

Inside Gear Guide:

- Harman/Kardon AVR 325 A/V Receiver
- Samsung SIR-TS160, Zenith HD-SAT520, and Sony SAT-HD200 HD DirecTV Tuners

**50 watts. 7.1 channels. \$899.**

Just a few of the numbers to watch when you check out the **AVR 325**.

*by Mark Fleischmann*

# Number Crunching



harman/kardon AVR 325

LSI  
DIGITAL  
SERVO MOTOR  
AVR 325  
A/BUS

**Like an honest**

sage wandering in a wilder-

ness of liars, Harman/Kardon stead-

fastly refuses to hype their power specs.

Sure, like many other manufacturers, the com-

pany offers a 100-watt-times-seven receiver, but that

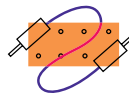
model lists for \$1,999 and isn't the one that concerns us

here. The AVR 325 is rated at a mere 50 watts times seven. Hey,

you! Stop. Who said you could turn the page? Before you dismiss this

\$899 receiver as a decadent wimp, stop to consider that Harman/Kardon

arrived at this power rating by driving all seven channels at once. Scan similarly



## Harman/Kardon AVR 325 A/V Receiver

priced models' spec sheets, and you'd be surprised to find how often the phrase "all channels driven" is mysteriously absent. While you're at it, look for the full frequency response of 20 hertz to 20 kilohertz, as Harman/Kardon specifies. Occasionally, you might find a few competitors slip by with a less-demanding 40 Hz at the low end.

If I could condense everything I know about receivers down to four words of advice, they would

that 5.1 channels are plenty for most home theaters. Still, even I must admit that adding two rear speakers to the mix will allow your system to cover a large, wide space more evenly. Besides, you could always trade the extra channels for higher volume and better dynamics by running a 7.1-channel model in 5.1 mode, without the rear speakers. My favorite number is 5.2. Please forgive the digression, but, once you've heard your system with two subwoofers, you'll never want to go back.

Not afraid of the merry-go-round of fashion, I connected the AVR 325 to seven Paradigm Reference Studio/20 speakers, as well as to two subwoofers: Paradigm's

12-inch PW-2200 and Pinnacle's 8-inch Baby Boomer. If you're keeping score, that adds up to 7.2 channels, and I pulled a few Dolby EX and DTS ES titles off of

the shelf to take full advantage of them. Unfortunately, I couldn't supplement my own discs with anything current from Blockbuster. Whether the EX and ES formats aren't penetrating quickly, EX- and ES-encoded titles aren't properly labeled, or luck just ran against me that day, I don't know.

Setting up the AVR 325 in a rough-and-ready way doesn't take long, thanks to Harman/Kardon's patented and trademarked EzSet system (the legal department must have put in almost as many hours

as the research-and-development department did). At the tip of the remote, there's a small microphone that senses the customary pink-noise test tones and sends level-setting commands back to the receiver, which means that you can get along without an SPL meter, although it wouldn't hurt to use a meter to double-check and fine-tune. You might find, as I did, that EzSet and your meter come up with slightly different settings.

As I set up the receiver, I tripped over one of Harman/Kardon's user conveniences. Every time I tried to assign the digital coax-2 jack to the video-2 input, the receiver switched to the analog audio inputs. At first, I thought the menu was failing to accept the setting, but it turns out that the video-2 input has a unique logic circuit that switches to coax-2 when a digital signal is present and defaults to the analog jacks when there's no digital signal. This will come in handy with certain HDTV cable boxes that output digital audio for some channels and analog audio for others. (Until recently, I had such a box, but I've upgraded to one that feeds both digital and analog soundtracks through the coax outputs.)

