

Electronically reprinted from March 2008

Parasound Halo JC 2

LINE PREAMPLIFIER

John Atkinson

DESCRIPTION Remote-controlled, solid-state preamplifier with switchable absolute polarity, rear-panel IR repeater input and loop out jacks, four 12V trigger output jacks, and two-way RS-232 serial port. Inputs: 6 unbalanced (RCA), 2 usable in balanced mode (XLR pin 2 hot). Outputs (1 pair each): balanced XLR (main); unbalanced RCA (main); inverted unbalanced (main); normal-polarity, fixed-output, unbalanced (tape). Left/right gain-control range: -10dB. Frequency response: 5Hz-100kHz, +0/-3dB. Maximum gain: 14dB. Maximum output: 8V. Input sensitivity: 200mV for 1V output. Distortion: <0.003% THD at 100Hz, <0.005% THD at 20kHz, <0.003% IMD. Signal/noise: >116dB, input shorted, IHF A-weighted; >104dB, input shorted, unweighted. Channel separation: >100dB at 10kHz, >90dB at 20kHz. Input impedance: 30k ohms unbalanced, 30k ohms per phase balanced. Output impedance: <60 ohms unbalanced, <60 ohms per phase balanced. Power consumption: 25W stand-by, 30W in operation. Optional accessory: HRA 3 rack-mount handles (can be purchased separately).

DIMENSIONS 17 1/4" W (437mm) by 5 7/8" (150mm) H by 16" (406mm) D. Weight: 24 lbs (11kg).

SERIAL NUMBER OF UNIT REVIEWED 01011.

PRICE \$4000. Approximate number of dealers: 56. Warranty: 10 years parts, 5 years labor (US, Canada).

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Parasound Halo JC 2 line preamplifier

My very first review of a preamplifier, for British magazine *Hi-Fi News & Record Review* in May 1984, was of the Audio Research SP-10. In my opening to that review, I wrote that, “more than any other component,” a preamplifier “should approximate to the late Peter Walker’s ‘Straight Wire with Gain.’” By this I meant that a preamplifier should not be in the business of effecting dramatic changes, and in any case, dramatic changes are not the kind that prove to be of lasting value. However, I also wrote back then that what I became increasingly aware of while using the SP-10 “was the fact that ‘neutrality’ is a positive virtue rather than just an absence of aberration.”

I still have that review sample of the SP-10, which I purchased following the review and used for many years. Since then, I have made the acquaintance of some preamplifiers that are even more neutral than the positively neutral SP-10. But in the years since the publication of that review, I have also become increasingly aware of the paradox that while loudspeakers in general have more character than preamplifiers, I can accommodate to a loudspeaker’s sonic signature far more easily than I can to a preamplifier’s.

So even though I’ve been content with my long-term preamplifier reference, a decade-old Mark Levinson No.380S, I’ve kept a corner of my eye open for a possible successor. I had been impressed with Parasound’s Halo JC 1 monoblock

amplifier, which I had measured for Michael Fremer's review in the February 2003 *Stereophile* (Vol.26 No.2). And I'd had enormous respect for the Halo JC 1's designer, John Curl, ever since the early 1990s, when I'd used and enjoyed one of his Vendetta SCP-2 phono preamplifiers. So when Parasound prexy Richard Schram e-mailed me, after last year's Home Entertainment Show, to ask if he could drop round with a sample of his new, Curl-designed Halo JC 2 line preamplifier, he didn't need to twist my arm *too* much.

THE HALO JC 2 IS **MANUFACTURED**, LIKE THE JC 1, IN TAIWAN. BUT ITS DESIGN, CIRCUIT LAYOUT, AND PARTS CHOICE ARE UNABASHEDLY **AMERICAN**.

The Halo JC 2

Costing a not-unreasonable \$4000, the Halo JC 2 is manufactured, like the JC 1, in Taiwan. But its design, circuit layout, and parts choice are unabashedly American. John Curl began designing the JC 2 while working on the JC 1, and optimization of the design was performed

by him, with the late Bob Crump choosing the parts and Carl Thompson laying out the boards. "Designed by CTC Builders John Curl, Carl Thompson & Bob Crump," it states at the top of the rear panel—a nice touch.

