

User manual and technical description

LuXor Audio x2/x4

digital active loudspeakers

v1.1 – 04.08.2026



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1. Active amplification

LuXor x2 and x4 speakers use active amplification technology with the built-in electronics providing the electrical power needed to drive the speakers eliminating the need for an external amplifier. This solution makes it possible to perfectly match the operation of the speakers and the electronics ensuring reliable operation and high efficiency.

In active loudspeakers the power amplifier modules and the loudspeakers are directly connected to each other resulting in significantly lower electrical losses than those achieved with conventional passive solutions. Luxor loudspeakers are equipped with modern Class D amplifier modules with an efficiency of over 95% which are characterized by low heat generation even at high power levels.

2. Multi-way design

Our loudspeakers feature a multi-way design for high acoustic performance, low distortion and high sound quality. The entire audible frequency range is divided into 3 (2 in case of x2) separate registers each with independent DSP channel, signal processor, amplifier circuit and loudspeaker. These are controlled and tuned in a digital signal processor to fully exploit the capabilities of the speakers and components used with the aim of ensuring reliable operation in accordance with the conditions on site.

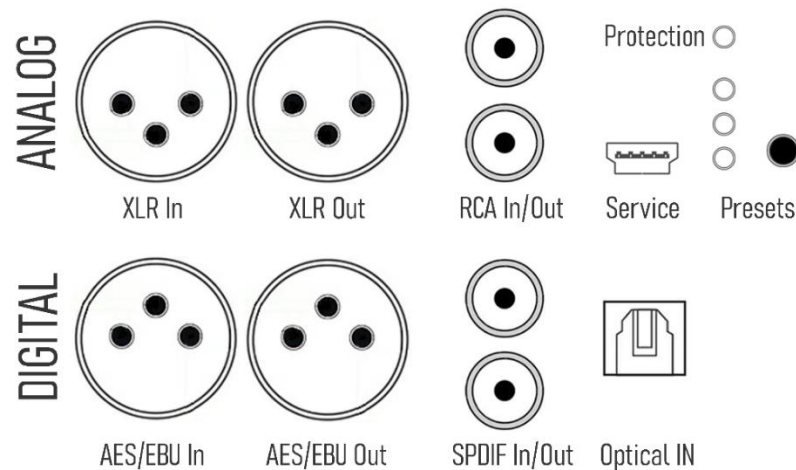
3. DSP-based digital signal processing and control

The control of LuXor loudspeakers, signal processing and optimization of sound reproduction parameters are performed by an ADI Sigma SHARC digital signal processor (DSP) at a core frequency of 300 MHz. The DSP operates based on digital program code developed by LuXor Audio which is individually tuned for each loudspeaker.

Modern digital technology allows for continuous monitoring and control of the parameters of speakers and built-in electronics. Part of the design concept of LuXor loudspeakers is to tailor the operation and sound of the loudspeakers to the conditions of use and the listener's taste. This is facilitated by multiple preset modes that can be stored in a memory block connected to the DSP which are digitally recorded during manufacturing and on-site setup.

The digital code we create cannot be modified by the user as this would void the product warranty.

4. Connection options



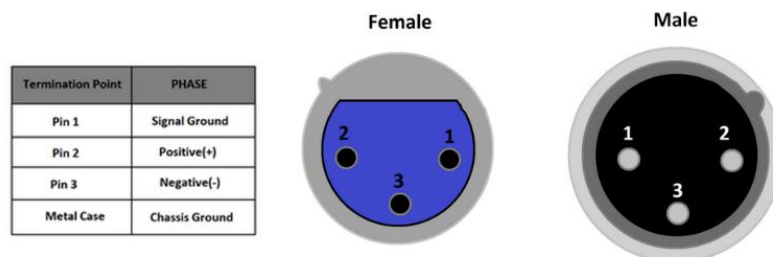
Analog XLR In, RCA In

Input suitable for receiving analog audio signals for connecting devices with balanced XLR and single-ended RCA analog signal outputs.

Analog XLR Out, RCA Out

Output suitable for send analog audio signals for connecting devices with balanced XLR and single-ended RCA analog signal inputs.

Wiring pin-out of the Analog In XLR balanced connector:



AES/EBU and S/PDIF Inputs

Digital inputs for connecting stereo devices with S/PDIF digital PCM output, via balanced XLR, coaxial RCA and optical Toslink connections. Which channel is sounded from the stereo signal depends on the speaker's individual settings.

S/PDIF and AES/EBU Out

Digital stereo outputs that allow multiple LuXor x2/x4 speakers to be connected losslessly. In a stereo configuration, the two speakers distribute the two channels between themselves; each speaker plays only the program assigned to its respective side.

Service

A port used for programming the built-in DSP module and for modifying or updating the speaker's settings. It can only be used with special service software. Attempting to use other solutions will void the product warranty. The port cannot be used for other functions (such as audio signals, external storage, or connecting any USB device) and will not respond to them.

Power connection

The Luxor x2 speaker is equipped with a traditional IEC power connector socket. The LuXor x4 speaker is equipped with a Neutrik PowerCon power connector known in the Pro Audio world which is more tolerant of high current and mechanical stress than a standard IEC connection.

