

in the lab

	DENON DHT-1000DV	PANASONIC SC-ST1	SHARP SD-AT50DV	YAMAHA DVX-S100
DVD-VIDEO PERFORMANCE (test patterns from various test DVDs using each player's composite-video outputs)				
Setup level	0 IRE	+7.5/0 IRE (switchable)	+7.5/0 IRE (switchable)	+7.5/0 IRE (switchable)
100%-white-level error	+1 IRE	+2 IRE	+1 IRE	+3 IRE
Differential phase	2°	1°	2°	1°
Differential gain	+3 IRE	0 IRE	+1 IRE	0 IRE
Horizontal luminance frequency response (re 1 MHz)				
at 4 MHz	+0.17 dB	+0.17 dB	-0.26 dB	-0.9 dB
at 5 MHz	+0.26 dB	+0.09 dB	-0.92 dB	-0.54 dB
at 6 MHz	-0.92 dB	+0.83 dB	-1.5 dB	-2.5 dB
at 6.75 MHz (DVD limit)	-1.2 dB	+0.98 dB	-1.5 dB	-2.9 dB
Equivalent onscreen resolution	540 lines	540 lines	540 lines	540 lines
In-player letterboxing	poor	fair	fair	fair
SPEAKER/SYSTEM AUDIO PERFORMANCE				
Frequency response (at 2 meters)				
front left/right	100 Hz to 20 kHz ±5.2 dB	270 Hz to 15.2 kHz ±7.5 dB	140 Hz to 16 kHz ±6.2 dB	205 Hz to 12.4 kHz ±5.2 dB
center	300 Hz to 4.5 kHz ±2.8 dB	290 Hz to 5.7 kHz ±2.9 dB	140 Hz to 17.2 kHz ±5.8 dB	184 Hz to 10.7 kHz ±4.3 dB
surround	100 Hz to 20 kHz ±3.8 dB	270 Hz to 15.2 kHz ±7.7 dB	140 Hz to 15.4 kHz ±6.4 dB	205 Hz to 12.1 kHz ±4.7 dB
subwoofer	45 to 78 Hz ±1.8 dB	43 to 135 Hz ±2.2 dB	45 to 85 Hz ±2.4 dB	38 to 60 Hz ±2.2 dB
Bass limits (lowest frequency and maximum SPL with limit of 10% distortion at 2 meters in a large room)				
left/right front and surround	80 Hz at 71 dB SPL	200 Hz at 82 dB SPL	200 Hz at 82 dB SPL	160 Hz at 83 dB SPL
center	80 Hz at 75 dB SPL	200 Hz at 78 dB SPL	200 Hz at 82 dB SPL	160 Hz at 83 dB SPL
subwoofer	40 Hz at 81 dB SPL	40 Hz at 85 dB SPL	32 Hz at 71 dB SPL	32 Hz at 87 dB SPL
average sound-pressure level (SPL)	98 dB from 40 to 62 Hz	92 dB from 40 to 62 Hz	89 dB from 32 to 62 Hz	95 dB from 32 to 62 Hz
maximum SPL	105 dB at 62 Hz	98 dB at 62 Hz	101 dB at 62 Hz	99 dB at 62 Hz

Aside from the usual fair to poor in-player letterboxing, which is irrelevant if you use a widescreen TV, all four of these systems had fine video measurements. The most important aspect of their video behavior is progressive-scan performance, which must be evaluated by eye.

The response curves in the graphs are weighted to reflect how sound arrives at a listener's ears with normal speaker placement. Since all of the systems use identical satellite speakers for the left/right front and surround positions, and the Sharp uses the same speaker for the center channel as well, the differences in the satellite curves in each graph mainly represent the effects of our weighting and the measurement angles used. Subwoofer bass limits were measured with each one set to maximum bandwidth and placed in the optimal corner of a 7,500-cubic-foot

room. In a smaller room users can expect 2 to 3 Hz deeper extension and up to 3 dB higher sound-pressure level (SPL).

Denon's front L/R/surround satellite had a flat response from 150 Hz to 4 kHz followed by a 3-dB dip between 4 and 8 kHz and accentuated extreme highs. The center speaker had limited bandwidth (often a good thing for center speakers), with excellent directivity and reasonably smooth response. The subwoofer showed real muscle with an SPL of 105 dB at 62 Hz, but its output fell quickly at lower frequencies.

The Panasonic left/right satellite had limited low-frequency capability and ragged overall response in both the front and surround positions. The center speaker had limited bandwidth and a fair degree of lobing off-axis, making for a narrow sweet spot. The subwoofer had better response

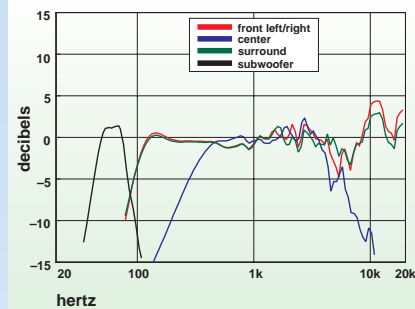
in the lower midrange than the others in this group, but its bass extension and low-end output capability were quite limited.

The Sharp satellite had a 6-dB, two-octave-wide elevation centered at 2.5 kHz, and weak response below the midrange. Directivity was reasonably well controlled, but output above 1.5 kHz fell quickly off-axis. The sub's crossover slope was a steep 24 dB per octave, and low-bass extension and output were limited.

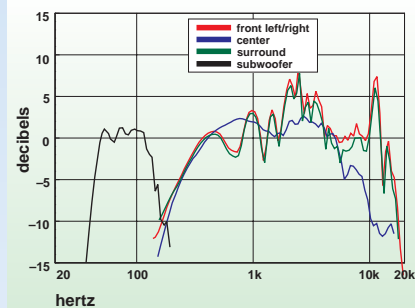
The Yamaha L/R satellite had well-controlled directivity, restricted low-frequency output, and rapidly falling highs at wider radiating angles. The center speaker had a curious 8-dB peak at 2.2 kHz that flattened significantly off-axis, but frequencies above 4 kHz were also sharply curtailed.

— David Ranada and Tom Nousaine

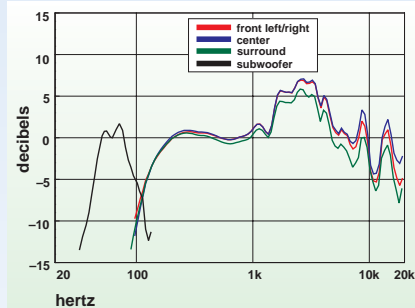
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