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Halcro's dm58:

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Revolutionary is a word that's tossed around all too lightly in the world of audio. The understandable impulse to tout every new development as a quantum leap forward in sound reproduction has made it difficult to sort out the evolutionary from the truly groundbreaking. And there's not that much left to do in amplifier design that is worthy of being described as "revolutionary," or so it seems. Vacuum-tube circuitry has been thoroughly understood since the late 1940s, and 40 years of development of solid-state has rendered it, in its finest implementations, a worthy competitor and alternative to the venerable tube.

A few years ago, a then-unknown amplifier manufacturer from Australia began placing ads in the audio press claiming that it was producing a truly revolutionary product, a monoblock power amplifier with distortion specifications bordering on the unbelievable: a signal 99.9996% pure. The company was Halcro, the amplifier in question the dm58.

There was some snickering in the audio community when these ads appeared. As impressive as the dm58's specifications seemed, audiophiles are not easily swayed by claims of superiority based solely on measurements. The 1970s THD wars among the major Japanese receiver manufacturers of the day conclusively proved that great specs alone were no guarantee of even good, much less great, sound.

Nonetheless, the sheer audacity of Halcro's claims generated much curiosity and interest. Added to this were the company's stunning demonstrations at hi-fi shows around the world, which paired Halcro amps with some of the industry's most well-regarded speakers. Needless to say, I jumped at John Atkinson's offer of a pair of dm58s for review. I was anxious to hear whether the revolution promised by Halcro was actually at hand.

Spock, what is this thing?

Getting a clear picture of exactly what goes on inside a Halcro dm58 is about

as easy as finding out what the CIA is up to. Designer and chief engineer Bruce Candy is loath to make public any more than the bare minimum about how his amps work, and much of the circuitry and its applications are proprietary and/or patented. The amplifiers are impossible for any but trained personnel to open, and if an owner were to prize one apart, he would promptly find his warranty voided. As a result, one must take Halcro's descriptions of the hows and whys on faith.¹

A few things can be said with certainty. The arrestingly handsome, vertically oriented dm58 is visually and electrically divided into three parts: a two-compartment upper box bisected by a polished-copper nameplate, and a large lower box. The uppermost module contains an input/output section; a much smaller section beneath it holds the MOSFET final amplification stage. Extensive, heavy shielding and Faraday cages separate these sections physically and electrically, and prevent magnetic or electromagnetic induction between the sections and the intrusion of RFI and other airborne pollution. Around back, the top section allows selection of XLR or RCA input jacks, while underneath is the dashpot-style standby switch. The speaker terminals are the best I've seen—well-spaced, and equipped with grippy rubber covers that preclude the need for wrenches. There is also a separate ground terminal.

The lower section, containing the power supply, is where (Bruce Candy admits) much of the amplifier's magic lives. The dm58 can be plugged into any outlet that provides at least 85V (but no more than 270V) at 45–65Hz, and can be fired up to provide full rated power with no further adjustments. Incoming AC is massively filtered to eliminate all manner of RFI and other forms of noise and interference that can ride in from the wall socket. Then, prior to rectification and distribution to the amp's circuitry, the AC is completely regenerated. But an extra twist is added: The power supply ensures that the incoming current and voltage waveforms are identical and in-

Description: Solid-state monoblock power amplifier, with active power-factor correction. Inputs: 1 unbalanced, 1 balanced. Output power: >200W into 8 ohms (23dBW), >350W into 4 ohms (22.4dBW). Distortion: at full power output, all harmonic distortion orders <–114dB up to 20kHz (<4000 parts per billion or <0.0004%). THD: <–128dB at 1kHz, or <400 ppb. Intermodulation products: all <–114dB relative to power output for sum of 19+20kHz tones, each delivering 87.5W into 4 ohms or 50W into 8 ohms or SMPTE-IM. Noise: equivalent input noise at input, 5nV/sqrt(Hz). Slew-rate limit: maximum slew rate for small-signal and maximum output voltages is 100V/μs (equivalent to a maximum output voltage at approximately 250kHz). Input impedance: 100k ohms, both inputs. Voltage gain: 49V/V (33.8dB), both inputs. Overload: 1μs recovery from hard overload at 20kHz into 4 ohms. Protection: short-circuit-proof; overcurrent limiting; gradual power limiting if amplifier becomes too hot. Will cut out if a continuous DC offset

appears on output or if output current exceeds 12A average continuously over a period of a few minutes; protection against most input overloads. Power-supply protection: will cut out if most common faults are detected in the power supply (eg, over-voltage, excessive temperatures, etc.). Protected against most mains transients. Operating voltage: 85–270V RMS, 45–65Hz, without internal or external switches.

