. But I loved this player, more than one friend owned the combo, and I felt it had the best of both worlds—the dynamics of the Rotel and the soundstaging of the Sony. It was not as smooth and soft as the

Sony, but I had gotten to where I could do without "soft" since this too often failed to let the personality of the music come through. The Sony bested the McCormack slightly with soundstaging, but of these three mid-priced classics, the McCormack came out on top. However, I needed indexing which I could get with the Sony only. Moreover, I didn't want to fool with "separates," taking the naive attitude: "Why bother with two components and all that wire when you can get good sound from one unit?"

But the day came, about a year ago, when the review "stampers" I received of CDs not yet in production no longer relied on the indexing mode. So I decided it was time to go to a better player. I auditioned many, up to about the five-grand range, but I kept coming back to the sound of that mid-priced classic: the McCormack separates. So I bought a DAC-1, managed after considerable searching to score an SST-1 transport and also a McCormack Wonder Link digital cable, and was mightily impressed. Not long after, I came across a McCormack DAC-1 "Deluxe" and bought it, sold my previous DAC-1, and felt (almost) satisfied with a very high-quality digital playback system. (I admit I also enjoyed befuddling people by talking about my "seven-piece CD player": the transport, its patented hold-down puck, the DAC, the digital cable between the transport and DAC, two high-quality power cords, and the interconnect from DAC to pre-amp.)

Something still nagged at me. Namely, the sheer quality of sound I had experienced with a third level of the classics. There were two I then (and still do) put in this category. The first of these two is Naim Audio's NA CDS which in 1994 sold for $6,925. That CD player had a natural "live" sound which was unparalleled, especially if the music was not overly complex. By this I mean that if the CD had enough bits to capture all the music, as with a solo acoustic guitar or a solo flute, then there never was a CD player which could make you feel as though the music was right there in front of you live. In fact, my first encounter with this CD player happened in someone else's home, when I purposefully went around a corner to find out who the tremendous classical guitarist in the other room was, and there discovered this CD player amidst an all-Naim system. It was just unbelievable, this live sound. It did not, however, maintain this level of live richness when the music became complicated, i.e., when the bits tended to run out, as in orchestral music or a complex vocal combo. Still, this Naim was one of the best, and I do not think Naim's later players have ever matched it. The other player was, to my ears, the best of the best. It was the Linn Sondek CD 12. This player came out in 1998, and when it ceased being produced in 2005, it was selling for a cool twenty grand. It was worth every penny. I couldn't afford it, but it was, in my unfettered opinion, the best CD player in the world. In fact, I was immensely pleased to note that in the

April/May 2005 issue of The Absolute Sound, Robert Harley reviewed this player, stated it was the best player he had ever heard, and claimed that it would become a "future classic." He was right. Many people still refer to the Linn Sondek CD 12 as the best CD player ever made, some make the more cautious claim that it is the best "single unit" player ever made, and when used units come up for sale they are snapped up fast. The CD 12, very simply, had a natural, analog sound that no other CD player came close to. The music was just there. Smooth and dynamic, with soundstaging that impressed and also sounded natural, with detail and richness and dynamics and warmth all conjoined. I wanted one, and even after getting my McCormack combo, planned to one day sell it and acquire a Linn Sondek CD 12. Yes; that future classic—as Robert Harley termed it—was in my opinion a classic already which I believed would never be equaled. I had been able to spend considerable time with three of these, each in a very different system, and in all three systems the CD 12 sounded unmatchable. This conviction has remained with me even in listening to subsequent Linn CD players. They range from good to excellent, but none of them match the classic CD 12.

