# harman/kardon<sup>®</sup> PRESS RELEASE

## HARMAN KARDON INTRODUCES FLAGSHIP AVR 8500 AUDIO/VIDEO RECEIVER

Ultimate Performance Receiver Includes Built-In MP3 Decoding, Automatic Surround Sound Calibration, THX Surround EX<sup>™</sup> Processing and a Wealth of Advanced Features and Technologies

**Château du Loir (France), August 2002**—Harman Kardon announces the introduction of its top-of-the-line AVR 8500 audio/video receiver. This ultimate performance product incorporates the most extensive complement of advanced features and technologies ever offered in an A/V receiver. The THX<sup>®</sup> Ultra-certified AVR 8500 includes built-in MP3 decoding, THX Surround EX, Logic 7<sup>®</sup> enhanced surround-sound technology, Dolby\* Digital, Dolby Pro Logic II\*, DTS-ES<sup>®</sup> Discrete, DTS-ES Matrix 6.1-channel processing and DTS Neo:6<sup>®</sup> 192kHz/24-bit audio capability, VMAx<sup>®</sup> 3D Virtual Theater audio processing and a host of additional refinements. The Harman Kardon AVR 8500 will be available in September 2002.

Further enhancing its performance and functionality, the AVR 8500 is supplied with Harman Kardon's exclusive, patented **IIIIEzSet™** remote, the first remote that automatically analyzes and sets speaker levels for multichannel-system calibration. The AVR 8500 joins Harman Kardon's high-performance A/V receiver lineup, which also includes the AVR 7500 (available in October 2002), AVR 5500, AVR 4500, AVR 3550 and AVR 2550.

Carsten Olesen, Harman Kardon Brand Director, points out: "The Harman Kardon AVR 8500 significantly advances the state of the art in audio/video receivers. It offers an unprecedented combination of features, with flexibility and connectivity to accommodate the widest variety of digital and analog program sources, yet is designed for total ease of operation. Most important, the AVR 8500 provides unsurpassed sound quality, combining the very latest surround-sound technologies with Harman Kardon's time-proven high-current, ultrawide-bandwidth amplifier design to deliver truly extraordinary sonic performance."

## The Ultimate in Surround Sound Realism

The Harman Kardon AVR 8500 takes home theater surround-sound realism to new heights, thanks to its utilization of the most advanced multichannel audio decoding technologies and processing techniques. The AVR 8500 features 192kHz/24-bit audio capability using a pair of the latest-generation Crystal<sup>®</sup> DSP

– more –

processors and high-resolution, Analog Devices DAC's for the highest quality audio playback available today. As an added benefit, feeding the digital output of most CD players (with lower than 24-bit/192kHz resolution) to the AVR 8500 will provide dramatically improved sound quality.

The AVR 8500 delivers sonic performance far beyond the conventional 5.1channel multichannel home theater standard. The AVR 8500 features THX Surround EX decoding, which provides an additional surround back channel to deliver more precise surround sound localization with a more seamless and coherent rear soundfield when reproducing THX Surround EX-encoded DVD discs. In addition, the AVR 8500 includes DTS ES-Discrete decoding for discrete 6.1-channel playback of DTS-ES discrete-encoded discs, plus DTS ES-Matrix decoding that derives an additional surround back channel from DTS ES-Matrix 5.1-encoded discs to create a 6.1-channel sonic environment. The AVR 8500 also offers the highest quality Dolby Digital reproduction, along with the latest Dolby Pro Logic II processing, plus HDCD<sup>®</sup> processing for the highest quality reproduction of HDCD-encoded and standard CDs.

The Harman Kardon AVR 8500 features two additional breakthrough audio technologies, Logic 7 and VMAx. Available exclusively in A/V receivers from Harman Kardon, Logic 7 is a sophisticated DSP system that provides multichannel reproduction from matrix-encoded and two-channel stereo recordings that is superior to what was previously attainable; it is available in the AVR 8500 in four configurations.

Both the Logic 7 Cinema and Movie modes are available for either seven-mainchannel (Logic 7/7.1) or five-main-channel (Logic 7/5.1) output, depending on the speaker configuration in use. Logic 7's Music mode reproduces two-channel recordings through a multichannel speaker system with increased imaging accuracy, separation and directionality, along with a greater sense of envelopment. The Logic 7 Cinema Mode improves playback of any matrix surround-encoded material, for a wider front soundstage and smoother and more accurate pans between front and rear.

The AVR 8500 also incorporates patented VMAx Near and Far Mode Virtual Theater audio processing, a digital signal-processing method of producing realistic, high-fidelity, three-dimensional surround-sound audio in 360 degrees using just two loudspeakers. Thanks to its proprietary, extremely sophisticated processing algorithms and vast processing power, VMAx enables listeners to enjoy a truly enveloping sonic presentation even when only two loudspeakers are in use.

VMAx accepts either discrete or matrix-encoded multichannel output and processes them into two channels in such a way that listeners believe they are listening to sounds from five speakers – left, center and right front and left and right surround. Conventional two-channel-stereo program material is also improved to provide a much wider and deeper soundstage; one that extends well beyond the locations of the loudspeakers. The listener can choose from Near and Far modes, for an up-close or more distant listening perspective.