Dimensions: 31" H by 16" W by 16" D. Net weight: 125 lbs (57kg) each.

Serial numbers of units reviewed: 00115 & 6.

Price: \$24,990/pair. Approximate number of dealers: 12.

Manufacturer: Halcro, 118 Hayward Avenue, Torrensville, South Australia 5031. Tel: (61) 8-8238-0807. Fax: (61) 8-8238-0852. US distributor: On a Higher Note, 26081 Via Estelita, San Juan Capistrano, CA 92675. Tel: (949) 488-3004. Fax: (949) 488-3284. Web: www.halcro.com.

¹ To describe all of the technological innovations in the dm58 would require much more space than is available here. Translations of articles from the Japanese and Chinese audio magazines that have delved deeply into Halcro's design philosophy and circuitry are available from Halcro's US distributor.



Halcro dm58 monoblock power amplifier



phase by way of a power-factor correction unit. Seven separate protection circuits safeguard the amplifier, which is essentially immune to anything that might damage it.²

Much of the rest of the dm58's circuitry is said to be based on concepts from microwave and ultra-high-frequency electronics. According to Halcro's US importer, Philip O'Hanlon, were most electrical engineers to examine a schematic of the Halcro, few would even recognize it as being an audio amplifier. Twelve MOSFETs provide the final amplification and are connected to the left side panel, which serves as a chimneying heatsink. The amps run in class-AB biased toward class-A, and fanatical attention has been devoted to ensuring that each section's ultra-low-distortion amplification of the signal is passed on to the next section intact. No global feedback is used in the dm58, though minimal amounts are used in discretely nested loops. Very conservatively rated at 200W into 8 ohms and 350Wpc into 4 ohms, the Halcro is said to be capable of extended bursts of nearly two kilowatts without exceeding its distortion specifications.

There is no speaker that will overtax these amplifiers.

The Halcro is extraordinarily efficient in its use of electricity. It draws no more than 350W from the wall, even when producing its full power output of 200W into 8 ohms. O'Hanlon recommended that the amps be left on in idle—not standby—at all times. The heatsinks never got more than slightly warm. Curiously, the amps were only slightly warmer even after lengthy, high-power listening sessions.

That the Halcros are bursting with technological razzmatazz is not surprising. Bruce Candy holds Ph.D.s in physics and applied mathematics, and has taught at universities in England, France, and Australia. He is also the chief research scientist at Australia's Minelab, a leading manufacturer of metal-detection equipment and mine-sensing devices.

² The protection circuitry is all proprietary; Candy will not disclose exactly how it works. Work it does, though. One hot and muggy night, I lifted an LP from the turntable and unexpectedly sent a massive static discharge through my system, frying a number of parts in the power supply of the Manley Steelhead phono preamp. The Halcros calmly clicked and went into standby, awaiting further orders, and worked perfectly thereafter.

Minelab provides the United Nations and the US military with the mine-locating equipment used in hot spots like Afghanistan. As O'Hanlon pointed out with a laugh, that is not the sort of application in which succeeding "most of the time" is acceptable.

Candy is not a pure technical theorist, however. He is also a lifelong audiophile who, at age 13, began homebrewing his own tube amps. The conceptual genesis of the dm58 was Candy's desire to build an amplifier that combined all the virtues of tube and solid-state designs. After extensive experimentation, the dm58 emerged and Halcro was incorporated to manufacture Candy's audio designs. By the time you read this review, Halcro will have introduced a line stage and a full-function preamp with phono stage. A stereo amplifier, CD player, and multichannel gear should arrive within the next year or so.

Finally got it hooked up, Captain!