I only had one gripe with the AVR 325, and that concerned its remote. It has both learning capability and preprogrammed codes, but, with all of those tiny buttons, using it to operate an entire system would be a mixed blessing. The OSD button that activates the onscreen menu is especially hard to find. On the positive side, Harman/Kardon

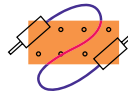


**A.** The AVR 325 is a surround lover's receiver, offering Dolby EX, DTS ES, Dolby Pro Logic II, and LOGIC7.

**B.** The back panel sports two component video inputs, an eight-channel analog audio input, an RS-232 port, and assignable rear-channel amps.

be these: Buy by the pound. A heavier black box is more likely to house a beefier power supply, and that suggests greater dynamic prowess, among other benefits. The AVR 325 weighs in at a healthy 40 pounds; that's about 13 pounds heavier than Harman/Kardon's next model down, the 5.1-channel AVR 225 (\$549), and only 4 pounds lighter than the next model up, the 7.1-channel AVR 525 (\$1,199).

While we're talking about numbers, let me repeat my conviction



# Harman/Kardon AVR 325 A/V Receiver

provides direct one-key access to the Dolby, DTS, LOGIC7, and stereo modes.

Harman/Kardon allows advanced users to set the sub's crossover numerically, with separate settings for the front, center, side, and rear channels. The available settings are 40, 60, 80, 100, 120, and 200 Hz. You also have a choice of small (which defaults to 100 Hz), large (full-range), or none. For even more-advanced users, Harman/Kardon allows each input to receive a different crossover and each surround mode to receive separate level and delay settings. Available surround modes include Dolby Digital 5.1, Dolby EX, DTS, DTS ES Matrix and Discrete, DTS Neo:6 (with movie and music modes), Dolby Pro Logic II (with movie, music, and Pro Logic emulation modes), 7.1-channel LOGIC7, two-channel VMAX, and five- and seven-channel stereo modes.

Harman/Kardon's LOGIC7 mode is noteworthy. Like DPLII, it sounds relatively neutral, preserving some of a stereo mix's original feel. Its three modes include

a movie mode that derives 7.1 channels of output from a two-channel Dolby Surround signal; a music mode that expands CDs and other stereo sources to 7.1 channels; and a second music

mode, labeled enhance, that operates only when you set up the receiver to power 5.1 channels. According to Harman/Kardon, the enhance mode adds additional bass enhancement that circulates low frequencies in the 40-to-120-Hz

range to the front and surround speakers to deliver a less-localized soundstage that sounds broader and wider than when the subwoofer is the sole source of bass energy. Presumably, you'd only get the full benefit if you ran your front and surround speakers full-range; otherwise, your sub's crossover would limit the effect.

The temptation to blast all seven channels in LOGIC7 with a fat rhythm section was almost overwhelming; so, after some desultory break-in listening, I fed an Integra DPS-8.3 combi player with Neil Young's *Harvest* DVD-Audio, ran the speakers full-range, and cranked up "Heart of Gold." Oops, the rear surrounds were silent: I'd forgotten that DVD-Audio is a 5.1-channel format. I switched to the two-channel Dolby Surround soundtrack and used LOGIC7 to expand it to cover all seven speakers. The receiver achieved a cruising altitude of 75 decibels at the -20 point of its volume range, which runs from -80 to +4, and the sound was nice and meaty, with some compression but no nastiness.

When I switched the subs and their crossovers back on, the same volume setting got 85 dB out of 5.2 channels on Yes' "Heart of the Sunrise," from the DVD-Audio version of *Fragile*. As I expected, the tonal balance turned bright: The disc itself sounds that way, and the receiver presented it truthfully.

Knowing that my faithful readers will bay and howl for 7-point anything, I turned to the latest

DTS test disc, which includes musical selections by Sheila Nicholls ("Faith") and Insane Clown Posse ("Juggalo Homies") in DTS ES Discrete. In the former track, mandolins and chorus vocals came out of the rear channels; in the latter, guitar. This was my first experience with music in seven discrete channels, but I remained unconvinced. I loved the rappers' clown makeup, though. I think Eminem should try that.

