



# DENON

## AVC-A1SR

A/V Surround Amplifier

## DVD-A1

DVD Audio/Video Player



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VC-A1SR  
HX Ultra2 Certified A/V Surround Amplifier

The AVC-A1SR surround amplifier inherits the critically acclaimed amplifier design characteristics of the AVC-A1SR while adding Denon's much improved DDSC-Digital sound processor for greater diversity in multi-channel reproduction of digital and analog signals. The AVC-A1SR's objective is to bring out the maximum performance potential of all types of sound sources. This model also provides a video conversion function for greater monitor connection flexibility, the added convenience of variable subwoofer cross-over switching, that will ensure a listening environment that is as close to ideal as possible. With its support of THX Ultra2 and a wealth of other features, the AVC-A1SR has become Denon's latest "Surround Reference" A/V amplifier for serious home theater enthusiasts.



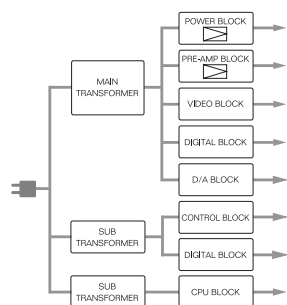


### ■ THX Ultra2 Certified 7-channel High Power Amplifier

The AVC-A1SR features an equal power 7-channel amplifier section, with identical amplifier design on all 7 channels. The Front (L/R), Center, and Surround (L/R) channels are driven by 225 watts of power each, and the two Surround Back channels, used for 6.1-channel DTS-ES and DOLBY DIGITAL EX sources, are also each powered with 225 watts (all channels rated into 6 ohms).

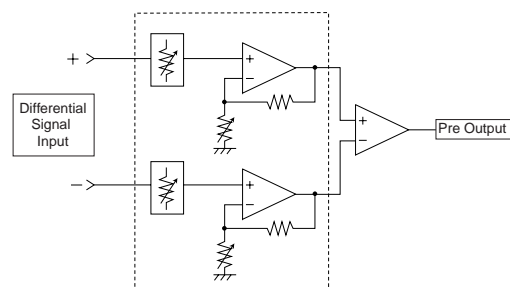
High current, low impedance drive-capable discrete power transistors are used for each channel, and the high power output of 225 watts per channel (into 6 ohms) ensures that the speakers are driven with ample foundation to reproduce movie and music soundtracks with superb fidelity and the widest dynamic range.

The AVC-A1SR proudly bears the THX Ultra2 logo, certifying that it satisfies the newest certification standards of Lucasfilm Ltd., governing performance, features, sound quality, power, stability into low-impedance speaker loads, and ease of operation.



### ■ Accurate Signal Transmission from the Pre-amplifier Section

Parts suitable for high attenuation have been strictly selected for use in the volume circuit that controls the signal levels of all eight channels. Since a differential D/A configuration has also been adopted for each channel, the widest possible dynamic range is secured with mutual interference effectively suppressed across the entire frequency range. The pre-amp's gain is varied to match the output level, improving S/N in the range where the volume is often used. Highly accurate volume adjustment in variable steps of 0.5 dB in the range of -80 to +18 dB is possible as well.



### ■ High-quality Pure Audio Chassis Construction

By positioning the power transformer at the center of the unit, the AVC-A1SR is equipped with a chassis construction in which unwanted vibrations are suppressed and excess vented heat is minimized. The digital circuits have been placed in the lower center of the unit and are completely shielded in their own enclosure, and the power amp circuits are located on the left and right sides. In addition, the analog circuitry has been isolated from the video circuitry to completely eliminate any mutual interference. The total chassis design preserves the purity of the audio signal from input to output to give your home theater a clean yet powerful sound, alive with all the details of the original recording.