Analog and digital connectors and power cables for Luxor X loudspeakers are available in the desired size, design and with the desired connectors. Please contact us for assistance in converting your existing power cable to the PowerCon system.

5. LED Indicators and Preset button

Protection LED (red):

Random blinking:	Amplifier power limiter is active
Steady on:	Fatal / DC Error / Power failure
Blink once per second:	High temperature
Blink twice per second:	Over temperature

Preset LEDs (greens):

LED1: Preset 1 selected
LED2: Preset 2 selected
LED3: Preset 3 selected

When the inputs are muted the current preset's LED will blink slowly.

6. Manual control

The technical and sounding parameters of the LuXor speakers are contained in the control module's digital code. Some of these cannot be modified at the user level, but a few basic characteristics (volume, tone, sound ratios) can be freely adjusted. These settings can be saved as presets and accessed by pressing the button on the back panel to switch between presets. The number of the currently active preset is indicated by the green LEDs on the back (1-2-3).

Preset 1 – Reference

A natural, raw, uncolored sound with a linear phase response and balanced proportions. Recommended for loud, analytical listening in medium-sized or smaller rooms, particularly for acoustic music genres.

Preset 2 – Expressive

A sound profile tuned for rock, pop, and electronic genres, with a slightly rolled-off frequency response. It produces rich bass and smooth highs, ideal for immersive music listening and movie watching in larger rooms with optimal acoustics.

Preset 3 – Late Night Relax

A sound optimized for quiet, late-night listening that takes into account one of the characteristics of human hearing – our changing sensitivity at low volumes – to deliver detailed, dynamic sound and full-bodied instrument tones even at low volumes.

When installing the speakers, we take the acoustic conditions into account using on-site measurements and, if necessary, apply custom corrections which will be active for all three Presets.

7. Automatic control

Several automatic features make the LuXor speakers easy to use.

Automatic Input Selection

Selection between the 2 analog and 3 digital inputs available on the speakers occurs automatically without user intervention, in such a way that the digital control activates the input on which it detects a valid signal and mutes the other inputs to minimize noise. Switching between inputs takes 1–3 seconds; during this process the speaker is silent for a few moments.

Automatic Power On/Off

When designing the LuXor speakers we took modern energy efficiency requirements into account. If the speakers are not used for more than 30 minutes, they automatically switch to standby mode, at which point their power consumption drops to a minimum (approx. 1.5 W) until they receive an external audio signal again. As soon as they detect an incoming signal, they automatically wake up and begin playing after a few tenths of a second.

We recommend this feature for daily use. If you'll be away for an extended period and won't be using the speaker for several days, we recommend turning it off using the main power switch on the back panel. The next time you turn it on, the speaker will resume from its last operating mode and switch to the last preset used.

6. Installation, placement and maintenance recommendations

Luxor X loudspeakers are capable of high technical and sound quality but can only demonstrate their full potential in a suitable acoustic and technical environment with careful installation and adjustment.

Avoid placing the speakers too close to acoustically hard, reflective surfaces; keep a distance of at least 30-50 cm to the sides and rear! Sound waves reflected from nearby surfaces and objects can reduce the clarity of the sound, upset the sound balance and impair the sound experience.

Do not place hard, heavy objects on top of the speaker. Their resonance can impair the sound experience and cause damage to the outer surface.

Ensure that the speaker is placed on a stable surface. Avoid placing it on carpeted floors or rugs. When adjusting the stand used for the x2 model aim for a perfect vertical position. (The use of a waterlevel is recommended.)

For the best spatial effect the listener and the speakers should form an equilateral triangle and the distance between the speakers should be similar to the listening distance. Do not place large objects or furniture between the listener and the speakers. Aim for a symmetrical arrangement; in a stereo system the listener should be positioned at an equal distance from the left and right speakers.

Ensure a suitable acoustic environment. Avoid large, bare, hard sound-reflecting surfaces and resonant furnishings and furniture in the listening room. Please feel free to contact us for acoustic advice, information and on-site assessment.

For everyday use it is not necessary to turn off the speaker but for longer periods of absence (travel, vacation) it is advisable to disconnect it from the power supply using the main switch.

The mechanical and electrical design of the speakers ensures long-term reliable operation. Never cover the openings on the rear panel as they are necessary for ventilation and adequate cooling of the built-in components. The speaker has built-in thermal protection; excessive heating due to inadequate ventilation can cause technical malfunctions and damage to the device. The product warranty does not cover such cases resulting from user negligence.

Do not expose the speaker to high humidity, direct heat or sunlight as this may damage the exterior of the cabinet and the coating of the metal components causing the structure to age faster than normal!

The front and rear panels of the speaker are laser-cut and painted aluminum mechanical structures. Do not remove, dismantle or clean them with chemicals, sharp or pointed objects! The other surfaces of the speaker are covered with natural wood veneer. When cleaning them avoid using strong chemicals; use only cleaning and care products recommended for natural wood.

Dust the built-in speaker's diaphragms regularly! (A soft fine-bristled brush is recommended.) Avoid wet tools and do not use hard, sharp objects. These can damage the diaphragm and suspension causing the speaker to malfunction. Damage caused by external influences is not covered by the product warranty.