But before I could raise the considerable cash for a used CD 12, temptation came knocking. Steve McCormack was now offering an upgrade which would place all models of his DAC-1 at a level some listeners call

“ultra high-end.” For about $1700 I could get this upgrade, and even though I did not at all hope it would match the Linn Sondek CD 12, I believed I might attain a close approximation. Yes; I was sorely tempted, and as Oscar Wilde put the case so well: “The only way to get rid of a temptation is to yield to it.” So with some trepidation (after all, I had never even heard one of these upgraded units), I sent my McCormack DAC-1 “Deluxe” off for an “Ultra” upgrade. It came back in due time, I hooked it up, experienced the above-mentioned “honeymoon problems,” but then there ensued a plethora of multiple consummations. These, I daresay, deserve detailed commentary.

Stated simply: The SMc Audio Ultra DAC-1 bests all the competition. It is better than all the new units I have heard. While my McCormack DAC was back at the factory, I had opportunity for using a dCS Puccini, just introduced in 2008, with a retail value of $19,900. I had it for about a week, and it was a fine player, but not worth the price and not nearly at the level of what I would soon get back from the SMc Audio laboratory. I also had opportunity for listening to a top-of-the-line Ayre, and also the best Wadia. Again I judged: good, not worth the money, and not nearly as good as the Linn Sondek CD 12. Next I actually encountered the luxury of hearing three Audio Research CD players in the same system on the same day! I heard two Reference CD 7 players (nine grand) and one Reference CD 8 player

(ten grand). All were tubed with different-brand tubes which made for three very different-sounding CD players. Of the three, one of the CD 7 players was the best, and the other CD 7 player ranked third, with the CD 8 in the middle. Mind you, all three were great players, but I think they are so tube-dependent as to cause much variation among them, and one could end up getting a very bad one and never realize this is because of the tubes. Also I heard other very expensive players, too numerous to mention here, and of them all, the Audio Research CD 7 and Audio Research CD 8 ranked at the top of what is available out there today. However, they are not as good as the fabled Linn Sondek CD 12. And the Linn Sondek CD 12 is not as good as my SMc Audio Ultra DAC-1.

THE SMc AUDIO ULTRA DAC-1 UPGRADE:

THE BEST OF THE BEST

(SOME ANALYTIC CRITERIA)

Yes; my CD player is better than all of the best I have heard. It is better than the Linn Sondek CD 12, better than the top-of-the-line Audio Research, better than a dozen other recent (and expensive) players I have heard, and although I readily concede that I haven't heard them all, I suspect no other CD player in the world matches the SMc Audio Ultra DAC-1.

Allow me to describe the various aspects of playback which this player does so well. I here enumerate these aspects:

(I: Treble)

In this range the old McCormack gear has always presided supreme over the competition, so I would have thought no improvement possible. But there was an improvement here which I first noticed on tracks from three different CDs where the singer is using a tambourine. I was hearing the 1st, 2nd, and 3rd harmonics of the tambourine filling that part of the soundstage with a sheen of truly pristine sound. This range and its clarity were present in other music too, from James Galway on his 24K golden flute to an orchestra's triangle. In the treble range, my McCormack DAC had already been putting out a square wave accurate down to the millimeter, but this SMc Audio Ultra DAC-1 is putting out a square wave accurate down to the micrometer.

(II: Midrange)

As to midrange: My McCormack "Deluxe," modified into an SMc Audio Ultra DAC-1, was improved in every way. The midrange is more pure, vocals more well-rounded, and instruments richer in texture. Probably the most difficult part of the tonal spectrum to get right is the lower midrange—where the female alto works, and where the mezzo-soprano descends to. Often the system thins out here, and one knows fully well the problem is

with the system and not with the voice because in live performances the voice, if anything, gains in presence when at this area. So I was immensely gratified to discover that weight in the lower midrange not only is improved, it is impressive. Now, hearing Marilyn Horne hit her low notes melts my heart. A bass clarinet sounds authoritative instead of nasal. A Gibson J-200 guitar's bottom end can be distinguished from a Gibson Heritage's bottom end. This kind of weight in the lower midrange was there in the Linn Sondek CD 12, but not at this level of naturalness. Congratulations go to SMc Audio for here achieving what is almost impossible to attain!