At this point, my cat came into the room meowing, so I took a break and brushed him. Unfortunately, he only purrs in mono. I briefly considered getting another half-dozen cats, plus a couple of mountain lions for the bass channels, but then I thought about the litter box and dismissed the idea. Even with clumping cat litter, I'd have to say no.

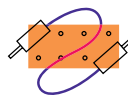
I spent an evening watching the director's cut of *The Lord of the Rings: The Fellowship of the Ring* in DTS ES Discrete, which revealed a more-mature approach to rear effects. At first, most of the effects were subtle extensions of the side channels. Not until 20 minutes into the movie did the first distinct rear effect crop up, when the dragon's head part of the Hobbiton-fireworks scene whooshed toward the back. As the tension level rose, succeeding scenes made more and more use of the rear channels, particularly during the panning effects at the



C. The remote is both a learning and preprogrammed model with lots of tiny buttons, several of which provide direct access to the Dolby, DTS, LOGIC7, and stereo modes.

## HIGHLIGHTS

- EzSet remote automatically calibrates volume levels
- Better dynamics than you'd expect from a 50-watts-times-seven receiver
- A fairly neutral version of the Harman/Kardon sound



# Harman/Kardon AVR 325 A/V Receiver

61- and 73-minute marks when various demons attack Frodo. Peter Jackson's epic is a textbook example of how to use rear effects; I never felt that they were anything less than appropriate.

In the opening scene of *E.T.* (the 2002 version), for the most part, the rear channels just provided a little more fullness to the

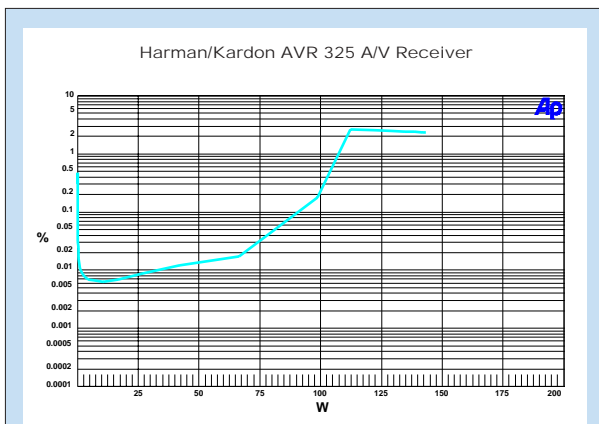
orchestra and main surround effects. Only when the extraterrestrial spaceship lifted off did the Dolby EX track provide a discernible pan from front to side to rear. For added hilarity, I played the soundtrack in French.

The highlight of the Dolby Digital 5.1 *Diana Krall: Live in Paris* DVD was "Cry Me a River," with the velvet smoothness of the jazz band and string orchestra emerging against an inky background of absolute silence. No trace of noise haloed Krall's piano, her voice, or the strings. Having learned to respect the AVR 325's neutrality, I played through the performances of Tchaikovsky's first and Rachmaninoff's third piano concertos in *The Cliburn: Playing on the Edge*, also in Dolby Digital 5.1. The AVR 325 didn't push the dynamic envelope quite as far as my reference piece, the Rotel RSX-106, does; but then, the Rotel costs more than twice as much (and weighs an additional 5 pounds).

Of course, the majority of music isn't recorded in surround but in stereo, and I logged quite a few hours of two-channel listening with this receiver simply because it sounded so natural and alluring. Richard Thompson's new CD *The Old Kit Bag* turned the old master's impassioned voice, eloquent guitar, and ace rhythm section into a kaleidoscope of textures that shifted with each track. The recording was so good that I hated to play it in any of the surround-enhancement modes,

human voice. We know what it's supposed to sound like, and we instinctively react to the slightest unintentional coloration. Seven voices—two female and five male—form the folk-singing chorus of Blue Murder's *No One Stands Alone*, and the AVR 325 nailed them with just the right balance between vocal separation and blending. Each voice's timbre, the earthy harmonies, and the modest chiaroscuro of reverb were in perfect proportion. This album makes my heart run riot: I can never listen to it without getting sucker-punched into a blissful emotional state. Thank God it's a stereo CD, not some weird multi-channel mix that places each voice in a different speaker. By the time I got through it, I needed no more convincing that the AVR 325 could do no wrong with a well-recorded piece of breathtaking music.