Styled to match the JC 1 and finished in the same brushed, natural aluminum,

MEASUREMENTS

Operated with either balanced input and output or unbalanced input and output, the Parasound Halo JC 2 offered a maximum gain of 14dB, as specified. Surprisingly, it offered 20dB gain with an unbalanced input and measured at the balanced output jacks. Both unbalanced and balanced outputs preserved absolute polarity (*ie*, were non-inverting), with the blue front-panel Polarity LED off. (The XLRs are wired with pin 2 "hot.") Both unbalanced and balanced input impedances were close to specification, at 27k ohms at low and middle frequencies. The input impedances dropped a little at 20kHz, to 22k ohms, though this difference will be inconsequential. The output impedance was higher than specified, at 257 ohms unbalanced and 295 ohms balanced. These are still usefully low values, however, and remained constant across the audioband.

With its volume control set to the maximum, the JC 2's frequency response at 1V into 200k ohms was flat within the audioband and down by just 0.6dB at the top of the audioband, with superb channel matching (fig.1, blue and red traces). This wide bandwidth was maintained into low impedances. However, there was some interdependency of the bandwidth and the volume-control setting. The magenta and green traces in fig.1 show the preamp's response at the same output level, but with the volume control set to unity gain (1:00). The response is now -0.35dB at the top of the audioband, and a very slight

level mismatch (0.1dB) between the channels is evident. Neither will have any subjective consequences, however.

The JC 2's channel separation was superb, at >120dB below 10kHz in both directions, a tribute to the circuit board and component layout. The preamplifier also offered very low levels of noise. With the volume control at its maximum but the input short-circuited—very much the worst case—I measured an unweighted, wideband signal/noise ratio (ref. 1V output) of 96.7dB. A-weighting improved this figure to 108dB, which is superb.

Harmonic distortion was also vanishingly low, revealed by plotting the JC 2's THD+noise percentage against its

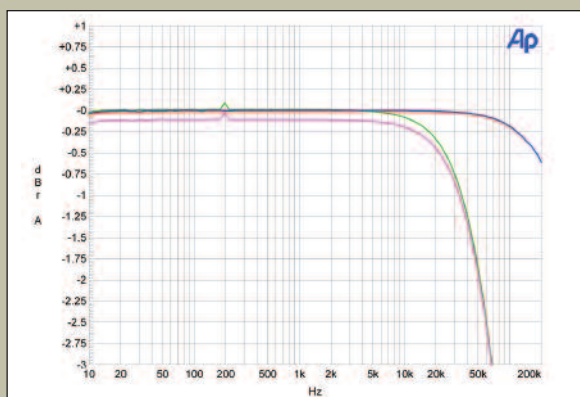


Fig.1 Parasound Halo JC 2, balanced frequency response at 1V into 200k ohms with volume control set to maximum (left channel blue, right channel red) and to unity gain (left channel green, right channel magenta). (0.25dB/vertical div.)

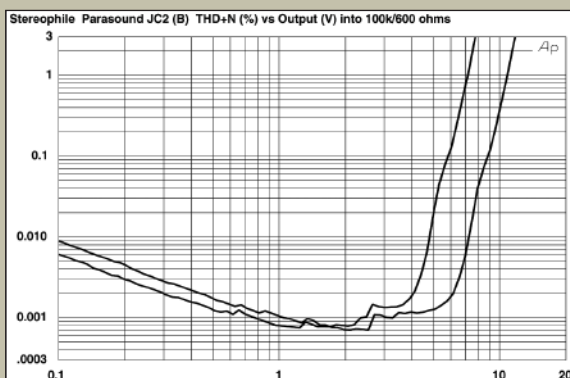


Fig.2 Parasound Halo JC 2, balanced distortion (%) vs 1kHz output level into (from bottom to top at 5V): 100k, 600 ohms.