### ■ Wide-Range Play Capability for DVD-Audio or SACD

### ■ New DDSC-Digital Processor, for High-quality Sound Reproduction

#### 1. 24-bit, 192-kHz Analog-to-Digital Conversion

The AVC-A1SR is capable of 24-bit, 96-kHz or 192-kHz A/D conversion, improving S/N and dynamic range by approximately 10 dB. A/D conversion and DSP processing (\*1) of external input signals (max. 8 channels) is also possible. The AVC-A1SR is thus able to perform bass management and delay processing on DVD-Audio signals. THX post processing is also possible with this DSP.

(\*1) It is possible to select whether signals are to be processed by the DSP or output as an analog signal.

#### 2. 24-bit, 192-kHz Digital Interface Receiver

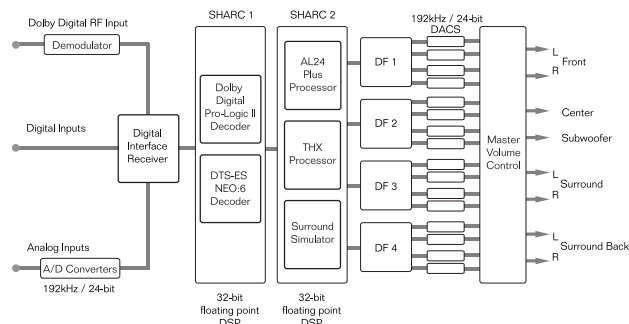
The AVC-A1SR employs a total of four 24-bit, 192-kHz digital interface receivers, one for every two channels, enabling multi-channel digital input through Denon Digital Link or external digital input to perform at optimum potential.

#### 3. New SHARC Dual 32-bit Floating Point DSPs

The AVC-A1SR uses a dual configuration of new HammerHead SHARC 21161 32-bit floating point DSPs from Analog Devices.

#### 4. 24-bit, 192-kHz All-channels Differential-mode D/A Conversion

For optimum fidelity and transparency, the AVC-A1SR features the latest Burr-Brown PCM-1738E high resolution 24-bit, 192 kHz DACs, in an eight-channel, differential configuration (2-DAC channels per each audio channel). These DACs satisfy DSD specifications.



### ■ DENON's Latest Surround Technology Faithfully Recreates the Surround Sound Produced at the Dubbing Stage.

DTS-ES Discrete 6.1 / DTS-ES Matrix 6.1 / DTS NEO:6 / DTS 96/24

Dolby Digital / Dolby Digital EX / Dolby Pro Logic II

THX Surround EX / THX Cinema / THX Ultra2 Cinema / THX MusicMode

### ■ DTS-ES Discrete 6.1 + THX Post Processing

By adding THX Post Processing to the localized sound and spatial expression of DTS-ES Discrete 6.1, your listening room is almost completely transformed into a full-featured cinema.

### ■ DTS NEO:6

DTS NEO:6 lets you enjoy 2-channel analog, PCM, and Dolby Digital 2-channel sources in full 6.1-channel surround sound.

### ■ DTS 96/24 5.1 Decoding for DVD-Video

High-quality 96-kHz, 24-bit (96/24) sound playback from ordinary DVD-Video recordings is limited to only two channels and there are also limitations on the picture. DVD-Video recorded in DTS 96/24, however, allows high-quality 5.1-channel sound playback in full-quality, full-motion video.

### ■ Dolby Pro Logic II

With the AVC-A1SR, you can use Dolby Pro Logic II to do more than just enjoy your 2-channel analog, PCM, and Dolby Digital 2-channel sources in surround sound ambiance. You can also add the soundfield effects of THX Post Processing to Dolby Pro Logic II in Movie mode(\*2) to brilliantly enhance the excitement of 2-channel A/V sources.

(\*2) On Denon A/V amplifiers, this Movie mode is displayed as "MODE CINEMA".

### ■ Dolby Headphone

Since sound from a headphone enters the ears directly, it can cause fatigue during extended listening sessions. Dolby Headphone replicates the effects of sound from speakers in a room by localizing the sound source at the front or the side as though the listener were enjoying 3D sound at a movie theater. Dolby Headphone is effective not only with Dolby Digital or Dolby Pro Logic but with CD and other 2-channel sources as well. The AVC-A1SR also lets you record signals encoded with Dolby Headphone to other recorders so that you can enjoy the effects of Dolby Headphone with a portable MD player or other device. (This is possible with both analog and digital recordings.)