The Halcros presented a definite challenge to my sources and cables. Every change resulted in audible differences that were not only clear, but sometimes startling. Much careful listening was

Measurements

Following the usual one-hour pre-conditioning period at 1/3 power into 8 ohms, the Halcro dm58's chassis was cool to the touch, suggesting efficient heatsinking. The input impedance was a usefully high 102k ohms unbalanced and 194k ohms balanced, and the amplifier didn't invert signal polarity through either input. (The XLRs are wired with pin 2 hot.) The voltage gain was higher than average at 33.45dB through the balanced input, and, as expected 6dB lower through the unbalanced input.

The output impedance was a very low 0.06 ohm across most of the audioband, rising inconsequentially to 0.1 ohm at 20kHz. (Note that this figure includes 0.5m of speaker cable.) As a result, any modification of the Halcro's response into our simulated speaker load (fig.1, top trace between 1kHz and 3kHz) was minimal. Into resistive loads, the Halcro's response was 1dB down at 13Hz and 75kHz, the latter meaning that the amplifier's reproduction of a 10kHz squarewave was essentially perfect (fig.2).

Any DC offset present in the dm58's output was below 2mV and therefore inconsequential. The Halcro's signal/ noise ratio, ref. 2.83V

into 8 ohms (1W), was very respectable at 82.8dB, wideband unweighted, this figure improving to 96.8dB when A-weighted. As implied by its specifications, measuring the

amount of distortion present in the dm58's output was very difficult, as it was below the noise floor except at very high output powers. Fig.3 shows the THD+noise percentage plotted

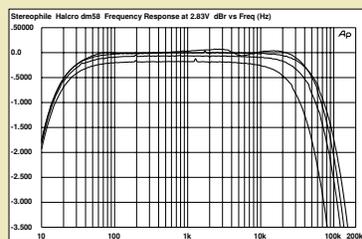


Fig.1 Halcro dm58, frequency response at (from top to bottom at 2kHz): 2.83V into dummy loudspeaker load, 1W into 8 ohms, 2W into 4 ohms, 4W into 2 ohms (0.5dB/vertical div.).

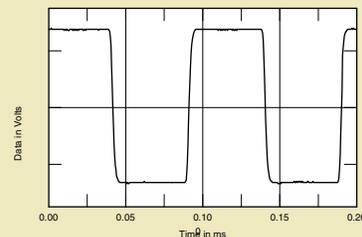


Fig.2 Halcro dm58, small-signal 10kHz squarewave into 8 ohms.

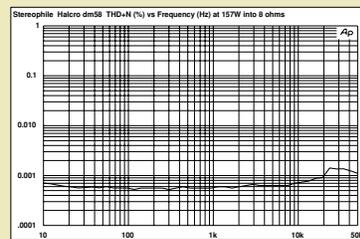


Fig.3 Halcro dm58, THD+noise (%) vs frequency at 157W into 8 ohms.

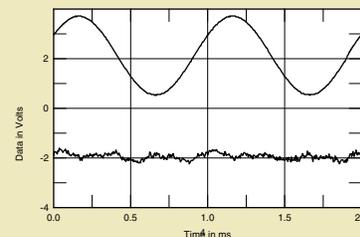


Fig.4 Halcro dm58, 1kHz waveform at 157W into 8 ohms (top), distortion and noise waveform with fundamental notched out (bottom, not to scale).

required to determine which ancillaries were sufficiently neutral to allow the amps to show their best. For final evaluative listening, I settled on the Rowland Synergy Ii line stage paired with its sibling Cadence phono stage, with the tubed Manley Steelhead phono preamp and Atma-Sphere's MP-3 line stage as alternate references. Interconnects were all Nordost Valhalla, with Nordost's Valhalla speaker cables on the mid/treble and SPM on the woofers of the Eggleston Works Andra II loudspeakers. Acoustic Zen Gargantua and Custom Power Cord Company Top Gun HCFi power cords both worked superbly in supplying the Halcros with the necessary juice.

Give me warp drive now, Mr. Scott!

I will not soon forget my reaction to the first LPs and CDs I played through the dm58: utter disbelief. The dynamics, purity, and total transparency were beyond anything in my prior experience. Hearing the Halcros at a show was not even close to a proper preview of what they could do in a controlled situation.

