Yggdrasil CX45 Loudspeaker
User Manual 1.0

2026

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Introduction

Welcome

Thank you for purchasing the Yggdrasil CX45 monitor/standmount loudspeaker from Green Acoustics. The Yggdrasil CX45 consists of a 4.5” coaxial loudspeaker driver complimented with a 5” bass driver and a rear firing passive resonator. Your new loudspeaker has a high-quality internal passive crossover which achieves low phase distortion and a smooth tonal balance, beautiful imaging and realism.

Included with your new loudspeaker are also 4 antivibration feet for extra isolation. These feet shall be used as they have a specific design purpose and are designed to fit under your loudspeakers. They will add realism to your sound experience.

To get the maximum out of your new product and to be able to reach the products full potential please read this user manual.

This user manual will give you all the information you should need to use and live with your new loudspeaker. If you should have any further questions or run into some problems, please feel free to get in contact at contact@greenacoustics.se.

Enjoy your new loudspeaker.

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Before you start

Warning
For your own safety and the safety of your new product, electrical system shall be installed by a qualified technician.

Parts included.

The following items should also be included in the loudspeaker carton box.

- Certificate of Ownership x 1
- User Manual in English x 1
- Antivibration Feet x 4 (pre-mounted)
- Cleaning Cloth x 1
- Cotton Gloves x 1 pair

Unpacking

Before starting unpacking your Yggdrasil CX67 refer to the datasheet (page 12) for product weight and dimensions. Start by putting the carton box down on a stabile surface with marking up facing upwards. Remove the tape and open the top flaps to expose the loudspeaker. Now remove the shock absorbing material on top of the loudspeaker and let the protective cloth remain in place. If wearing, remove any jewellery or sharp object that might scratch your speaker. Remove the included items before lifting the speaker out of the box. When using the included cotton gloves be careful so not to slip. Put one hand under one loudspeaker and lift the speaker out of the box. Put the loudspeaker down on a soft protected surface, now remove the protective cloth. On the bottom of your new loudspeaker, you will find that four antivibration feet has been pre-mounted in dedicated reseeded cutouts, these antivibration feet have adhesive fastening tape so to not come of when moving the speaker.

Inspection

Hardware

Check and make sure all products and accessories are included and nothing is missing. If any products or accessories are missing contact Green Acoustics at contact@greenacoustics.se

Damage

If any products or accessories have been damage during shipping, please take a photograph of the damage and contact the carrier immediately.

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Installation

Check to make sure that any mounting hardware used is enough to support the system. Be careful not to place any devices or other equipment on top of the loudspeaker as such devices could fall, causing injury or damaging your loudspeaker. After installation, you must confirm that the loudspeaker is safely installed. You must also periodically check to make sure that the loudspeaker is still safely installed. The loudspeaker could fall, causing accidents. Take measures to prevent the loudspeaker from sliding off its intended installation surface. Also make sure only the antivibration feet are in contact with the support surface.

Green Acoustics is not responsible for any loss or damage that results from improper unpacking and installation, insufficient strength of installation materials, misuse, modification or natural disasters.

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Cautions

Qualified installation technician must follow professional installation techniques to protect the loudspeaker system. Improper installation of the loudspeaker could cause damage or injuries to persons in the vicinity of the loudspeaker. Do not attempt to stack devices together for use other than specified system, such devices may become unstable and tip over or fall, leading to injury.

Green Acoustics shall accept no liability for damage or injury caused by accidents resulting from Green Acoustics products tipping over or falling due to them being placed on insufficiently secured surface/platforms.

Switch off and unplug your power amplifier and consult the instructions when connecting and setting up components. Make sure you use the correct connecting cables.

Keep magnetic objects such as screwdrivers or steel parts away from the loudspeakers. Since the loudspeakers use strong magnets, the objects may be attracted, causing injury or damaging the loudspeaker drivers.

Do not install the loudspeaker system in areas exposed to direct sunlight or near heating sources. Such conditions may result in degradation of your system leading to deformation of the enclosure, discoloration and ultimately damaging your loudspeaker system.

Do not store the system at temperatures outside of the rated temperature range as doing so may cause the loudspeaker system to drop in performance or even become damaged.