I hope you enjoy using your Luxor speakers.

Budapest, 04.08.2026.



László Papp

AES audio engineer
acoustical designer
Luxor Audio CEO

Asahi Kasei AK5554VN ADC

The AK5554VN is a 32-bit, 768kHz sampling, differential input A/D converter for digital audio systems. It achieves 115dB dynamic range and 106dB S/(N+D) while maintaining low power consumption performance.

The AK5554VN integrates a 4 channel A/D converter, suitable for mixers and multi-channel recorders. Four types of digital filters are integrated and selectable according to the sound quality preference. The AK5554VN can be easily connected to a DSP by supporting TDM audio formats. The channel summation mode improves the dynamic range performance by summing-up multiple channel A / D data and averaging. The dynamic range is improved to 118dB in 4 to 2 mode and to 121dB in 4 to 1 mode.

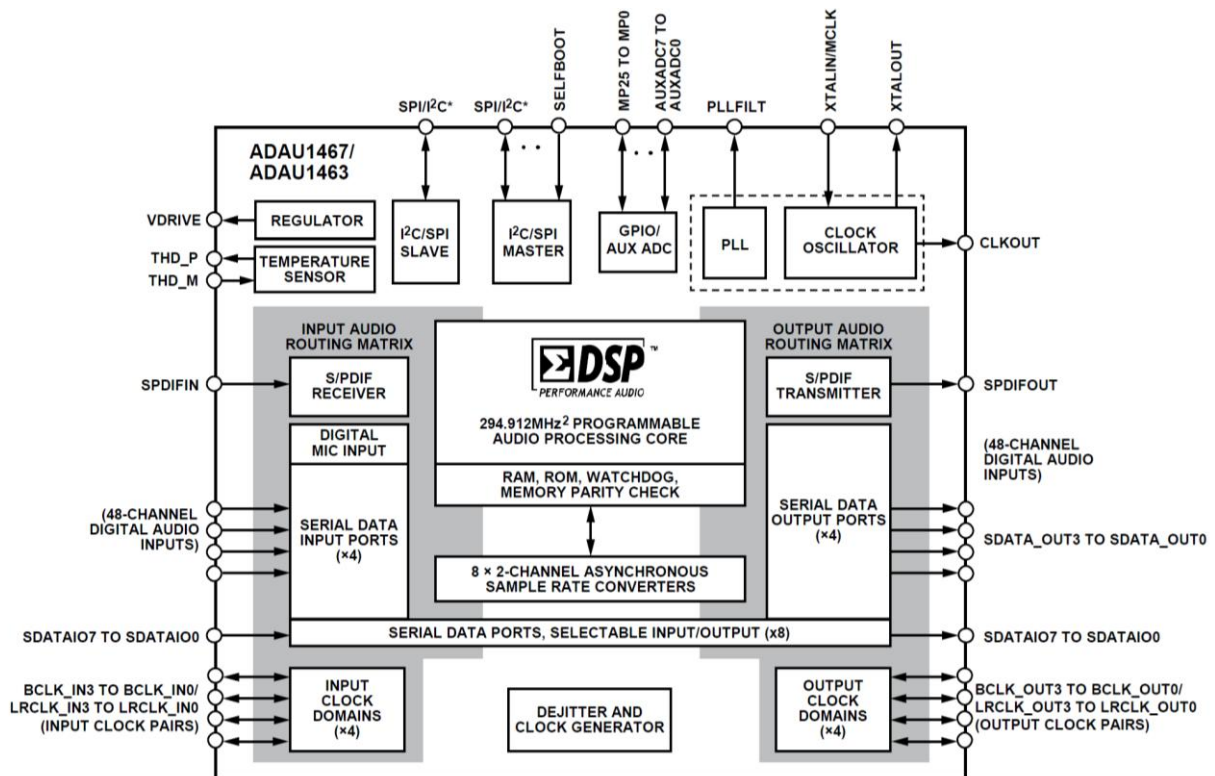
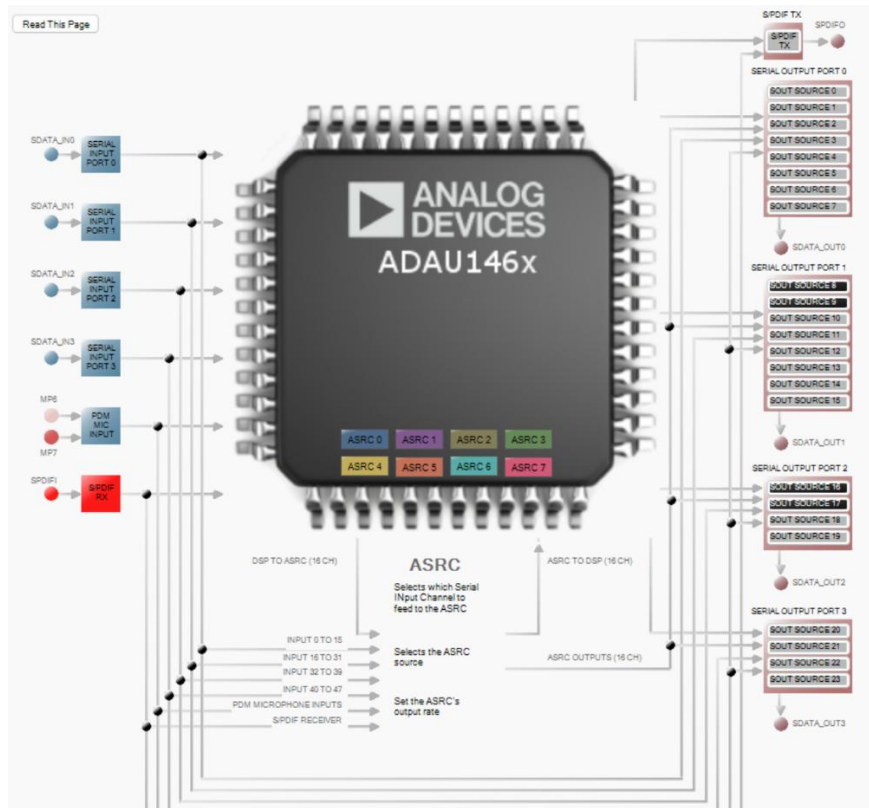
Part Number	AK5554VN
Number of Channels	4
Analog Input Type	Differential
Bits [bit]	32
Max fs [kHz]	768
THD+N [dB]	-106
S/N [dB]	115 (121*)
Power Supply Voltage (MIN.) [V]	4.5
Power Supply Voltage (TYP.) [V]	5.0
Power Supply Voltage (MAX.) [V]	5.5
PLL	
Microphone Amplifier	
Other	VELVETSOUND, Automotive grade
Operating Temperature [°C]	-40 to 105
Device Package	HVQFN
Number of Pins	48