(III: Mid-Bass)

The mid-bass is significantly improved, with natural resonance I have never before heard with digital. This comes, clearly, from this DAC's ability to resolve the fundamental precisely and also produce every nuance of the overtones. A 200 Hz note is sounded and one hears the 400 Hz first harmonic, the 800 Hz second harmonic, and so on. The result is that plucked notes on a double bass have a snap to them that gives the note a leading edge without at all masking the deeper tone of the fundamental. A bass voice not only has power, it also has pleasant personality. The low notes on a viola are rich in texture, but also possess their own personality, so that one would never confuse its notes with the high notes on a cello.

(IV: Deep Bass)

The deep bass—below 100 Hz—is also improved. And here I make a claim that some audiophiles would disagree with. But I avow that some degree of authority is on my side here since I do possess perfect pitch and I am a bass player. My claim: Many systems do not produce deep bass accurately. I am not talking about the richness, the personality, the resonance, or the volume. I am talking about pitch. Very often a digital playback system, for reasons I do not understand (although I do understand why this can happen with LPs), simply does not produce, for example, the bottom E on an electric bass accurately. The note, instead, is slightly sharp or slightly flat. Does one conclude that the note was sounded this way? No, because one can then play the recording with a different system, and it isn't off key at all. So what is happening? I am not sure, but I do know that pitch definition in the low bass is often a problem in digital, and it is never a problem with this SMc modified DAC-1. Perhaps the best way of illustrating this is, paradoxically, to point to a recording where the deep bass is actually recorded off key. A good example is that interlude of very deep bass in the aforementioned "Orinoco Flow" by Enya. She is playing the bass line on a synthesizer, and some of those notes are off-key. Few people notice this, but when I point it out, they then can not ignore it. Her synthesizer is out of tune. (And yes; synthesizers, electric

pianos, and such do go out of tune. In fact, I had a long discussion about this with a keyboard repairman here in Saint Louis, and he said they all go out of tune, and he explained why. There is one exception, and this is the old Hammond organ, which uses a spinning wheel locked into the synchrony of the motor which itself is locked into the 60 Hz AC. He showed me the guts of a big Hammond, drew diagrams, and explained the matter thoroughly. I came away assured that my oft-held observation of off-key electric keyboards was accurate.) But back to Enya. Her systhesizer is clearly, if minimally, out of tune on those bottom notes which occur from 1'48" to 2'15" of this song. If you can not hear the ones which are out of tune, then either you have an unpracticed ear, or your system is not very good at resolving low-bass notes in terms of pitch accuracy. So thus I uphold the superiority of this SMc Audio Ultra DAC-1 on the paradoxical basis that it can accurately reproduce what here is not accurate. As for its reproducing what is accurate, I have recordings that go down to 18 Hz, and I myself can hear test tones accurately down to 15 Hz. In this subterranean region, the SMc Audio Ultra DAC-1 is authoritative, tight, and unerringly accurate when it comes to pitch definition.

(V: Detail)

In the area of rendering detail, I believe no gear in the world does as fine a job at this as the vintage McCormack, so I expected no improvement

in this area. However there was an improvement which was not at first obvious, but then became apparent in a rather indirect way. I found that in many songs, where I had long ago quit trying to understand the lyrics, I now could understand them clearly. Every listener experiences this problem at least some of the time—flipping to the liner notes to find out exactly what the words are. This kind of detail is now being given me, and it affords a whole new dimension not only of pleasure but also of relaxation. (It deserves being noted here that many components give more detail only at the price of being too bright; this is not at all the case with this unit.)