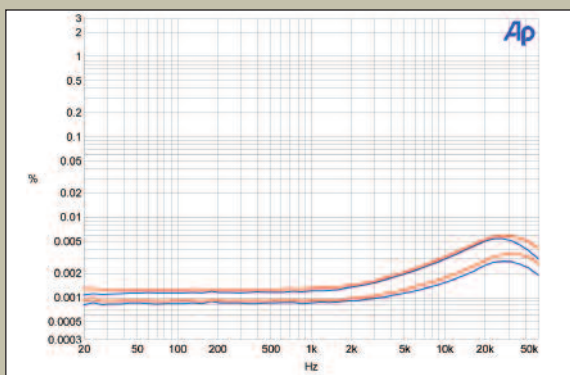


Fig.3 Parasound Halo JC 2, balanced distortion (%) vs frequency at 3.5V into: 200k ohms (bottom), 600 ohms (top). (Left channel blue, right channel red.)

the JC 2 is a smart if rather bulky-looking component. The front panel is dominated by a rectangular red logo at the top center that glows bright red when the amp is operated, and by a volume knob at the far right. An inset panel at the bottom contains an aluminum pushbutton at each end, these softly backlit in blue; between them runs a row of six blue LEDs, to indicate which source has been selected. The source-selector button is the one on the right; pushing it repeatedly scrolls through the inputs from left to right. The button on the left wakes the pre-

amp from Standby. A red LED flashes when the preamp is muted with the remote. There is no balance control as such, but two small knobs adjust the two channel gains by up to -10dB.

The rear panel is dominated by the two rows of input and output jacks, one row for each channel. There are six pairs of unbalanced inputs, two of which can be switched to balanced mode. As well as a pair of fixed-level Record Out RCAs, there are inverting and non-inverting main unbalanced outputs on RCAs and a pair of balanced outputs on XLRs, these wired

with pin 2 hot. The gold-plated RCA jacks are all sourced from Vampire, the XLRs from Neutrik.

Internally, vertical 3/8"-thick aluminum panels separate the chassis into three shielded regions. On the left is the inductor-smoothed power supply, based on an R-core transformer and fast, soft-recovery bridge rectifiers and diodes. There is a separate supply for the relay coils, triggers, LEDs, and control circuitry, this carried on a vertical board behind the front panel.

The audio circuitry, shielded from the power supply and control sections,

balanced output voltage (fig.2; the top trace at 5V output was taken into a very low 600 ohm load; the lower trace was taken into 100k ohms). Both traces slope down with increasing voltage below 2V, due to the measurement's being dominated by noise rather than distortion; a constant noise level becomes a smaller proportion of the signal as the level increases. The true distortion begins to rise out of the noise above 2.5V, which is eminently sensible engineering: this is close to where the partnering power amplifier will start to be driven into clipping. The JC 2 itself starts to clip in a "soft" manner, the beginnings of the flat top of the waveform having rounded edges. At our standard definition of *clipping* as being when the signal is suffering 1% THD, the Parasound preamp in balanced mode clips at 10.5V into 100k ohms and 7.2V into 600 ohms. The unbalanced figures were 10V and 6.2V, respectively.

I plotted how the THD+N percentage changes with frequency at a level of 3.5V, in order to be sure I was measuring distortion rather than noise. The results are shown in fig.3. Midrange THD+N into 100k ohms is between 0.0008% and 0.0009% (bottom pair of traces), with only a slight increase evident into 600 ohms (top traces). The THD does rise slightly in the top two audio octaves, this presumably due to the decreasing amount of corrective feedback available in this frequency region, but the absolute level of the distortion is very low.

The spectrum of the distortion into high impedances consists almost entirely of the second and third harmonics (fig.4), which would be subjectively benign at much high-

er levels than are offered by the Parasound preamp. The level of the second harmonic increases only slightly into 600 ohms (fig.5), but the third is higher in level, and some higher-order harmonics make an appearance, though the absolute levels are still negligible. There were some higher-order sidebands evident with the demanding HF intermodulation test (fig.6), but the difference component at 1kHz was very low in level.

Overall, the Parasound Halo JC 2 offers superb measured performance, as I have come to expect from John Curl designs. -John Atkinson

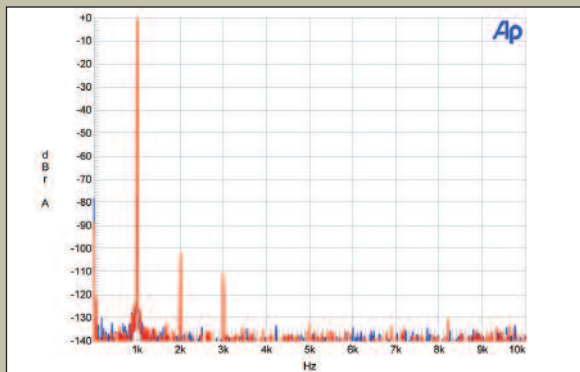


Fig.4 Parasound Halo JC 2, balanced spectrum of 1kHz sinewave, DC-10kHz, at 3.5V into 200k ohms (linear frequency scale; left channel blue, right channel red).