Do not use the loudspeaker system in locations subjected to extreme fluctuations in temperature. Doing so could cause the loudspeaker system to malfunction. When using room air conditioners or stoves to rapidly cool or heat room spaces, take precautions to avoid excessive dehumidification. Avoid placing the loudspeaker system near areas such as windows, as outside air can cause condensation to occur within the loudspeaker system.

Your Yggdrasil CX45 loudspeaker are rugged in design but it is not aqua thigh thus is not waterproof. Provide a comfortable environment for your loudspeaker system and you will have a High-End quality product for many years to come.

Loudspeaker systems are capable of producing dangerously loud sound pressure levels, so caution needs to be taken when setting up and using your system. You can easily misjudge the noise levels so be careful.

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Disposal

If you want to dispose of this product do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with your country’s legislation that requires proper treatment, recovery and recycling.

Private households in the member states of the EU, in Switzerland and Norway may return their used electronic products free of charge to designated collection facilities.

For countries not mentioned above, please contact your local authorities for the correct method of disposal. By doing so you will ensure that your disposed product undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

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Hearing Safety

Exposure

Playing music is a great profession, hobby and passion but to get the most out of your equipment and still being safe there are some things you need to remember:

To protect yourself and potential audience the following exposure levels should not be exceeded.

- For EU member the following 2003/10/EC directive applies: https://eur-lex.europa.eu/
- For the US the following OSHA exposure limits applies: https://www.osha.gov/

Some country has imposed even lower limit values, for example Sweden has 85dBA as limit value.

OSHA 1926.52(d)(1)		EU 2003/10/EC		AFS 2023:10	
Noise level	Exposure limit	Noise level	Exposure limit	Noise level	Exposure limit
		87 dBA	**8.0 hours**	**85 dBA**	**8.0 hours**
90 dBA	**8.0 hours**	90 dBA	4.0 hours	90 dBA	2.5 hours
92 dBA	6.0 hours	92 dBA	2.5 hours	92 dBA	1.6 hours
95 dBA	4.0 hours	95 dBA	1.3 hours	95 dBA	48 min
97 dBA	3.0 hours	97 dBA	48 min	97 dBA	30 min
100 dBA	2.0 hours	100 dBA	24 min	100 dBA	15 min
102 dBA	1.5 hours	102 dBA	15 min	102 dBA	9.6 min
105 dBA	1.0 hours	105 dBA	7.6 min	105 dBA	4.8 min
110 dBA	30 min	110 dBA	2.4 min	110 dBA	91 sec
115 dBA	15 min	115 dBA	46 sec	115 dBA	29 sec
120 dBA	7.5 min	120 dBA	14 sec	120 dBA	9 sec
				LpAFmax	**115dBA**
				LpCpeak	**135dBC**

Table 1. Noise exposure limits

The goal is to eat the cake and still have it; you’ re hearing that is. ☺

For countries not mentioned above, please refer to your health and safety administration. You should always look into what’ s the latest legislation in your country as there is always development and research going on to make us understand the human body better and this will make us reevaluate and make new legislations based on new knowledge. Still, I would recommend extreme caution when listening at high levels, a damaged hearing can never be restored.

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The eardrum

The eardrum in the ear senses the pressure variations in the sound waves. The dynamic sound pressure amplitude is a natural measure of the sound strength. The dynamic range of the ear is very large and the relationship between the sound pressure at the threshold of pain and the barely perceptible sound pressure is more than one to one million. To adjust the measurement scale to the great working area of the ear and to how we perceive the strength of sounds with different sound pressures we use a logarithmic scale to describe the sound strength. The logarithmic quantities used in acoustics are denoted level and is usually specified in the unit decibel (dB = 1/10 Bel).