Asahi Kasei AK4454VN DAC

The AK4454VN is a new generation of premium 32-bit DAC, with 8 channels of AKM's VELVET SOUND architecture that has been widely adopted by well-established high-end audio companies. This technology realizes fine sound details with its low-distortion architecture in addition to 32-bit resolution digital filter processing. The digital input supports up to 768 kHz PCM, suitable for high-resolution audio source playback. This premium multi-channel DAC series provides a simple and great solution to wide range of applications with a TDM interface and up to 8 channel variations.

Part Number	AK4454VN
Number of Channels	4
Analog Output Type	Differential
Bits [bit]	32
THD+N [dB]	-107
S/N [dB]	115 / 111
Power Supply Voltage (MIN.) [V]	3.0 / 3.0
Power Supply Voltage (TYP.) [V]	5.0 / 3.3
Power Supply Voltage (MAX.) [V]	5.5 / 3.6
2Vrms Line Driver	–
Headphone Amplifier	–
Other	VELVETSOUND, Automotive grade
Operating Temperature [°C]	-40 to 105
Device Package	HWQFN
Number of Pins	32

Analog Devices Sigma SHARC DSP digital signal processor



*SPI/I²C INCLUDES THE FOLLOWING PIN FUNCTIONS: SS_M, MOSI_M, SCL_M, SCLK_M, SDA_M, MISO_M, MISO, SDA, SCLK, SCL, MOSI, ADDR1, SS, AND ADDR0 PINS.