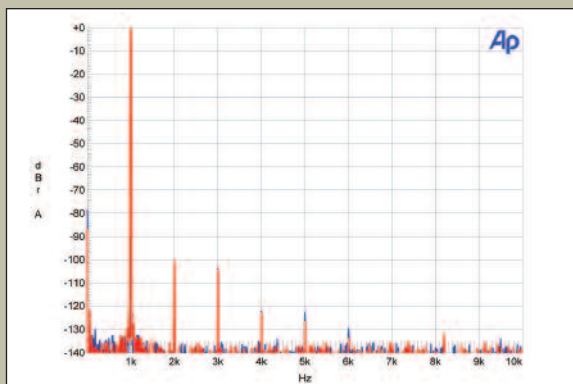


Fig.5 Parasound Halo JC 2, balanced spectrum of 1kHz sinewave, DC-10kHz, at 3.5V into 600 ohms (linear frequency scale; left channel blue, right channel red).

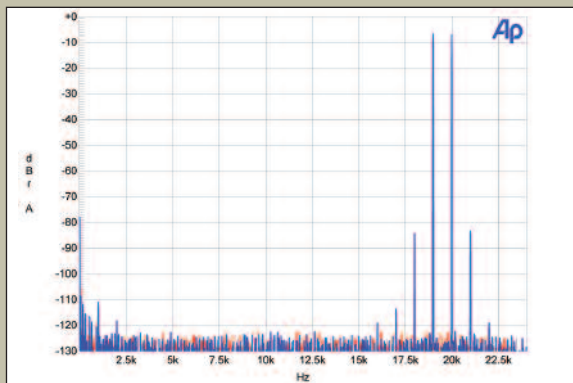


Fig.6 Parasound Halo JC 2, HF intermodulation spectrum, DC-24kHz, 19+20kHz at 3V peak into 200k ohms (linear frequency scale; left channel blue, right channel red).

is carried on a separate board for each channel, and is based on hand-matched complementary FETs, a feature of John Curl's designs for a quarter-century now. The circuit is direct-coupled, with no capacitors in the signal path, and with DC offset controlled by a servo circuit. Following the short signal path, the input jacks feed a relay driven by the input-select switch. A four-gang, motor-driven potentiometer adjusts volume and polarity inversion of the output signal is performed with gold-on-silver-contact relays.

The Halo JC 2's construction is to a high standard. The only disappointment was its rather flimsy and resonant top plate and its plastic remote.

Sound

I have never been one to believe in long break-in periods—or even break-in, period, for anything other than loudspeakers. But to my surprise, the Halo JC 2 definitely improved in sound quality during the first week it was plugged in. Not that this Parasound will ever be mistaken for a mellow-balanced component, but it took a few days of being left on for the initial brashness of its mid-treble to slowly recede until it was properly balanced with the midrange and top octave. Then I began to appreciate how much it did right and how little it did wrong.

Take soundstaging. Many audiophiles dismiss the ability of a component to render a believable soundstage as being a superficial indicator of its quality. But ever since I first heard a system that could paint a stable, accurate, *solid* picture of the recorded event, I have placed a high value on this aspect of sound reproduction—as long as it is not achieved at the expense of similarly great performance elsewhere.

Kal Rubinson recently gave me a copy of Marianne Thorsen's performance of the Mozart Violin Concertos 3–5, with Oyvind Grimse conducting the Trondheime Solistene (SACD, 2L 2L38SACD), which he listed as one of his "Records To Die For" in the Febru-

ary issue. Recorded in a small church, the sound is quite close, but the Halo JC 2's ability to resolve spatial information allowed me to detect the subtle dome



The JC 2's interior is divided into three by sheet aluminum partitions.

of ambience surrounding the musicians, especially in Thorsen's unaccompanied cadenza in the *Adagio* of Concerto 3. The balance was somewhat light in weight, but there was enough lower-midrange energy to flesh out the delicate scoring.