(VI: Dynamics: Three Criteria)

In dynamics the SMc Audio Ultra DAC-1 excels superbly. Dynamic capability (or failure) in a component is something we all understand but have difficulty explaining. I believe I can, however, give a passable accounting of what dynamics involves, and will use this accounting for the sake of pointing to the capabilities of this "Ultra" unit. Dynamics has three qualities which I here enumerate:

(VI A)

The first involves the ability of the audio system to "move around" in volume, and do so with a sense of both urgent immediacy and graceful ease—giving a balance of attack and smoothness, power and grace, excitement and relaxation. This is the part of dynamic presentation most

listeners are closely attuned to and which they well understand.

(VI B)

A second quality is how the image, insofar as it is localized in space, changes when the volume changes. In live music, when a normal or medium volume level increases, the image comes forward somewhat but not overly much. It may push up close to you, but it doesn't rub itself in your face. But, in live music, when a normal volume level grows soft—much softer—it does not recede. It does not move back in space. It stays where it was. In good playback a considerable increase in volume does cause a forward sound, but this is what happens in live music anyway, so some degree of "forwardness" in digital (and other) playback, when the volume increases significantly, should not at all be criticized. Instead it should be welcomed because it is reproducing exactly what live music does. However, if the music recedes—appears to move farther back spatially from the listener when a normal volume level decreases, then there is a problem with dynamic control in the system.

(VI C)

A third aspect of dynamics involves what happens with, or to, the timbre of the music when shifts of volume happen quickly, extremely, or with subtle nuance. Said in a different way, do the instruments still sound like the same instruments if a brace of cornets at normal volume and tempo

suddenly shifts into a loud, staccato fanfare? They should still sound like cornets, not suddenly sound like trumpets. If a jazz solo played on the alto sax goes from energetic and loud to a softer, less forceful sound, does that alto sax suddenly sound like a tenor sax? If it does, then dynamic control is a problem in the playback chain.

How does the SMc Audio Ultra DAC-1 handle the three facets of dynamic control? Perfectly. The sense of attack and liveliness melds with smoothness and control. Increases in volume above normal levels occasion the exact degree of forwardness that happens in live music, but decreases in volume from a normal level do not occasion the music being more distant. And regardless of volume changes, or pacing—whether flagrant or subtle, the timbre of the instruments, ranging from voice to brass to woodwind to full orchestra to washtub bass, remains the same. Dynamic control—with "control" being the key word here, is very difficult to achieve in audio, and this DAC does it perfectly.

(VII: Soundstaging: Six Criteria)

"But what about soundstaging?!" This is what most audiophiles are interested in, and they would not be satisfied until I indulge a cliche such as, "Instruments were spread out across the stage with their presence well defined and plenty of palpable air and space around each instrument." Of course I could say this and it would be true, but just as with most of those

paltry descriptions of musical dynamics, it also is the case that vocabulary is stunted when describing soundstaging. So I shall try for a more thorough explanation of what soundstage is in musical reproduction, analyzing its several different qualities. But first, a brief definition of terms: "soundstage" refers to reproduced music, occupying or demarcating space in the listening room as it is perceived, interpreted, and analyzed by the listener. The words "image" or "imaging" refer to the specifics of soundstage, comprise its parts, and give selective perspectives by which to judge the overall soundstage. Thus, "soundstage" is the genus, and "imaging" the several species.

So here I proceed to discuss soundstage by analyzing it from the perspective of six aspects of imaging, remarking on each as they relate to the SMc Audio Ultra DAC-1.

(VII A)

First, there is width of soundstage which means, literally, how far to the left and right the image hovers in space. In some instances this can be unnaturally wide, although usually when this happens there is a hole in the middle. More often the image's width is somewhat constricted—one has a sense of artificial boundary, with the music presented in a limited or circumscribed space. And the listener feels somewhat disconcerted because he keeps listening beyond that boundary but hearing either

nothing or too little. So usually the choice is between a very wide soundstage with a hole (or several holes) in the middle, or a frustratingly narrow soundstage. I have found, over the years, that satisfactory width of soundstage is something most likely achieved with good speakers, and indeed, the quality of width in my speakers' soundstage could almost be described as unparalleled. Using Dunlavy SC-III's, I have yet to hear a speaker that does as good a job with soundstage in any of its facets, and width (without holes in the middle) is especially notable. Did the upgraded DAC improve on the width of the soundstage? I was surprised that it did, although I am not surprised that it did only a little, given that, truly, there wasn't much room for improvement.