14809-001

8. Electric measurements

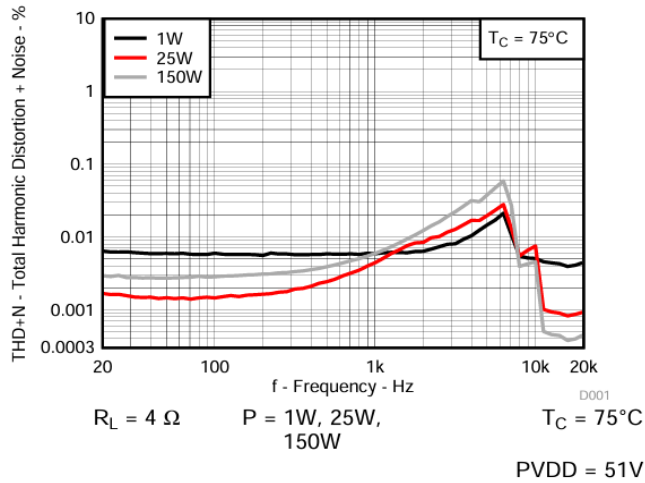


Figure 1. Total Harmonic Distortion+Noise vs Frequency

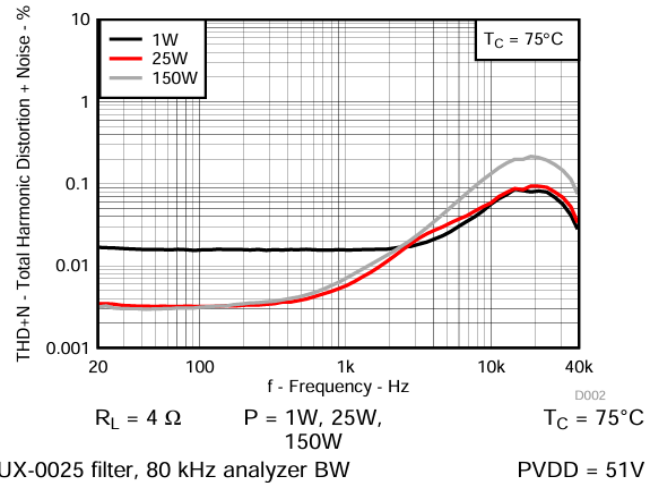


Figure 2. Total Harmonic Distortion+Noise vs Frequency

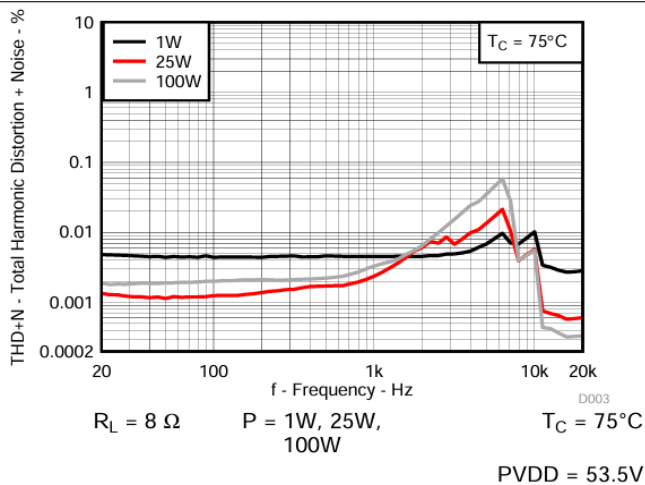