### ■ 5 Channel & 7 Channel Stereo Modes

### ■ Dual Surround Mode Speaker Selection

### ■ Adjustable Cross-Over Switching

The AVC-A1SR supports subwoofer cross-over switching with a choice of 5 cross-over frequencies: 40, 60, 80, 100, and 120 Hz. This lets you more accurately match the performance characteristics of the subwoofer to the main speaker system.

### ■ DENON Digital Link

High-grade LPCM 24-bit/96-kHz for 6-channel or 24-bit/192-kHz for 2-channel(\*3) digital input is possible when the AVC-A1SR is connected via a shielded twisted pair (STP) cable to a Denon DVD player that supports Denon Digital Link. Since Denon Digital Link uses low-voltage differential signaling (LVDS), transfer capabilities of greater than 1.2 Gbps at a differential voltage of approximately 0.3 Vpp are possible.

(\*3) If a 24-bit, 192-kHz sound source is copyright protected, the DVD player may convert the digital output.

### ■ External Digital Input

For future system expansion, the AVC-A1SR provides external digital inputs that support multi-channel (6/8-channel PCM) inputs from an external unit.

Multi-channel digital signal input is possible using a maximum of 4 sets of coaxial digital inputs.

### ■ Pure Direct Mode, to Deliver Pure Audio Quality

### ■ AL24 Processing Plus

### ■ High-quality Component Video In/Out Terminals (100-MHz Bandwidth)



## ■ Input/Output Terminals For Every A/V System

### Audio Inputs

13 Sets Analog Input	PHONO(MM), CD, TUNER DVD, VDP, TV, DBS/SAT V.AUX, VCR-1, VCR-2, VCR-3, CDR/TAPE-1, MD/TAPE-2
2 Sets 8-ch Analog EXT. Input	FRONT L/R x 2, CENTER x 2, SURROUND L/R x 2, SURROUND BACK L/R x 2, SUBWOOFER x 2
6 Sets Digital (Optical) Input	OPTICAL X 6
5 Sets Digital (Coaxial) Input	COAXIAL X 5
1 Set Dolby Digital RF	RF
1 Set Denon Digital Link	Denon Digital Link

### Audio Outputs

1 Set 8-ch Analog PRE Output	FRONT L/R, CENTER, SURROUND L/R, SURROUND BACK L/R, SUBWOOFER
5 Sets Analog REC Output	VCR-1,VCR-2,VCR-3, CDR/TAPE-1, MD/TAPE-2
2 Sets Analog Multi Zone Output	L/R(LINE OUT) x 1, L/R(PREOUT) x 1
2 Sets Digital (Optical) Output	OPTICAL x 2

### Video Inputs

3 Sets Component Video Input	DVD, TV, DBS/SAT
8 Sets Composite Input	DVD, VDP, TV,DBS/SAT V.AUX, VCR-1,VCR-2, VCR-3
8 Sets S-Video Input	DVD, VDP, TV, DBS/SAT, V.AUX, VCR-1,VCR-2, VCR-3

### Video Outputs

1 Set Component Video Output	MONITOR
6 Sets Composite Output	VCR-1, VCR-2, VCR-3, MULTI ZONE, MONITOR-1, MONITOR-2
5 Sets S-Video Output	VCR-1, VCR-2, VCR-3, MONITOR-1, MONITOR-2,