After my initial shock and amazement had abated somewhat, I began

wondering whether the Halcros were somewhat bright and forward in the upper mids/lower treble. Then the bulb over my head came slowly on: my first listening binge had been exclusively to rock CDs and "Golden Age" orchestral LPs. Most nonclassical recordings are juiced up in this "presence" range during the mixing and mastering process, and many classical records from the 1958-65 era were made with microphones that, for all their virtues, had peaky top-end responses.³

As LP followed CD and vice versa, the Halcros proved themselves transcendently neutral. Dry, dull, or aggressive recordings sounded much more so through the dm58s, while plush, overstuffed marshmallows sounded sweeter and cushier than ever, albeit more transparent than I had ever heard before. By definition, the "colorations" I'd thought I'd heard with some recordings were not that at all, as they were mutually exclusive and entirely recording-specific. What I was hearing was the unalloyed sound of the music as recorded. Depending on the recordings and the associated equipment, this was not always a good thing.

Another boundary-stretching aspect of the Halcro's sound was its silence. Its background was not the outer-space void of a stream of digital zeros but the taut, deep silence of an empty concert hall—a living silence just waiting to be energized by sound. I don't know what JA's measurements will show about the dm58's noise floor, but I'd never heard an amplifier this quiet. As a result, detail retrieval bordered on the supernatural. Subway trains running under Kingsway Hall on Decca and EMI LPs? Chairs squeaking? I heard 'em all through the Halcros.

Whether such funky little details contribute to the musical experience has long been a subject of impassioned debate among audiophiles, but one thing is certain: when a piece of electronics can resolve ultra-low-level background information, it will also reproduce microscopic musical details that others miss. The tiniest of wall reflections, the most infinitesimal of reverberation trails, the softest shimmer of a piano's strings—so much information came through the Halcros that new shades of nuance and meaning were revealed in every recording I lis-

against frequency at 157W into 8 ohms. It is 0.0006% or less across most of the band, rising *very* slightly above 10kHz. I can't swear to the accuracy of this figure, however; even at this high power, the Halcro's intrinsic distortion level appears to be of the same order as the output of the Audio Precision System One signal generator (0.0003%)!

The bottom trace in fig.4 shows the waveform of the distortion and noise with a 1kHz sinewave signal at the same level used for fig.3. The oscilloscope's input was set to its maximum sensitivity for this graph, but even so, most of what can be seen is noise, even when 32 separate readings were averaged to drop the noise content by

15dB. Halving the load to 4 ohms, with the output power now 310W, *did* give a residue waveform that is recognizable as distortion (fig.5). It appears to be almost pure third-harmonic in nature.

Fig.6 is a spectrum of the dm58's output at 200W into 8 ohms, taken with a different signal generator: the National Instruments PCI4451 PC card that Miller Audio Research uses as the platform for its QC Suite mea-

surement software. The second, third, and fourth harmonics are all between -106dB and -110dB! The summed total of the harmonics is around 0.0008%, but even then, this is not appreciably higher than the level of the residual harmonics present in the NI card's output (0.00055%).

Given this very low THD, it seemed academic to examine the Halcro's intermodulation behavior with the Audio Precision System One.

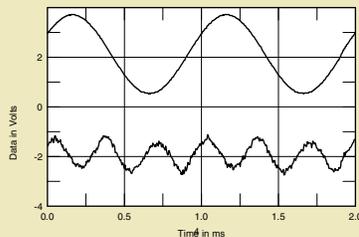


Fig.5 Halcro dm58, 1kHz waveform at 310W into 4 ohms (top), distortion and noise waveform with fundamental notched out (bottom, not to scale).

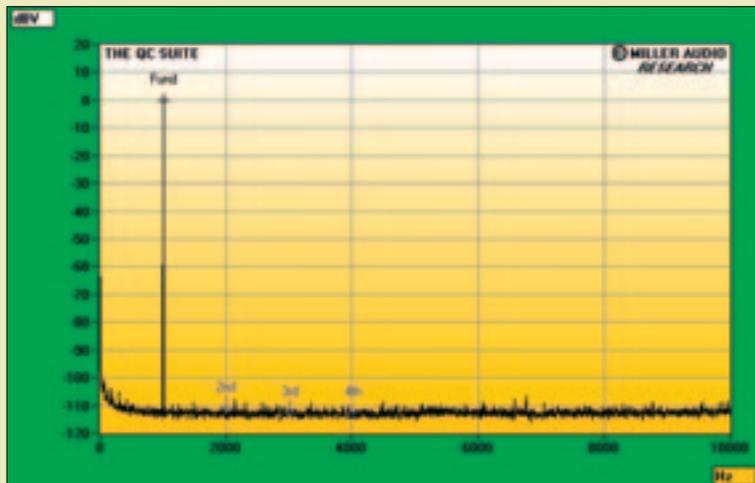


Fig.6 Halcro dm58, spectrum of 1kHz sinewave, DC-10kHz, at 200W into 8 ohms (linear frequency scale).

tened to through them.