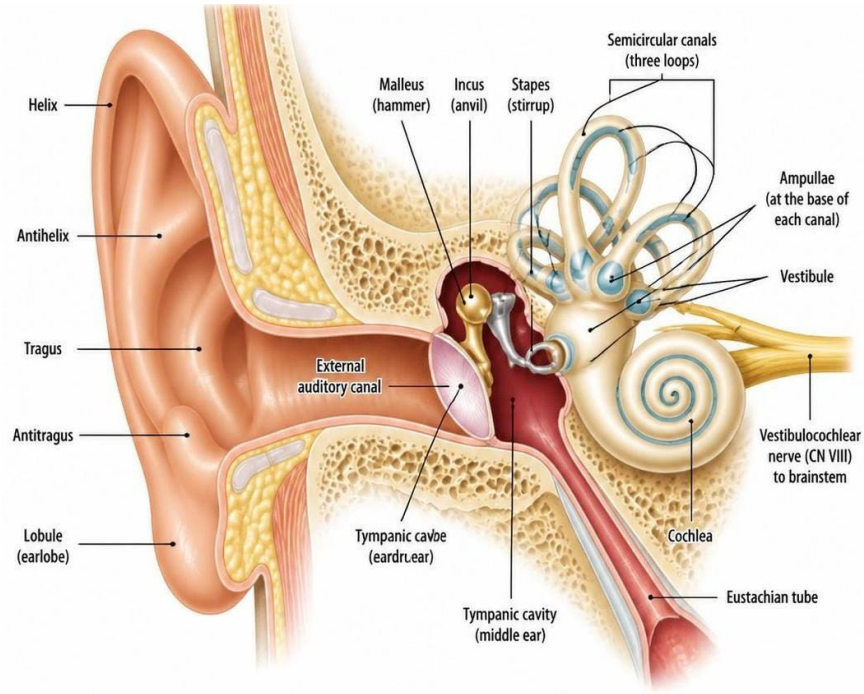

Figure 1. AI generated

Sound pressure level is a physical and unidimensional measure of the sound strength and are defined by the expression:

$$Lp = 20lg\frac{P}{P_0}$$

Lp = sound pressure level in dB
P = sound pressure effective value in Pa
P_0= reference sound pressure 20 µPa ($2 \cdot 10^{-5}$ Pa)

The reference sound pressure 20 µPa are according to international standard, a weak sound pressure which can barely be perceived by a person with normal hearing (that to say the sound is on the hearing threshold). At the reference level 20 µPa the sound pressure level becomes 0dB and at the threshold of pain 20 Pascal we get 120dB.

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To get an enjoyable experience for both you and your audience follow these guidelines:

- Slowly increase the sound until you can hear it comfortably that should be enough.
- Set a sound pressure level for low distortion and low acoustical feedback.
- You can measure the response from your system and adjust accordingly.
- Use high quality source material.
- Do not exceed stated power ratings.
- Do not exceed noise exposure limits, take good care of your hearing.

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Psychoacoustics

As people are different so is our hearing. This do not imply that a loudspeaker should reproduce anything else than the tonal balance the artist has intended.

Head Related Transfer Function

In an actual hearing system, the sound emitted from a sound source is transformed by a linear transfer function such as a head-related transfer function and transfer functions of the outer ear, the middle ear, and the linear mechanical part of the inner ear. The linear transfer function describes a comprehensive transfer function between a sound source and the stage just before the loudness perception process. According to these ideas, the process of loudness rating consists of three parts: a linear transfer function, a loudness perception, and a number assignment.

MIRE (Microphone in Real Ear)

Figure 2. shows the result from tests done objectively with MIRE technique for twelve test persons under diffuse field conditions. It can clearly be seen that there are big individual differences. This combined with the actual perception of sound makes for a quite complex individual sound profile. ISO 11904-1 describes measurements carried out using miniature or probe microphones inserted in the ears of human subjects.