THE HALO JC 2'S **ABILITY** TO REPRODUCE SPACE WAS EVEN **EVIDENT ON MONOPHONIC RECORDINGS.**

Compared with my long-term reference preamp, the Mark Levinson No.380S—also a soundstaging champ—the JC 2's lighter balance allowed more of the recorded detail to be resolved without thrusting it forward at me. On the 96kHz-sampled version of Neil Young's *Chrome Dreams II* (DVD/CD twofer package, Reprise 340220-2), the Parasound's superb definition on the drums and bass guitar was highlighted by the hints of the recording studio acoustic illuminated by the drums. The hushed, luminous backwash of strings that presages the entrance of Hilary Hahn's solo violin in Vaughan Williams' *The Lark Ascending* (SACD,

Deutsche Grammophon 28947-48732-6) was spread from far left to far right, yet the central image of Hahn's violin remained small and vulnerable, stable, and free from bloat.

During the review period, I was working on the remastering of *Stereophile's* latest CD release, a reissue of Robert Silverman performing the two Rachmaninoff piano sonatas (STPH019-2). When I played the 16-bit WAV master files from my Slim Devices Transporter, the transparency of the JC 2 allowed me to hear slight low-level glitches that I needed to clean up in the mastering. But to my surprise, I heard a very slight improvement in the sound's tangibility when my WiFi network was down for a while for updating and I used a hardwired Ethernet connection

from my Mac mini to the Transporter. But I shall say no more—that way lies madness.

The Halo JC 2's ability to reproduce space was even evident on monophonic recordings. I bought the reissue of *Miles in Berlin*, the first live recording of the

great 1960s Miles Davis quintet (CD, Columbia/Legacy 2796-93594-2), back when it was released in 2005. But I hadn't played it much, both because it was mono and because I found off-putting the breakneck tempo with which bass player Ron Carter begins "So What." But giving the disc a second chance one night when I had the Magico V3 loudspeakers set up with the JC 2 and JC 1s, I was surprised to be able to hear deep into the mono image, the instruments sufficiently separated in space that I could now start to make sense of the music-making during this tune, and begin to comprehend the interplay of Carter, drummer Tony

Williams, and pianist Herbie Hancock. In "Stella by Starlight," I could hear Miles backing away from the mike during his solo to emphasize the dynamics, and tenor-sax player Wayne Shorter approaching the mike to take his solo in the same song.

Yes, the Parasound could do space. But the first aspect of the Halo JC 2 that I noticed was the definition and the weight of its low frequencies. It grabbed my attention when I was finishing up my review of the KEF Reference 207/2 loudspeaker (February 2008), and the battery of my iPod had given up just as I was leaving the office for the night. "Borrow mine," said Stephen Mejias—a generous gesture, considering that listening to someone else's iPod is like listening into his soul.

"Okay." After first wondering at the eclectic nature of Stephen's music—Jeff Buckley, Neil Young, and Marc Bolan rubbing shoulders with *son* star Henry Fiol—I set it to Shuffle and set off for the bus stop. On came a track that was too interesting to be techno, too musical to be house, too danceable to be ambient or trance. (I was later told that it was "chill-out" music.) An extraordinarily low-frequency bass line rode along beneath out-of-my-head sound effects and sampled robotic voices: "I love this music... I love this philosophy..." It was "Nightwalker," a track from DJ Trentemøller's 2006 album *The Last Resort* (Pokerflat PFRCD18). The next day, I bullied Stephen into lending me the CD, and the moment I got home I played it, with the Halo JC 2 feeding the Musical Fidelity 550k Supercharger monoblocks the juice they needed to kick the 4 ohm load of each KEF R207/2 with 850W. I turned up the volume to "11" and sat in my listening chair.

Awesome!

The low frequencies didn't boom. Nor were they noticeably distorted. And even at this extreme level, there was no grain, no stridency. But I could feel the walls flexing. I could hear the windows rattling in their sashes. I could see the dust rising from the bookshelves. Something in the test lab next door fell to the floor. Smokey, the last surviving member

of our Santa Fe menagerie, ran from the room in feline terror. My son came running downstairs to ask if we were having an earthquake.