Figure 3. Total Harmonic Distortion+Noise vs Frequency

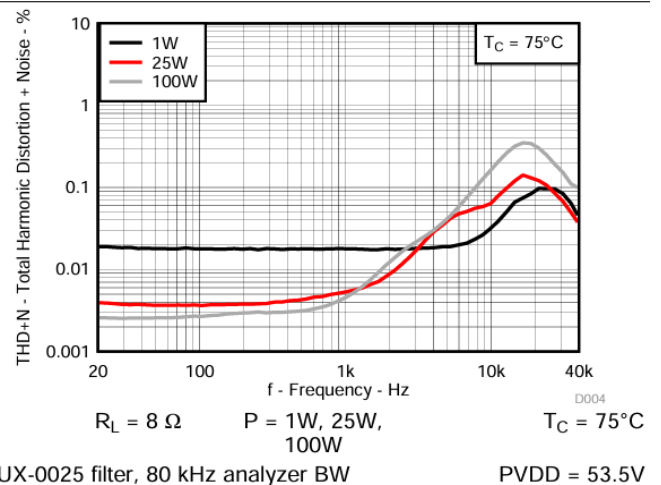


Figure 4. Total Harmonic Distortion+Noise vs Frequency

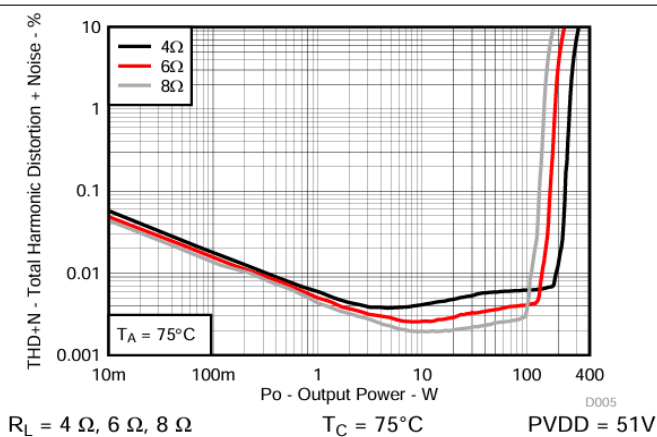


Figure 5. Total Harmonic Distortion + Noise vs Output Power

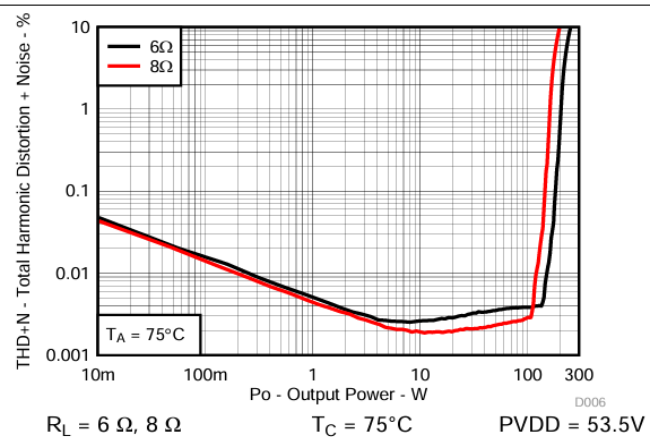