## The Most Advanced Technologies for Unsurpassed Performance

The AVR 8500's amplifier section utilizes Harman Kardon's high-current. ultrawide-bandwidth amplifier topology with discrete output devices to reproduce digital movie soundtracks and music with unmatched sonic accuracy and dynamic power. The AVR 8500 delivers 110 watts into each of the five main channels (20Hz–20kHz @ 8 ohms, <0.07% THD, all channels driven; 125 watts x 2 in stereo) of high-current, ultrawide-bandwidth power (±85 amps), for spectacular movie soundtrack and music reproduction with extraordinary clarity and dynamic impact. The receiver's high-current capability enables it to effortlessly drive even difficult loudspeaker loads, while its ultrawide bandwidth provides far superior phase linearity, lower distortion, greater high-frequency headroom and more accurate frequency response in the audible range. The AVR 8500 features banana plug-compatible speaker terminals for all amplifier outputs, facilitating the use of large-gauge, audiophile-quality speaker cables. Preamp outputs are provided for the additional "surround back" channels delivered by the new 7.1-channel surround systems, which may be powered by multipurpose amplifiers, such as Harman Kardon's PA 4000 and PA 2000, or by any high quality stereo power amplifier.

The AVR 8500 features Harman Kardon's Advanced Digital Bass Manager, the most versatile multichannel bass-management system available. This unique system enables the LFE (low-frequency effects) channel to be routed to the left and right front speakers, as well as to the subwoofer, if desired, to provide more available bass (the crossover point between the front speakers and the subwoofer is selectable). Also, it employs a fourth-order low-pass filter, rather than the commonly used second-order filter, for a smoother transition between higher and lower frequencies.

## Automatic Surround Sound Calibration and MP3 Decoding

The AVR 8500 features Harman Kardon's patented EzSet remote, which includes a built-in sound-pressure-level measuring and calibration system that enables the user to automatically balance speaker channel levels for optimum surround sound listening, regardless of the playback format. Setting speaker levels is one of the most critical adjustments for proper movie-soundtrack reproduction, and the EzSet remote makes the process accurate and virtually foolproof for maximum sonic benefits.

Significantly expanding its functionality beyond the traditional capabilities of A/V receivers, the Harman Kardon AVR 8500 features MP3-decoding capability for compatibility with the latest in audio technology. When connected to a computer with a compatible S/P-DIF output jack or when connected to any USB-equipped PC computer using Harman Kardon's new DAL 150<sup>™</sup> Digital Audio Transcoder, this exclusive Harman Kardon innovation enables music lovers to enjoy high-quality playback of Internet-delivered MP3 or "streaming media" programs on their home entertainment systems.\*\*

## Extensive Front Panel Connectivity for Game Consoles and Audio/Video Components

The Harman Kardon AVR 8500 offers a wealth of high-end performance and convenience features that make it the ideal control center for the most sophisticated home entertainment systems.

The AVR 8500 provides greatly expanded digital and analog connectivity, including front panel coaxial and optical digital inputs and outputs, for ready connection to accommodate the latest generation of high-performance game consoles or optical recorders. The AVR 8500 also includes Harman Kardon's exclusive Front Panel Play and Record feature, which enables the front panel analog audio/video jacks to function either as inputs *or* outputs to connect a program source such as a VCR, camcorder, CD recorder or portable audio product for either playback *or* recording. The receiver also features S-Video own-conversion, which converts an S-Video input to a composite video output for greater video source component connection and switching flexibility.

The Harman Kardon AVR 8500 offers multiroom audio *and* video capability, providing complete, independent control of a second-room video and audio system either from the front panel or via its separate Zone 2 remote. The multiroom remote, included with each AVR 8500, not only controls source selection and volume for the remote zone, but also controls most Harman Kardon DVD players, CD players and other audio/video components when they are connected to the AVR 8500 via the receiver's remote IR in/out jacks.

Additional AVR 8500 features include an intuitive on-screen menu system, a Listener Preference System that allows users to set specific speaker channel level settings for each program source and DSP format (for example, the subwoofer level can be set differently for two-channel CD music listening and multichannel Dolby Digital DVD movie viewing), a precision AM/FM tuner with 30 presets, and much more. The AVR 8500 also includes 7.1-channel direct inputs to accommodate future digital audio decoding systems and DVD audio/video players.

### Information on Harman Consumer International

Harman Consumer International (HCI) is a leading designer, manufacturer and marketer of a wide range of high-fidelity loudspeakers, audio and video components and multimedia systems for use in homes and automobiles, and with computers. The Group's brands include JBL, Infinity and Harman Kardon.

HCI is a division of Harman International Industries, Inc. Harman International (www.harman.com) is a leading manufacturer of high-quality, high-fidelity audio and video products for the consumer and professional markets. The Company's stock is traded on the New York Stock Exchange under the symbol "HAR."

For further information on Harman Kardon, please visit our web site on **www.harmankardon.com** 

Harman Kardon is a registered trademark, and is a trademark, of Harman Kardon, Inc. Logic 7 is a registered trademark of Lexicon, Inc., a Harman International Company. VMAx is a registered trademark of Harman International Industries, Inc., and is an implementation of Cooper Bauck Transaural Stereo under patent license.

**IIIEzSet**<sup>IM</sup> is a trademark of Harman International Industries, Inc. (patent no. 5,386,478).

HDCD is a registered trademark of Pacific Microsonics, Inc.

Crystal is a registered trademark of Cirrus Logic Corp.

\*Trademarks of Dolby Laboratories.

DTS, DTS-ES and DTS Neo:6 are registered trademarks of Digital Theater Systems, Inc.

THX and THX Ultra are manufactured under license from Lucasfilm Ltd. Lucasfilm and THX are registered trademarks of Lucasfilm Ltd.

Surround EX is a jointly developed technology of THX and Dolby Laboratories, Inc., and is a trademark of Dolby. Used under authorization.

\*\*Compatibility with playback of MP3 files directly from a computer may require additional, optional software drivers for proper formatting of the data output. Harman Kardon cannot guarantee MP3-file playback with all computers and/or sound cards.