Awesome!!!

years ago. But I also had on hand the Musical Fidelity 550k Superchargers that Mikey Fremer reviewed last September, and the Boulder 860 stereo amplifier that Fred Kaplan reviewed in

THE **JC 2** TOOK THIS ABILITY OF THE JC 1s FURTHER ALONG THE ROAD TO THE **SYSTEM OPENING A CLEAN, TRANSPARENT, RECTANGULAR WINDOW ON THE ORIGINAL ACOUSTIC** OF THE RECORDING.

Suitable amplifiers

I did much of my auditioning of the Halo JC 2 with the Mark Levinson No.33H monoblocks I purchased 10

December. And Parasound's Richard Schram had sent along a pair of Halo JC 1 monoblocks for me to use with the JC 2.

Depending on the speakers, the JC 2's sonic personality worked better with the softer, warmer amplifiers, such as the Boulder and the Levinson monoblocks. When all things are considered, transparency is a two-edged sword! Like the Halo JC 2, the Musical Fidelity Superchargers have tight, powerful low frequencies; the pairing worked well with the big-hearted, ported KEF R207/2s. But with the sealed-box Magico V3s, the combination of Parasound and Superchargers was just too lean, even though the bass definition was to die for. These speakers worked best with the Mark Levinson No.380S and No.33Hs. By contrast, the Levinsons sounded bloated and somewhat slow with the KEFs. The best overall balance I achieved with the Sonus Faber Cremona Elipsa speakers was with the JC 2 driving the Boulder 860. Yes, the lows still lacked ultimate definition with the Boulder, but this was compensated for by the huge soundstage and silky highs.

ASSOCIATED EQUIPMENT

DIGITAL SOURCES Ayre C-5xe, Pioneer DV-578A universal players; Mark Levinson No.30.6, Benchmark DAC 1 USB, Bel Canto e.one DAC 3 D/A converters; Logitech (Slim Devices) Transporter network music player with Apple Mac mini running OSX for media storage.

PREAMPLIFIERS Mark Levinson No.380S, Ayre K-5xe.

POWER AMPLIFIERS Parasound Halo JC 1, Musical Fidelity 550k Supercharger, Mark Levinson No.33H monoblocks; Boulder 860.

LOUDSPEAKERS Sonus Faber Cremona Elipsa, KEF Reference 207/2, PSB Synchrony 1, Magico V3, Monitor Audio Gold Signature GS10.

CABLES Digital: Kimber Illuminations Orchid AES/EBU, AudioQuest OptiLink-5 S/PDIF. Interconnect (balanced): AudioQuest Cheetah, Ayre Signature Series. Speaker: AudioQuest Kilimanjaro. AC: PS Audio Lab, Shunyata Research Anaconda Helix Alpha, manufacturers' own.

ACCESSORIES Target TT-5 equipment racks; Ayre Myrtle Blocks; ASC Tube Traps, RPG Abffusor panels; PS Audio Power Plant 300 at 90Hz (preamps only), Audio Power Industries 116 Mk.II & PE-1, APC S-15 AC line conditioners (not power amps). AC power comes from two dedicated 20A circuits, each just 6' from the breaker box, a power amplifier plugged into each.

—John Atkinson

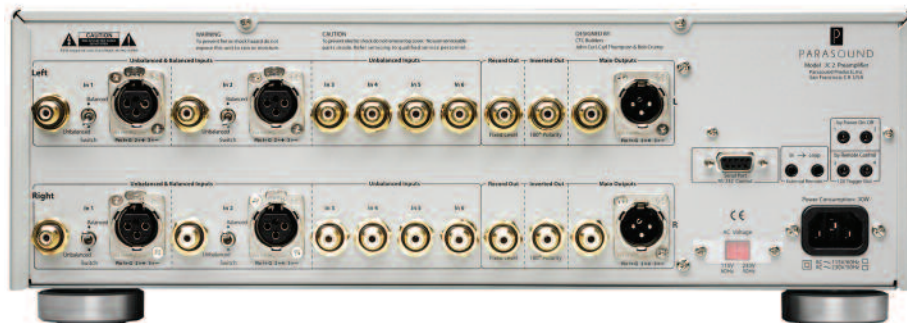
The Halo JC 1

With Parasound's own Halo JC 1 monos (\$7000/pair), once they'd broken in, I was reminded of Mikey's comment in his February 2003 review: "The JC 1's ability to separate the vocal from the subtle artificial reverb, both in time and layered behind in space, was a revelation. And it was done without spotlighting or added bright-

ness. The overall lack of smear helped create an impressively coherent, transparent, and detailed soundstage, with the kind of air and reverberant presentation I usually associate with tubes.” The JC 2 took this ability of the JC 1s further along the road to the system opening a clean, transparent, rectangular window on the original acoustic of the recording.