The soundstaging was superb, but defined entirely by what was on the recording. The soundstages of Blumlein-miked EMIs of the late 1950s and early 1960s never extended beyond the speakers' outer edges, but big, bold Decca/Londons and many modern recordings wrapped around the room like Sensurround. Depth was little short of incredible, and on well-made classical recordings, images far back in the stage had the same density and roundedness as those located in the front rows. Soloists, small groups, and large orchestras were all presented with precisely the right sense of scale and space.

The dm58s pulled off another soundstaging trick one seldom hears at home. At live orchestral concerts, crescendos not only get louder, the sound gets *bigger*—it fills the hall's space more completely. The dm58 was one of only a very few amplifiers I've heard that has captured this aspect of live sound, and

3 The admittedly wonderful-sounding Neumann M50 omni used by Decca, for example, gently rose on-axis above 3kHz to reach +5dB at 15kHz, while the classic Neumann U47 in cardioid mode had a +3dB shelf on-axis between 3kHz and 15kHz. —JA

did so with startling authority.

Besides doing soundstages superbly, the Halcros also nailed the elements of soundspaces. There are three separate and distinct elements to the sound of an

I will not soon forget my reaction to the first LPs and CDs I played through the dm58: utter disbelief.

instrument or a voice, be it live or recorded; I think of them as the point source, the field source, and the contextual source. The point source is defined by the boundaries of the instrument or singer—the resonating body that produces the sound. The field source is that halo of acoustically energized air projected into the near vicinity of that resonating object *by* the resonating object. Last, the contextual source is that space in which the prior two

sounds exist—the acoustic of the space in which the instrument is being played. A well-made recording of unamplified instruments will capture all of these sound sources, and the best equipment will bring them home into the listening room. The Halcros were astonishing in their ability to capture all of these elements in the proportions that suggest reality.

A purist recording like *Serenade* (CD, Stereophile STPH009-2), was ear-poppingly realistic through the dm58s. The semicircle of instruments playing Dvorák's *Serenade for Winds and Strings, Op.44*, was defined as well as if I'd been sitting directly in front of them. There was a superbly focused center of gravity to each instrument, and an equally well-delineated field source.

The contextual source was just *there*, seemingly re-created in its totality. The Halcros were most assuredly of the "you are there" school rather than the "they are here" camp. The images placed in this continuous soundspace were not only impeccably defined, they had the palpability and three-dimensionality that, until now, only the best tubed amplifiers could provide.

Another especially vivid example was provided by Duke Ellington's *Dance With Duke* (LP, Columbia Special Products CSR 8098). *DWD* features the Ellington band recorded live at the Bal Masque nightclub in Miami Beach's Americana Hotel. The Halcros seemingly tore a hole in the fabric of space-time and transported me back to the Bal Masque, surrounded by diners and dancers bathing in the glow of the Duke's orchestra at the height of its powers. The dm58s completely obliterated the fact that I was listening to a record of an event that happened back in the late 1950s.

Timbrally, the dm58 was the closest thing to dead neutral that I've heard from any component. Its bass was definitive, with enormous power and unimpeachable definition. Mids were crystalline, and the highs seemed subjectively flat to ultraviolet. As noted, there is bound to be some controversy about the upper mids and lower treble, but extended listening to a vast range of music established only that the dm58 was telling me exactly what is on the recording and nothing more. I couldn't blame the messengers when they told me that some recordings were not quite what I'd thought they were. Recordings that should have sounded perfectly gorgeous, like the legendary Nimbus pressing of Leigh's *Concertino for Harpsichord and String Orchestra* (UK LP, Lyrita SRCS 126) and Kiril Kondrashin's delectable take on Tchaikovsky's *Capriccio Italien* (LP, RCA/Classic LSC-2323), were breathtaking in their beauty. Both male

Nevertheless, I include fig.7 because it shows that, even at the high power level featured in this measurement—220W into 4 ohms, just below visible clipping on the 'scope screen—the only intermodulation products present are those in the output of the outboard DAC used to drive the amplifier.