## ■ Specifications

### Power Amplifier Section

Rated output	*THD figures are power amp stage values.
Front	275 W x 2 (6 ohms, EIAJ) 225 W x 2 (8 ohms, EIAJ) 170 W x 2 (8 ohms, 20 Hz - 20 kHz, 0.05 % THD)
Center	275 W (6 ohms, EIAJ) 225 W (8 ohms, EIAJ) 170 W (8 ohms, 20 Hz - 20 kHz, 0.05 % THD)
Surround	275 W x 2 (6 ohms, EIAJ) 225 W x 2 (8 ohms, EIAJ) 170 W x 2 (8 ohms, 20 Hz - 20 kHz, 0.05 % THD)
Surround back	275 W x 2 (6 ohms, EIAJ) 225 W x 2 (8 ohms, EIAJ) 170 W x 2 (8 ohms, 20 Hz - 20 kHz, 0.05 % THD)

### Preamplifier Section

#### Input sensitivity/Impedance

PHONO(MM)	2.5 mV/47 kohms
TUNER, CD, DVD, VDP, TV, DBS/SAT, V.AUX, VCR-1, VCR-2, VCR-3, CDR/TAPE-1, MD/TAPE-2, FRONT L/R, CENTER, SURROUND L/R, SURROUND BACK	200 mV/47 kohms
SUBWOOFER	36 mV/47 kohms

#### Output level/Load Impedance

FRONT L/R, CENTER, SURROUND L/R, SURROUND BACK L/R, SUBWOOFER	1.2 V/10 kohms
V.AUX, VCR-1, VCR-2, VCR-3, CDR/TAPE-1, MD/TAPE-2, MONITOR	200 mV/47 kohms
Frequency response	10 Hz - 100 kHz; +0, -3 dB (DIRECT MODE)
Signal-to-noise ratio	105 dB
RIAA deviation	±1 dB (20 Hz - 20 kHz)
Tone control	Treble: ±10 dB at 10 kHz, Bass: ±10 dB at 100 Hz

### General

AVC-A1SR	
Power supply	AC 230 V, 50 Hz
Power consumption	720W
Dimensions	434 (W) x 216 (H) x 486 (D) mm
Weight	29.0 kg

## ■ Video Conversion

The AVC-A1SR is equipped with a video switching system that converts composite video signals to S-Video and/or composite and S-video to component video. The input signal types---whether composite, S-Video, or component---are auto detected, then the signal with the highest picture quality is given highest priority and output to the monitor. (Manual operation can be used to override auto detection.)

## ■ Support for Multi Zone Configurations

The AVC-A1SR provides a Multi Zone Output function and a Select function that let you output different sources to multiple zones. Sources can be selected for output to up to 2 additional zones, in addition to the main room. Multi-room Zone 1 can have variable pre-amp output along with composite video feed, and Multi-room Zone 2 can have fixed stereo audio output. The AVC-A1SR's Power Amplifier Assign function lets you assign the 2 Surround Back (SB L/R) amplifier channels when the system is not configured for 7.1, to instead drive the Multi-room Zone 2 speakers, with 225 Watts per channel output power, while still providing 5 discrete amplifier channels to drive all speakers in a 5.1 configured home theater room.

## ■ 2 Sets of 8-Channel External Analog Inputs

A/D Conversion and DSP Processing are also possible.

## ■ Personal Memory Plus

## ■ RS-232C Port (Third-party system controls only)

## ■ 8-+5 V and +12 V and Trigger Outputs for Power Amplifier

## ■ Audio Delay Function

Audio Delay function corrects slight lags between sound and picture that can occur when a video signal is processed, such as in a Progressive Scan DVD player or outboard video processor.

## ■ Icon-based On Screen Display

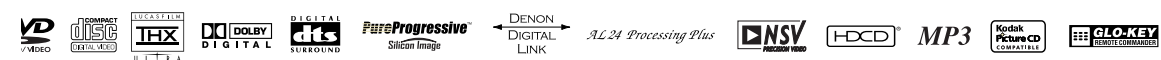
## ■ Includes the RC-871 Remote Control Unit with Large LCD Touch Panel