(VII B)

Second, there is depth of soundstage as influenced by, or defined by, volume. This quality has already been analyzed as the second criterion by which to judge dynamics, and that discussion need not be repeated here, except to note that this quality of dynamics is an integral and important quality of soundstaging, and defines a point at which dynamics and soundstaging cohere and even merge.

(VII C)

Third, there is depth of soundstage as defined by consistency, and thereby predictability, of spatial location. One is sitting X distance from the

speakers, and experiences the music not coming from a single imaginary line drawn from one speaker across to the other, but rather, there is a three-dimensional aspect to this image. This is the part of soundstaging which usually is most challenging, and quite often most frustrating. The image is there in its three dimensions, but this image tends to move around when it shouldn't. I do not here refer to the movement of forward or back above analyzed in dynamics. Rather, I refer to more varied and unpredictable movements. This problem occurs when, although there is demarcated space between instruments or voices, that space is not well defined or it shifts in location—literally giving one particular spatial relationship between individual instruments at one listening, and then, at a later listening, presenting a slightly different spatial relationship. For example, a solo voice with solo acoustic guitar, at first listening, reveals the voice at about 18 inches above the guitar; a listening of only 10 minutes later has the voice maybe 24 inches above the guitar. My experience has been that this aspect of imaging is probably most governed by the quality of interconnects used, although all components play a part. And obviously the SMc Audio Ultra DAC-1 plays a role here because it was in this area (the most difficult aspect of soundstaging) that I noted the most marked improvement over the earlier incarnation of this DAC as an (original) McCormack DAC-1 "Deluxe." The location of the image, with repeated

playback, is so absolutely locked into position it seems you could almost measure where it is to the molecule. It is in this area that the Linn Sondek CD 12 so clearly excelled. But with that player the image sounded precise because it could be measured to within a couple of inches; now, with the SMc Audio Ultra DAC-1, the image is so precise it's just there. You listen with someone else and you don't gesture vaguely, you point. This is even true with deep bass. Yes; those waveforms in the deep bass are wide, but the instrument is situated in a clearly defined space, and if a B-flat tuba is registering a bottom note, one should be able to point to exactly where the bell of that instrument is. With this Ultra DAC, one can indeed point to that tuba's bell. No other CD player I have ever heard comes even close to giving this kind of repeatable precision in the location of deep bass.

(VII D)

Fourth, there is height, which in my experience is primarily determined by speaker cables and the quality of the tweeter. In this aspect of soundstaging, the image did not improve with the Ultra DAC-1. It already was quite satisfactory in my system, and frankly, were it any higher it would seem unnatural. So I suppose, in this case, the Ultra DAC-1 actually does excel because it doesn't "mess with" what is already right.

(VII E)

Fifth, there is a term which has only recently entered audio reviewers'

language, but which musicians such as myself have been using for years; namely, the holographic presentation of individual instruments in the soundstage. This refers to the air, the "breathing room," the owned space of each individual instrument. This emanates from the precise location of the instrument, of course, but anyone who has ever played chamber music knows that it also is defined by how each instrument's sound reflects off the body of the person playing that instrument, and also how that instrument's sound reflects off the adjacent instruments and players. In other words, in that small cluster of musicians and instruments, there is point source sound, reflection of sound from the stage walls and the hall too, and also reflection from the adjacent instruments and players. The result is that, for musicians, positioning with respect to one another is critical both for hearing the sound in the same way the audience hears it, and also for hearing yourself and each other correctly. Recorded, and reproduced, this part of the soundstage is very difficult to get right, and it is the most complex quality of soundstaging. The SMc Audio Ultra DAC-1 gets this quality exactly right. "Holographic" is the word reviewers like to use, but with this DAC, "holographic" isn't a catch word, it is startling reality. I can listen to a string quartet and hear not only how the source sound changes when the first violin, playing a solo, leans forward and down, but also hear how that same sound changes as it causes a first