Finally, fig.8 shows the percentage of THD+noise present in the dm58's output varied with continuous output power into 8, 4, and 2 ohms. The constant downward slope with increasing frequency reveals that the measured figure is dominated by noise below the "knee" of the traces, not distortion. In addition, the slight sawteeth present in the traces, due to the Audio Precision System One's

automatic gain-ranging, reveal that the Halcro's residual THD+N is at the lower limit of what is possible to measure with this setup. The actual clipping points (1% THD) are 260W into 8 ohms (24.1dBW) and 490W into 4 ohms (23.9dBW). Into 2 ohms, the amplifier's protection circuitry cut in at 210W, muting the output. Into 4 ohms, it cut in at 500W.

Halcro's dm58 offers astonishing measured performance for an amplifier, particularly when it comes to harmonic and intermodulation distortion. Most important, this does not appear to have been achieved by compromising other aspects of the amplifier's performance, as was the case in the "THD Wars" of the 1970s.

—John Atkinson

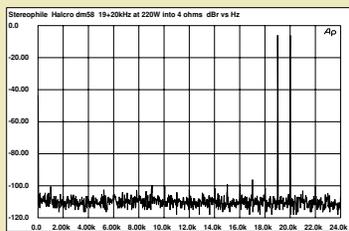


Fig.7 Halcro dm58, HF intermodulation spectrum, DC–24kHz, 19+20kHz at 220W into 4 ohms (linear frequency scale).

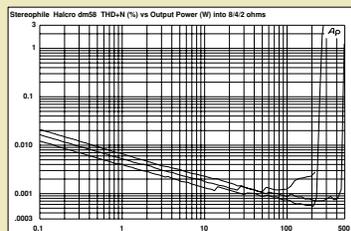


Fig.8 Halcro dm58, distortion (%) vs continuous output power into (from bottom to top at 1W): 8 ohms, 4 ohms, 2 ohms.

and female voices came through the Halcro with a tingle-inducing aliveness. Eva Cassidy's "Cheek to Cheek" (CD, *Live at Blues Alley*, Blix Street 10046) served up one of those moments that make audio worthwhile—something that made me melt into my chair with the sheer wonderfulness of it all. This, my friends, was living *large*.

Not content to set the standard in tonal neutrality and information retrieval, the Halcro offered dynamic performance that mere mortal amps cannot manage. Today, all serious high-end amplifiers have genuine dynamic authority in the bass and midrange, but few are able to track large dynamic variations in the treble and high treble with the same fidelity they bring to the bass and mids.⁴ The Halcro could and did, and this decidedly more lifelike dynamic presentation represented a sound different from that of any other amplifier I have heard. There was more treble energy, yes, but only when it was on the recording; dull, flat recordings sound duller and flatter than ever with the Halcro, because the amp added no excitement or glamour. When called for, the Halcro delivered dynamics that were uncompressed and genuinely startling, and did so throughout the entire spectrum.

What difference did this make? The 40-part title motet on the Tallis Scholars' *Spem in Alium* (CD, Gimell 454-906-2) had never sounded quite right, even on the best digital front-ends. When a large number of voices, many of them sopranos, are going full tilt, enormous dynamic demands are placed on an amplifier if you're listening at lifelike loudness levels. I had often thought that digital distortions were responsible for the hard, glassy

sound of this CD, and I was partially right. But it was the Halcro that showed conclusively that dynamic compression and intermodulation distortion at the amp stage was by far the more egregious culprit. The transformation of this music through the dm58s was, in the apt words of the cliché, jaw-dropping.

One night I decided to throw my

Not content to set the standard in tonal neutrality and information retrieval, the Halcro offered dynamic performance that mere mortal amps cannot manage.

reviewer's hat to the wind and pigged out on LPs of well-loved 1970s rock. I played plain-vanilla American pressings of Camel's *Moonmadness*, Al Stewart's *Modern Times*, and Steve Harley & Cockney Rebel's live *Face to Face*; and British pressings of Can's *Tago Mago* and Yes's *Relayer*. For an hour and a half I sat shaking my head as I listened. These are records I have heard literally hundreds of times each, and thought I knew everything there was to know about them. But minute after minute, measure after measure, the Halcros proved me wrong. *Relayer* was the most uncanny—Chris Squire's treble-heavy Rickenbacker bass suddenly had a girth and beefiness never before present; the

dense fury of "The Gates of Delirium" was now perfectly clarified, and "Soon," the heartbreakingly beautiful final section, was therefore all the more touching and uplifting.