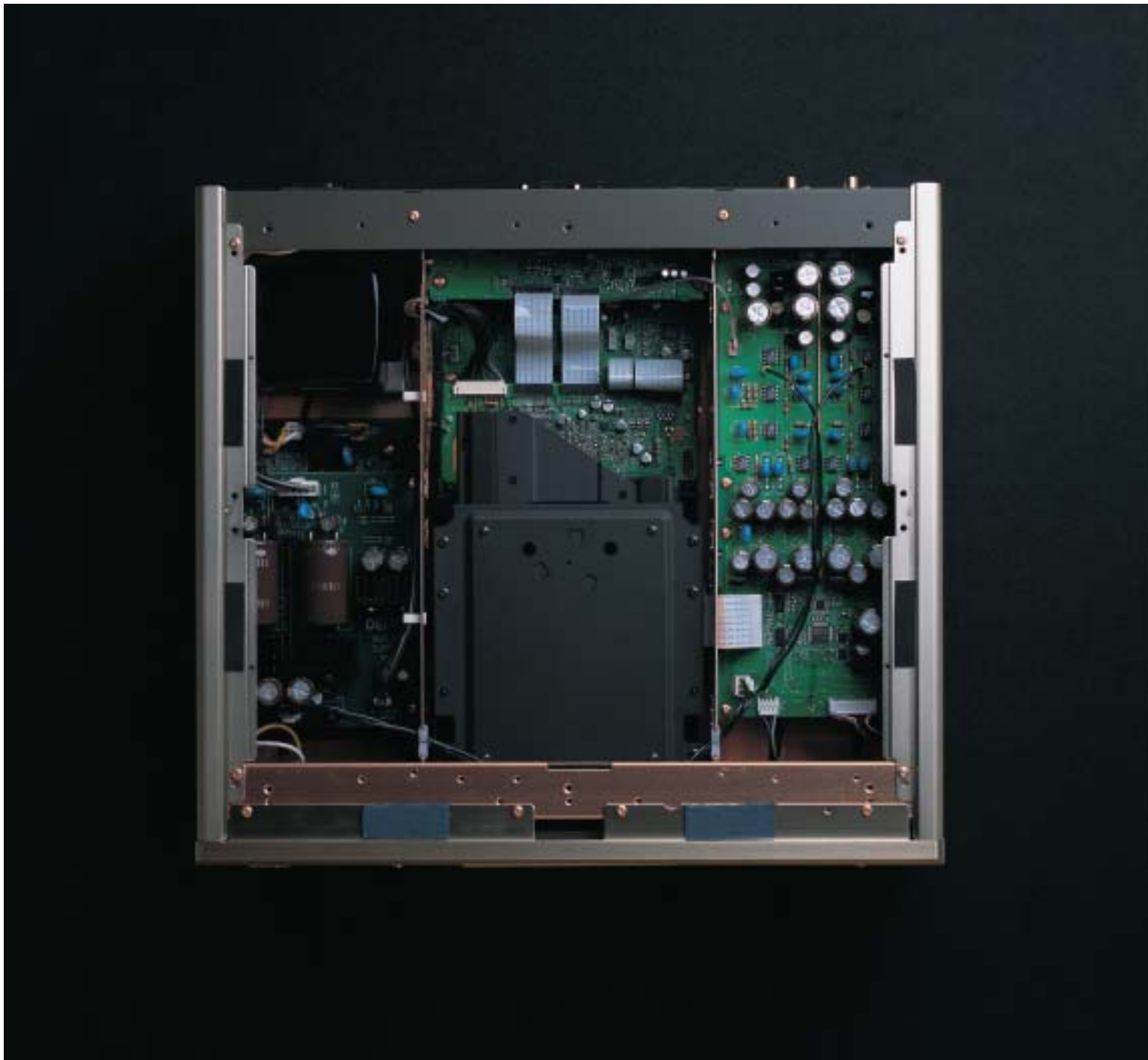




## DVD-A1 THX Certified DVD Audio/Video Player

Denon engineers have pulled out all the stops in its development of the DVD-A1 to ensure that this DVD player reproduces sound and pictures at the highest possible level of quality. The DVD-A1 is packed with PureProgressive™ circuitry for superior Interlaced-to-Progressive video conversion; six 14-bit, 108-MHz video D/A converters, Noise Shaped Video and a Super Sub Alias Filter. For high-quality audio output, the DVD-A1 sports AL24 Processing Plus supporting a sampling frequency of 192-kHz; 24-bit, 192-kHz audio D/A converters and other state-of-the-art audio technologies to extract the maximum potential of DVD-Audio. Along with Denon's critically acclaimed circuit design and chassis construction, the DVD-A1 is a truly remarkable new flagship DVD player from Denon.