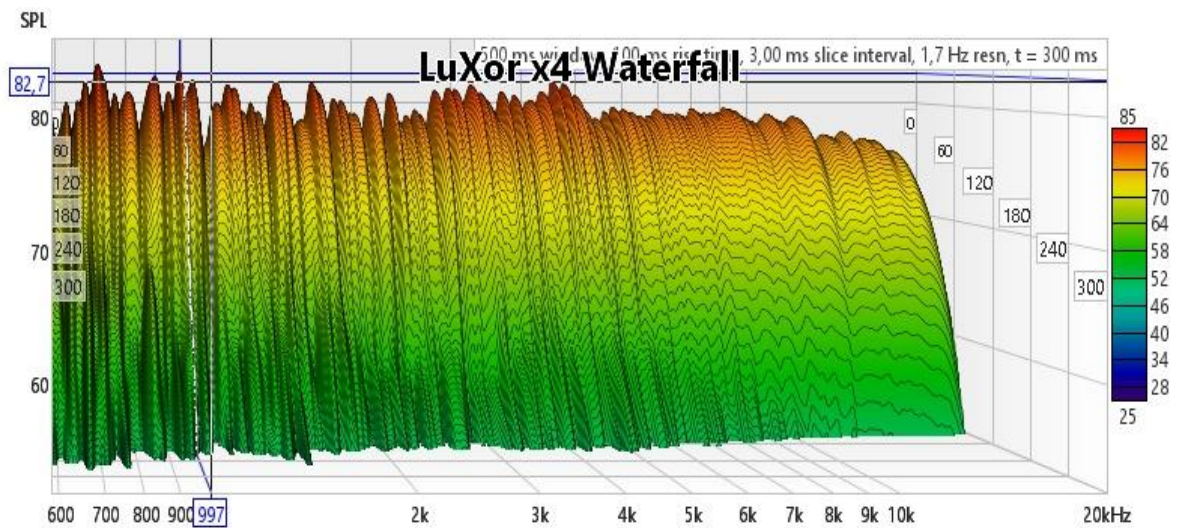
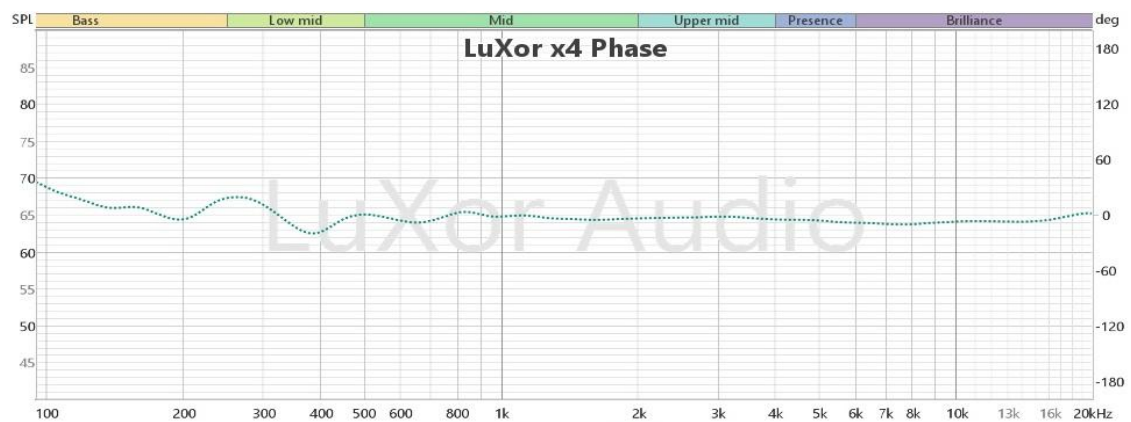
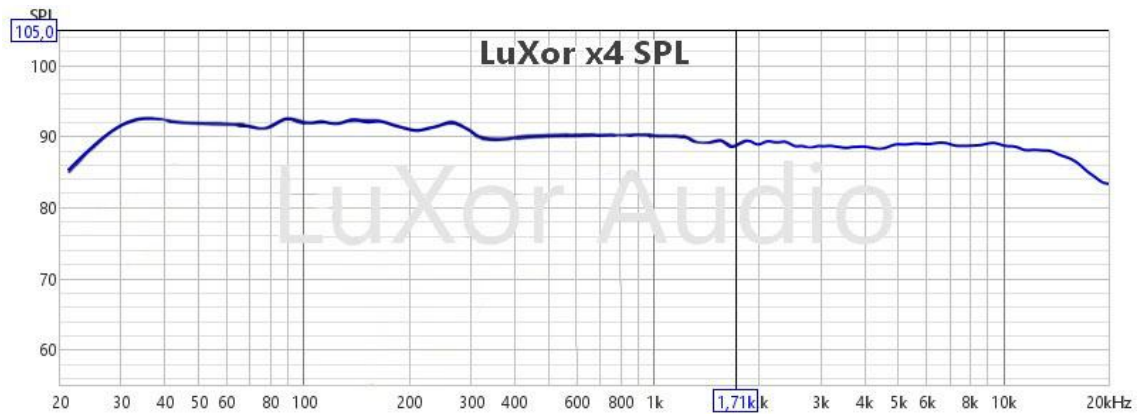
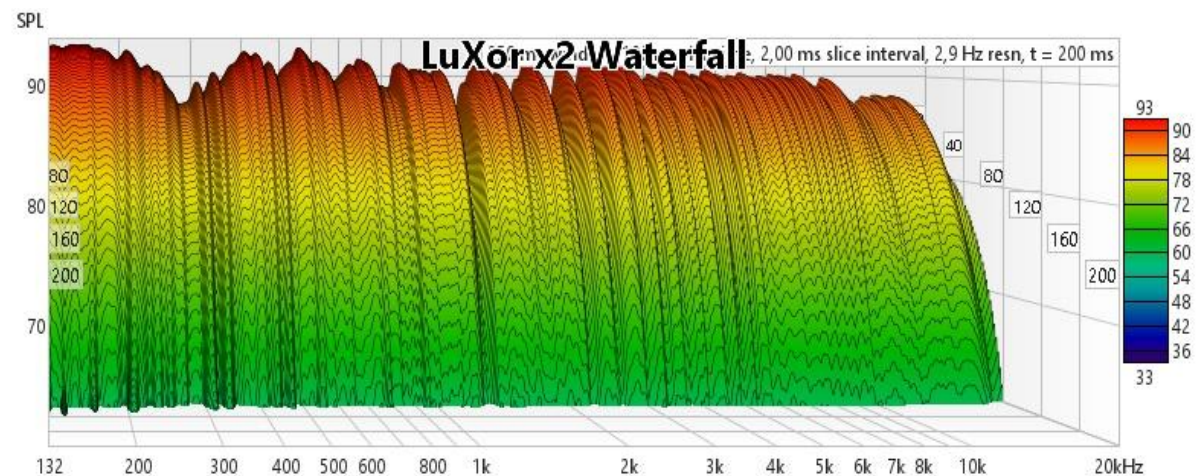
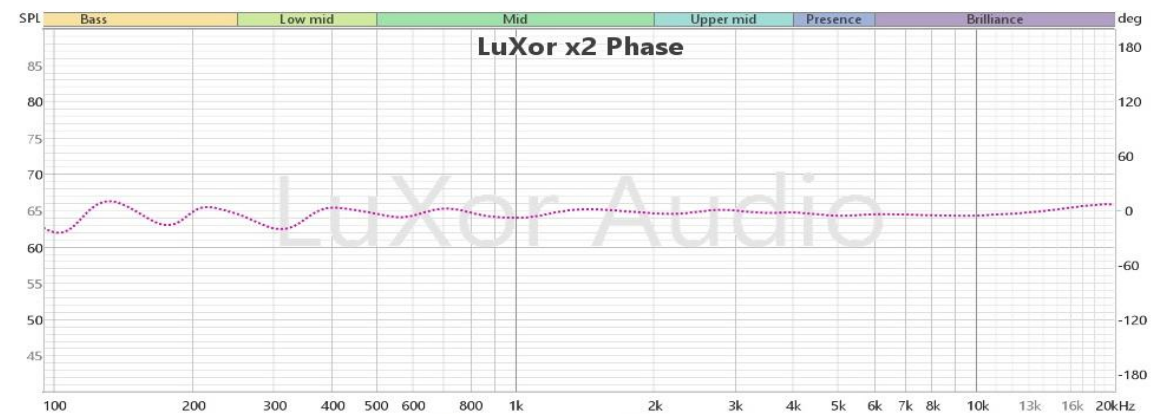
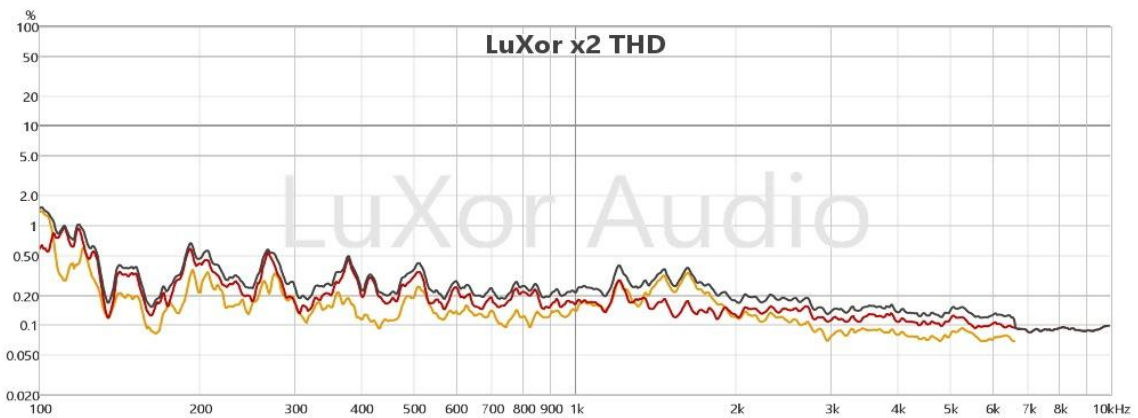
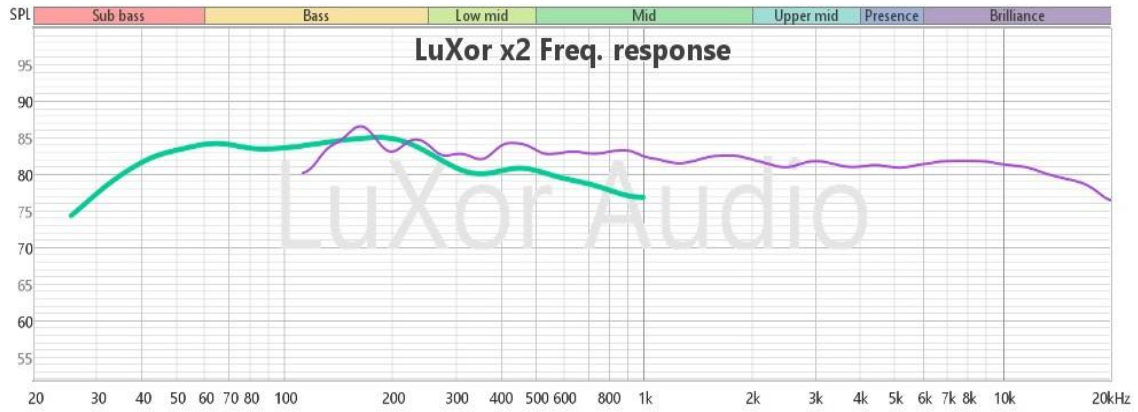