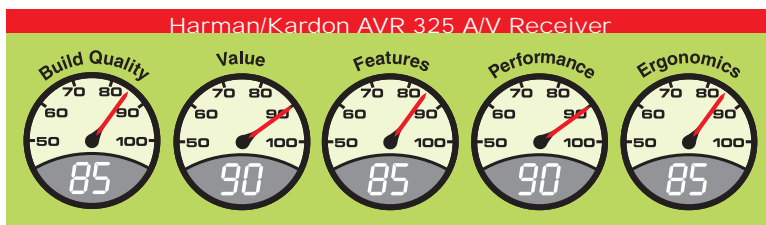
With the AVR 325, Harman/Kardon has come up with a moderately priced receiver for the

**HT Labs Measures: Harman/Kardon AVR 325 A/V Receiver**

This graph shows that the AVR 325's left channel, from CD input to speaker output with two channels driving 8-ohm loads, reaches 0.1% distortion at 90.4 watts and 1% distortion at 107.2 watts. Into 4 ohms, the amplifier reaches 0.1% distortion at 135.2 watts and 1% distortion at 156.9 watts. With five channels driving 8-ohm loads, the amplifier reaches 0.1% distortion at 73.8 watts and 1% distortion at 84.5 watts.


The analog frequency response measures  $-0.15$  decibels at 20 hertz and  $-0.09$  dB at 20 kilohertz. Looking at a broader bandwidth, the response measures  $-0.51$  dB at 10 Hz and  $-0.49$  dB at 50 kHz. In modes that involve signal processing, the response is  $-0.45$  dB at 10 Hz,  $+0.16$  dB at 20 Hz,  $-0.48$  dB at 20 kHz, and  $-22.56$  dB at 50 kHz. Response from the multichannel input to the speaker output measures  $-0.37$  dB at 10 Hz,  $-0.11$  dB at 20 Hz,  $-0.10$  dB at 20 kHz, and  $-0.51$  dB at 50 kHz. THD+N from the amplifier was less than 0.012% at 1 kHz when driving 2.83 volts into an 8-ohm load. Crosstalk at 1 kHz driving 2.83 volts into an 8-ohm load was  $-84.89$  dB left to right and  $-87.56$  dB right to left. The signal-to-noise ratio with 2.83 volts driving an 8-ohm load from 10 Hz to 24 kHz with "A" weighting was  $-98.39$  dBra.

From the Dolby Digital input to the loudspeaker output, the left channel measures  $-0.28$  dB at 20 Hz and  $-0.30$  dB at 20 kHz. The center channel measures  $-0.24$  dB at 20 Hz and  $-0.27$  dB at 20 kHz, and the left surround channel measures  $-0.23$  dB at 20 Hz and  $-0.28$  dB at 20 kHz. From the Dolby Digital input to the line-level output, the LFE channel is  $+0.09$  dB at 20 Hz when referenced to the level at 40 Hz and reaches the upper 3-dB down point at 82 Hz and the upper 6-dB down point at 102 Hz.—AJ



which made some of the subtle, phasey guitar notes sound too prominent.

The toughest test for any piece of audio gear is the

surround sophisticate. I wouldn't recommend it for a very large room; and, for the home theater buff who's just getting started, the learning curve may prove to be a bit steep. If you take the trouble to set it up right, though, it will pay healthy dividends on an investment of well under \$1,000.   
\* Mark Fleischmann is the author of *Practical Home Theater*, now in its second edition, available through [www.practicalhometheater.com](http://www.practicalhometheater.com) (or 800/839-8640).

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