### ■ Thorough Vibration-resistant Design

Since the high-density data recorded on DVD must be read with absolute accuracy, vibrations from outside or from internal sources, such as the power supply, will adversely affect sound and picture quality. A variety of designs have been incorporated in the DVD-A1 to suppress these unwanted vibrations. The bottom plate forming the foundation of the chassis is a 6-mm thick, 4-layer hybrid construction made up of a 1.2-mm thick copper-plated metal sheet and three layers of 1.6-mm metal sheets. Large insulators of sintered alloy (the same type used in Denon's high-end S1 series) have been used for the DVD-A1's feet to absorb external vibrations. Reinforcing plates for the base, front, and rear are composed of four 1.2-mm thick copper-plated sheets, that have been utilized in a 3-box construction design to strengthen the chassis. The chassis also uses copper plating to bring the ground electric potential of the overall chassis close to equipotential in order to suppress electrical noise. The top cover uses three types of 1.2-mm thick metal sheets in different shapes, while 2.5-mm thick aluminum panels have been used for the sides, giving rigidity to the entire chassis. The DVD mechanism is mounted on a cast-aluminum base between the mechanism and the chassis. Parts made of different materials effectively absorb vibrations caused by the unit itself as well as from outside to ensure stable operation.

### ■ THX Ultra Certified

The THX Ultra certification standards are comprised of tests in three categories; Audio Quality, Video Quality and User Interface. These tests ensure that a certified DVD player is fully capable of bringing out the best visual and sonic quality of all your DVD discs.

### ■ Newly-Developed Loading Mechanism for Suppression of Vibrations

The newly-developed loading mechanism uses a guide and tray painted with protein material that is highly resistant to vibrations in order to prevent unwanted vibrations to the tray.

### ■ New PureProgressive™ Circuit

(NTSC Conversion Output Only)

The DVD-A1's interface to progressive converter is the new Si504 Converter with PureProgressive™ circuitry from Silicon Image. The Si504 features faster moving picture detection and improved film/video mode recognition capability.

High-speed processing: This Si504 Progressive Converter is capable of processing 6 billion operations per second, providing the finest in motion-adaptive de-interlacing.

Moving picture detection: PureProgressive™ features 2:3 pulldown detection, which converts 24-fps Film based material to 60-fps TV/Video playback, while also detecting Video based material, animation and graphics. PureProgressive™ is capable of reproducing DVD-Video discs containing both Film and Video material, as well as high picture quality progressive video sources, while avoiding the flickering caused by detection delays of these different formats. In processing moving video signals, a conventional progressive converter performs detection on a full frame-by-frame basis, while PureProgressive™ stores 4 fields of video signals in a 64-Mbit SDRAM buffer, enabling the detection and processing on a pixel-by-pixel basis to achieve greater precision in discriminating between moving and still pictures.

Improved 2:3 pulldown detection: There are cases in which 2:3 pulldown data signals on DVD-Video discs are not in sync. The PureProgressive™ converter will quickly detect the non-sequential points and perform appropriate corrective measures at high speed to minimize picture flickering. It is now also possible to select Level Detection or Flag Detection as the detection method used for Film and Video material. If an incorrect flag was recorded or the difference between the video level and noise level is very small and distinctions on the disc are difficult to detect, this selection ensures optimum detection capability and minimizes picture quality degradation.

### ■ 14-bit, 108-MHz Video D/A Converter

The DVD-A1 uses a total of six 14-bit, 108-MHz video D/A converters to tap the maximum potential of the new PureProgressive™ circuit's performance. The DVD-A1 uses independent D/A converters for Progressive and Interlaced picture reproduction.