Take us . . . out there somewhere, Mr. Sulu

The Halcro dm58 is a paradigm-destroying component that could well justify the creation of a "Class A+" amplifier category in "Recommended Components." It is really that good. I don't entirely know or understand why that is so, and Bruce Candy is giving no secrets away, but the unassailable proof was in the hearing. Whatever its flaws may be, their discovery may have to wait until someone, somewhere, has developed an even better amplifier.

Mine is but one opinion, but the Halcros pushed every button in my head and heart that says "music," and I will miss them as I have missed few other components I have reviewed. The dm58's pristine and wholly continuous clarity, unlimited (within the limits of my tolerance) dynamics throughout the spectrum, and impossibly low noise floor allowed recorded music to take me to places I had not thought existed. The directness and completeness of their musical communication was remarkable, equaled in my experience by only the Lamm ML1 amplifiers. That Halcro also builds the \$35,000 dm68 monoblock, which Candy asserts is even better, makes my head spin.

But don't even think about buying a pair of these wonders unless you're willing to hear everything—and I mean *everything*—in the recordings you play, and exactly what the rest of your components are doing, for better and for worse. Feed them the best and the Halcros will give you an experience that is such stuff as dreams are made on.

Arthur C. Clarke, the futurist and science-fiction writer who first conceptualized the communications satellite, once wrote that any sufficiently advanced technology will be indistinguishable from magic. To these ears, the Halcro dm58 is the embodiment of Clarke's maxim. The revolution has arrived. ☒

Associated Equipment

Analog source: SOTA Cosmos turntable, Graham Engineering 2.2 tonearm, Dynavector DRT XV-1 cartridge.

Digital sources: Classé Omega SACD/CD player, Ayre K-1x CD/DVD-Video player.

Preamplification: Manley Labs Steelhead, Jeff Rowland Design Group Cadence phono stages; Jeff Rowland Design Group Synergy Iii line stage; Ayre K-1x, Atma-Sphere MP-3 preamplifiers.

Loudspeakers: EgglestonWorks Andra II, Silverline Sonata.

Cables: Phono: Cardas Golden Reference, Hovland Music Groove 2. Interconnect: Nordost Valhalla, Wireworld Gold Eclipse 3+, Cardas

Golden Reference. Speaker: Nordost Valhalla and SPM, Wireworld Gold Eclipse 3+. AC: Nordost El Dorado, Acoustic Zen Gargantua, Wireworld Silver Electra 3, Custom Power Cord Company Top Gun, Top Gun HCFi, Top Gun Super Power Block power conditioner (front-end electronics and digital components).

Accessories: Grand Prix Audio Monaco Modular and Ultra Resolution Technologies Bedrock equipment racks; Ganymede isolation footers, Nordost Ti Pulsar points, PolyCrystal footers, Wally-Tools analog setup equipment; Argent Room Lenses, Caig Pro Gold contact cleaner.

—Paul Bolin

⁴ If you doubt this, stand 12–15' away from a drummer and pay close attention to the dynamics of the ride and crash cymbals. Then compare that to an amplifier's recreation of a potent drum solo. The difference between live and recorded dynamics is perhaps greater with a drum kit than with any other instrument.

"Hi Fi Review" maga-
zine
(Hong Kong)
*'Product Of
The Year 2001'*

"Stereo Magazine"
(Japan)
2002 Best Buy
Component Awards
*'Best Buy in the Power
Amplifier category
above 1 million yen'*

"Robb Report" (USA)
Best of the Best
Awards 2002
*'Best Audio
Equipment'*

It's a shame we can't
trademark the word 'best'.

"Super AV"
magazine
(Hong Kong)
*'The Outstanding
Power Amplifier
2001'*



"Radio Technique" (Japan)
Best Stereo Component
Grand Prix 2001 Awards
*'Grand Prix Award
for No.1 Power Amplifier
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(Japan) Audio
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