Although *Live at Merkin Hall* (CD, Stereophile STPH018-2), my ultimate recorded statement of Bob Reina’s free-jazz ensemble Attention Screen, is multiked (see www.stereophile.com/musicrecordings/907att), over the past 18 months I have also recorded the band with just two mikes in a variety of New York jazz clubs. Though the musical balance is rarely well served, there is something magical about the sound of recordings made with such a purist technique. Listening to the original 24-bit/88.2kHz files of the club recordings with the Parasound Halo preamp and power amps driving the Magico V3 speakers, there was an almost holographic sense of being at the original event, so clearly could the positions of the musicians be discerned within the space of each club—whether the deep recess of the Knitting Factory’s Tap Room, or the drier but paradoxically more supportive acoustic of the back room at Otto’s Shrunken Head. Going back to the Merkin Hall concert, and again playing the 24/88.2 masters on the same system, I wasn’t displeased with the mix. The individual sounds of the instruments were better served than with the purist recordings, and the hall’s rich ambience was coherent. But the Parasound pairing revealed how close I was sailing to the edge with the multichannel mix, how close I was to the seams in the illusion starting to show.

This ability to let the listener hear deep into the recesses of a recording’s genesis was not restricted to purist, private-label recordings. I recently picked up the reissue of a recording I played to death when it was first released in 1982, *La Folia de la Spagna*, from Atri-



The two rows of input/output jacks emphasize the dual-mono nature of the audio circuitry.

um Musicae de Madrid under Gregorio Paniagua (CD, Harmonia Mundi HMA1951050). As well as the usual settings of this baroque-era “hit song” for traditional broken consorts of various kinds, there are such joys as a version of the tune “performed” on control-line model airplanes accompanied

Summing up

I had a quibble with the Halo JC 2’s plastic remote, which, with its concave bottom and the weight of the batteries all at one end, proved adept at falling off whatever I placed it on. The remote’s Volume Up and Down buttons were also a bit trigger-happy; I often over- or undershot the level

PARASOUND AND JOHN CURL GOT IT VERY RIGHT. AND AT A PRICE THAT WILL BE WITHIN THE REACH OF REAL-WORLD AUDIOPHILES.

by tabla, and even a clarinet, punctuated by car horn, unable to resist wandering off into *Pink Panther* territory. There are starter-pistol shots and whipcracks to test a system’s dynamics, and such subtleties of soundstaging and acoustic as a close-miked thumb piano, a distantly miked hammered dulcimer, an outdoors ensemble of two-stroke leaf blowers, and a drive-by of what sounds like an antique Land Rover, complete with honking horn—in all, a sonic smorgasbord that tests to its limits a system’s appetite for punishment. The combination of Parasound preamp and power amps unveiled the depths of the soundstage, maximally differentiated every quirky tone color, and dispatched the dynamics without breaking a sweat. And set to run with its maximum output-stage bias current, the Halo JC 1s kept my listening room nicely warm through the usual holiday cold snap!

I wanted, until I became accustomed to the necessary technique: a succession of quick jabs rather than a prolonged press.

But when, in a review of a high-end component, a writer is reduced to criticizing the *remote control*, for goodness’ sake, it’s a sign that everything else is pretty much beyond criticism. No, you don’t want to pair the Halo JC 2 with lean-sounding power amplifiers or loudspeakers, but otherwise, Sam Tellig called it in his column in the December 2007 issue (p.24–27): “The JC 2 allows music to emerge intact—with body, bloom, and dynamics, with definition and detail—from an utterly silent background.... [T]he JC 2 excels at the reproduction of space.” Nothing in my auditioning persuaded me that the inestimable Mr. T. had gotten it wrong. In fact, he—and Parasound and John Curl—got it very right. And at a price that will be within the reach of real-world audiophiles.

Awesome! ■