harmonic to resonate inside the viola, a second harmonic to resonate inside the second violin, and a slight increase in the fundamental's volume as it bounces off the front of the cello. Here, with the SMc Audio Ultra DAC-1, the sound is so three dimensional, not only in obvious but also in subtle ways, that the experience can be almost overwhelming, what with the surfeit of incoming sensory data.

(VII F)

Sixth, there is the criterion of spatial accuracy. This is not quite the same as the above-noted quality of consistency of location. Consistency of location is scarcely desirable if what is consistent is inaccurate. A good DAC places the instrument exactly where it is supposed to be, i.e., where it was when the microphones recorded it. A DAC's failure to do this is most discernible in music that is relatively simple, i.e., not cluttered with numerous instruments. For example, a flamenco guitar player is dazzling us with his fingerwork, but then does some tapping on the guitar's top, and suddenly everything is wrong—the guitar's plucked or strummed sound was coming from the middle of the soundstage, but now the tapping on the top of the guitar sounds as if it is coming from another guitar about three feet to your left. What is wrong? Was the recording miked badly? You play it on a different system, and that finger-tapping is now where you would expect it to be—only a few inches to the left of where the plucking was. So

do we presume that one DAC is playing it right and the other isn't? If so, then which one is correct? Unless you have a DAC you can trust absolutely, you have to settle for an average and assume the recorded image is more or less located where several CD players sort of agree it maybe is some of the time. Either this, or content yourself with never knowing.

In revealing what is wrong or right in such matters, the SMc Audio Ultra DAC-1 reigns supreme. It unerringly depicts precise location: If the mike is suspended from the ceiling above the string quartet, you know it. If the people singing back-up in the gospel recital are swaying back and forth, you know (and appreciate) this. If the acoustic bass player in a folk group turns his body, and his instrument, to the side—probably because he is looking at something—you note this too. If the orchestra being recorded sounds as though it has two stereo mikes, and then suddenly sounds as though it has half-a-dozen mikes strung all over the place, read the liner notes and you will find that this recording was done in two different sessions by two different recording engineers, then spliced together. This—accuracy of spatial location, and not just repeatability of spatial location, is something few DAC's get right. The SMc renders such accuracy in a way that is uncanny. The listener will find vastly more value in most recordings, and (not surprising) will discard a few recordings

because now their sound is not acceptable.

(VIII: Accuracy of Timbre)

Leaving the six criteria of the soundstage's imaging, let us turn to an eighth general qualitative criterion, which I call accuracy of timbre. This is not the same as pitch accuracy, discussed above, although I suspect the same circuit design components are responsible for both. Nor is the criterion of timbral accuracy the same as timbral consistency which was described above as the third qualitative criterion of dynamics. There I was describing the consistency of timbral quality; here I am questioning the ability of a playback system to even achieve true timbral accuracy. (You might achieve consistency, but if what you are reproducing is consistently inaccurate, then what good is consistency?)

Here we come to a debate which goes back almost to the beginnings of high-end audio. None other than the venerable J. Gordon Holt often made the claim that imaging and accuracy of timbre are at odds with each other. Improve one, and the other suffers. J. Gordon Holt believes this has been most obvious in speaker design, and it is with both caution and reluctance that I have to agree with Mister Holt. Imaging has been the direction of speaker improvement, and indeed the advances have been impressive. But in the course of this advancement, accuracy of timbre has suffered. And here I may utterly sabotage the veracity of all I have above