These converters provide a very high sampling frequency of 108-MHz, with 4x oversampling used for Progressive and 8x oversampling for Interlaced operation, resulting in the highest detailed D/A conversion. Since a filter with ample cutoff characteristics can also be used for the analog low-pass filter, the DVD-A1 reproduces the delicate nuances of video signals, allowing viewers to enjoy the original picture at the highest level of realism.

### ■ Noise Shaped Video (NSV)

The NSV feature works in the digital domain to reduce noise in the video signal frequency band in order to enhance video signal linearity.

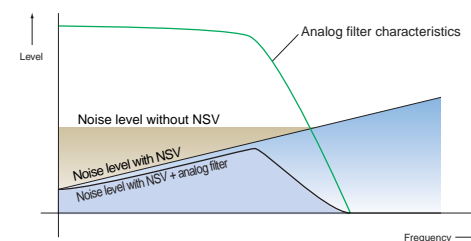


Fig 1. Noise Shaped Video (NSV) Characteristics

### ■ Super Sub Alias Filter

The S/N ratio can be improved when unwanted signals of higher than 6.75 MHz following D/A conversion are cut. The DVD-A1 thus uses a Super Sub Alias Filter that produces flat characteristics, ensuring that adverse influences do not affect video signals inside the essential frequency band, and folding noise is eliminated. In the DVD-A1, the Super Sub Alias Filter is applied to the chroma signal as well as the luminance signal, improving color reproduction.

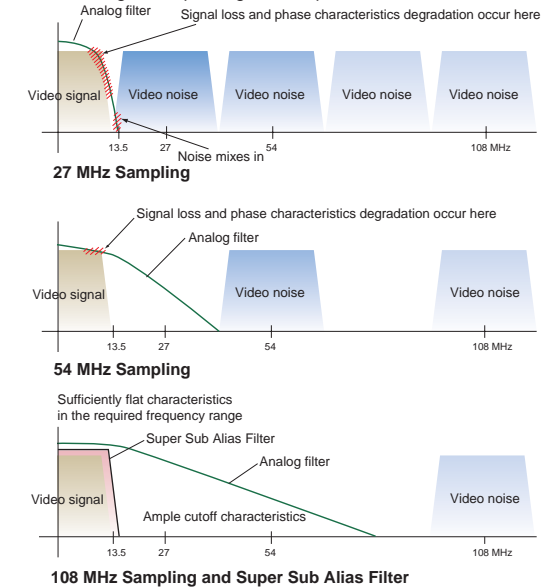


Fig 2. Super Sub Alias Filter Characteristics

### ■ A Wealth of Picture Quality Adjustment Functions

Contrast, Brightness, Hue, Sharpness, and Gamma can be adjusted as desired by the user.

### ■ AL24 Processing Plus

Denon has further developed its proprietary AL24 Processing, an analog waveform reproduction technology, to support the 192-kHz sampling frequency of DVD-Audio. This new technology, AL24 Processing Plus, thoroughly suppresses quantization noise associated with D/A conversion of LPCM signals to reproduce the low-level signals with optimum clarity that will bring out all the delicate nuances of the music.

### ■ 24-bit, 192-kHz Audio D/A Converters

The DVD-A1 uses 8 Burr-Brown PCM-1704, high-performance 24-bit, 192-kHz D/A converters to faithfully and accurately enable high-quality performance required for any multi-channel playback. Each main channel (FL/FR) have 2 DACs per channel in a differential configuration, while the Center/Surround Left/Surround Right/Subwoofer channels receive one per channel.

### ■ Pure Direct Mode

The DVD-A1 includes two Pure Direct modes that further improve sound quality. For example, during analog audio output, Pure Direct can turn off digital signal outputs, video signal outputs, and the front panel display which can easily influence the sound quality of the analog audio signals. The user can define which operations are to be turned off and store those preferences in memory.