Figure 6. Total Harmonic Distortion + Noise vs Output Power

9. Acoustic measurements





Luxor x4 3way active digital loudspeaker specifications

Analog input (balanced XLR, single-ended RCA)	Input sensitivity (XLR/RCA)	6 Veff / 2,5 Veff
	Input impedance (XLR/RCA)	2000 kΩ / 50 kΩ
	ADC chipset	Asahi Kasei AK5554
	DNR	110 dB
Digital inputs	S/PDIF optical	Toslink
	S/PDIF coaxial	RCA (75Ω) (galvanic isolated)
	AES/EBU	XLR (110Ω) (galvanic isolated)
	Supported sample rate by ASRC	32, 44.1, 48, 88.2, 96, 192 kHz PCM
DSP	Chipset	Analog Devices Sigma SHARC
	Core frequency	300MHz
	Signal processing	96kHz/32bit
	Number of sonic presets	3
Amplifiers	Operation mode	Class-D
	Continuous output power	250W (LF) + 250W (MF) + 100W (HF) 630W (Peak to peak)
Acoustics properties	Frequency response	24Hz – 22kHz (–6dB)
	Frequency response accuracy	±1,5dB (32Hz–15kHz)
	THD Harmonic distortion	<0.11% (1kHz), <0,5% (20–20k Hz)
	SPL max	121dB (1m, Pink noise 12dBFS)
	Drivers (3 way)	1" metal dome (180W)
		6,5" midrange driver (300W) 2 x 10" bass driver (2x300W)
Protection	Overtemperature, clipping, overload	Auto retrial
Indicator	Power LED	Color LED
Mains	Voltage range	85 – 264 VAC
	Mains frequency range	47 – 63 Hz
	Power consumption	1,5 W (bypass), 18 W (idle)
	Power entry in 3 way model	Neutrik PowerCon
Environment	Operation temperature	+10 C° to +40 C°
	Operation humidity	20 to 90% RH, noncondensing
Mechanical properties	Dimensions	31 x 118 x 38 cm [W x H x D]
	Finishes	Walnut/cherry/wenge natural veneer
	Weight	51 kg (34 + 17 kg)

Luxor x2 2way active digital loudspeaker specifications

Analog input (balanced XLR, single-ended RCA)	Input sensitivity (XLR/RCA)	6 Veff / 2,5 Veff
	Input impedance (XLR/RCA)	2000 kΩ / 50 kΩ
	ADC chipset	Asahi Kasei AK5554
	DNR	110 dB
Digital inputs	S/PDIF optical	Toslink
	S/PDIF coaxial	RCA (75Ω) (galvanic isolated)
	AES/EBU	XLR (110Ω) (galvanic isolated)
	Supported sample rate by ASRC	32, 44.1, 48, 88.2, 96, 192 kHz PCM
DSP	Chipset	Analog Devices Sigma SHARC
	Core frequency	300MHz
	Signal processing	96kHz/32bit
	Number of sonic presets	3
Amplifiers	Operation mode	Class-D
	Continuous output power	250W (LF) + 100W (HF) 380W (Peak to peak)
Acoustics properties	Frequency response	35Hz – 22kHz (–6dB)
	Frequency response accuracy	±1,5dB (Hz–15kHz)
	THD Harmonic distortion	<0.11% (1kHz), <0,5% (20–20k Hz)
	SPL max	112 dB (1m, Pink noise 12 dBFS)
	Drivers (3 way)	1" metal dome (180W) 8" bass driver (300W)
Protection	Overtemperature, clipping, overload	Auto retrial
Indicator	Power LED	Color LED
Mains	Voltage range	85 – 264 VAC
	Mains frequency range	47 – 63 Hz
	Power consumption	1,5 W (bypass), 18 W (idle)
	Power entry in 3 way model	Shurter IEC
Environment	Operation temperature	+10 C° to +40 C°
	Operation humidity	20 to 90% RH, noncondensing
Mechanical properties	Dimensions	27 x 40 x 38 cm [W x H x D]
	Finishes	Walnut/cherry/wenge natural veneer
	Weight	18 kg