set forth with the following claim: Many of the speakers made during the 1960s and ‘70s had timbral accuracy that no speaker being made today can match. A good case in point involves the J.B. Lansing speakers of that era. They were uneven in the crossovers, those titanium-dome tweeters (not really titanium since they were about 95% aluminum) were bright and harsh, the midrange was not silky and pure, the bass was tubby and boomy. As to imaging? Forget it. But when it came to timbral accuracy, something about the way those drivers were made, or housed, or wired, or … well, I am not an engineer, but I do know what my ears heard. Namely, a pair of mid-priced JBL’s of that era had an ability to make a bass voice sound like a bass and not a baritone, a mezzo-soprano sound like she certainly had no claim to being an alto, and a flute could never be mistaken for a piccolo. You could tell what kind of electric bass the player was using, what kind of strings he had on it, and what brand amp he was running through. Accuracy of timbre—the inner complexity of the varied nuance in overtones as evinced by any instrument—was unerringly accurate even when other things were missing. At the beginning of this review I referred to the problem I experienced with my digital cable, and how I had encountered that same problem before when I rewired a pair of speakers. Those speakers were a pair of JBL 4406 Studio Monitors; and when I had them rewired, and had the Elrod modifications done, my lordy they were

fine speakers—especially in the realm of timbral accuracy. I have never experienced this kind of accuracy even in speakers costing over a hundred grand, nor in my beloved Dunlavy SC-III's. For example, if you take the track "Jerusalem Tomorrow" from the CD, Cowgirl's Prayer by Emmylou Harris, there are a couple of places where a woodwind comes in and, invariably, that instrument at first sounds like an oboe. Only after about one bar do you realize it is a clarinet. On my JBL's, before and after the Elrod modifications, it sounded like a clarinet from the first note. With my Dunlavy's, superior in all ways to the JBL's except with accuracy in timbre, I at first hear an oboe. With all other modern speakers I have heard this CD through, that track's clarinet at first sounds like an oboe. On one other pair of (unmodified) JBL's, it was a clarinet from the beginning. This timbral accuracy, or this failure of timbral accuracy, I have observed to be caused by speakers only. No other component ever seemed to make any difference. Until now. Yes; now, with my old (sic) McCormack DAC-1 "Deluxe" upgraded to an SMc Audio Ultra DAC-1, I have unerring accuracy in timbre. Going through my Dunlavy's, that track from Cowgirl's Prayer no longer confuses. The woodwind, on its very first note, sounds like a single-reed clarinet, not like a double-reed oboe. What Steve McCormack did in the way of circuit design to achieve this, I don't know, but I am mightily impressed by the aural results.

(IX: Is The SMc Audio Ultra DAC-1 Perfect?)

No. It doesn't sound as good as vinyl. But whereas before I always observed (with some glee, I admit) that even entry-level high-end turntables sound better than the best digital, now my claim is more guarded: It will require a very good turntable to make LP sound beat the digital sound of an SMc Audio Ultra DAC-1. A second objection can also be made to this DAC: It could never be described as "forgiving" (a word so favored by too many reviewers). Many reviewers seem to consider this an asset in <u>any</u> component, stating something like, "This cable has a very forgiving sound, and you will find your strident discs less irritating and your laid-back discs more dynamic." I recoil from such language. I do not want a forgiving component. If a forgiving component masks a recording's faults, then it also veils a recording's merits. So I am glad the SMc Audio Ultra DAC-1 is not forgiving. I do not want forgiving; I want accuracy. A third objection can also be levied: This DAC causes an alarming loss of sleep. It delivers so much in the way of musical satisfaction that one stays up half the night listening and enjoying. With the SMc Audio Ultra DAC-1, there is no aural refractory period.

SUMMATION

Stated summarily, the SMc Audio Ultra DAC-1 is better than any of the classics I have heard, including what I before considered the best CD player ever made: the Linn Sondek CD 12. And it is better than any of the current competition I have heard, including what I consider the best "out there," which are the Audio Research Reference CD 7 and the Audio Research Reference CD 8. At present the best CD player in the world is no longer "out there." It is in my listening room.

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