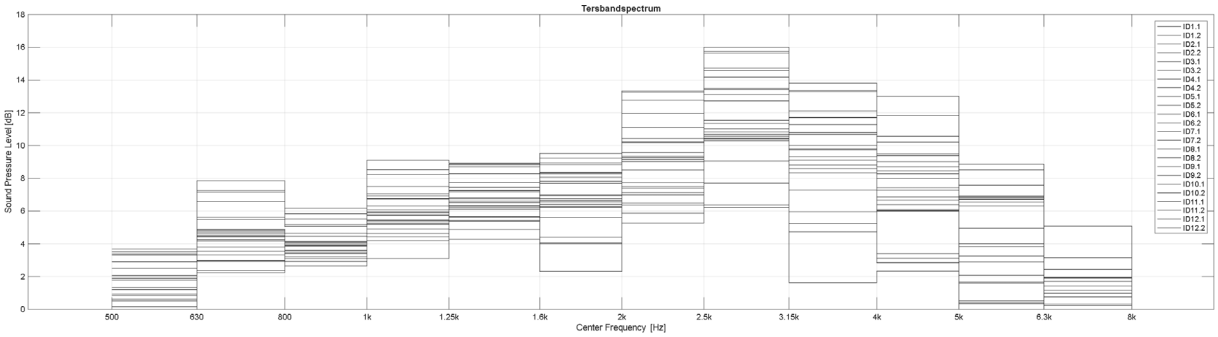

Figure 2. Tersbandspectrum

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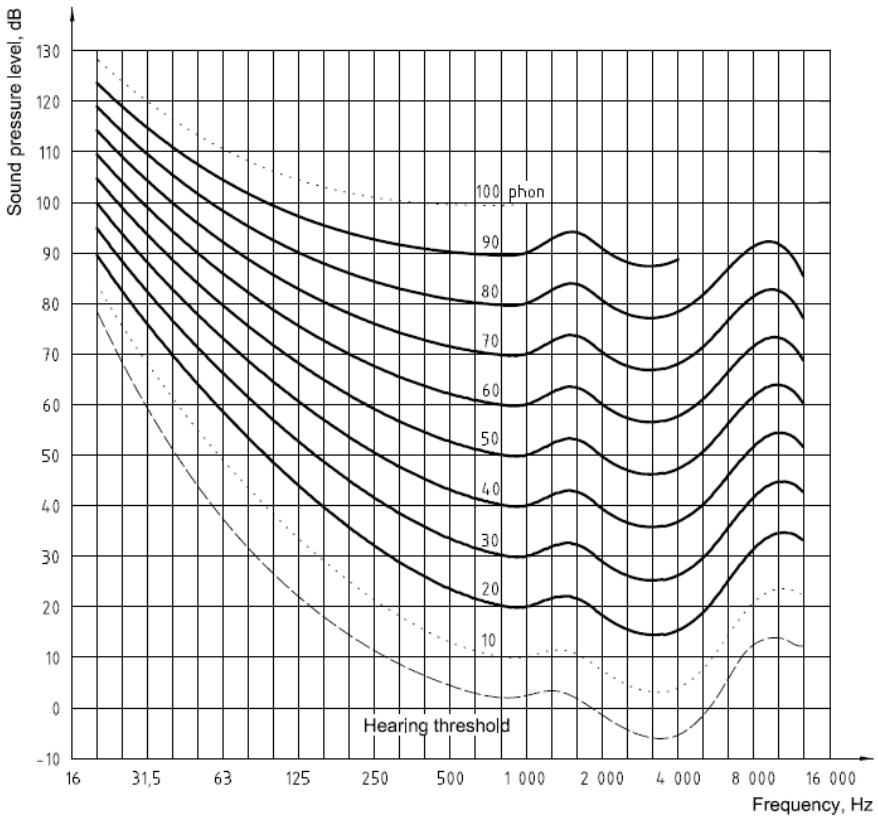
Loudness contour

Curves defining combinations of pure tones in terms of frequency and sound pressure level, which are perceived as equally loud, express a fundamental property of the human auditory system and are of basic importance in the field of psychoacoustics. Together with data on the threshold of hearing under free-field and diffuse-field listening conditions, such equal-loudness-level contours were specified in ISO 226:1987.

SS-ISO 226:2004

Annex A
(normative)

Normal equal-loudness-level contours for pure tones under free-field listening conditions



NOTE 1 The hearing threshold under free-field listening condition, T_f, is indicated by a dashed line.

NOTE 2 The contour at 10 phon is drawn by dotted lines because of the lack of experimental data between 20 phon and the hearing thresholds. Moreover, the 100-phon contour is also described by a dotted line because data from only one institute are available at this loudness level.

Figure A.1 — Normal equal-loudness-level contours for pure tones
(binaural free-field listening, frontal incidence)

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Figure 3. ISO 226 loudness contours

Product Overview

System Setup

Make sure to use amplifiers with rated load impedances that match the loudspeaker system impedance for the amplifier connected to the loudspeaker. Furthermore, any devices or objects easily affected by magnetism should be kept well away from loudspeakers.

The loudspeaker must be connected with the positive speaker cable connected to your positive loudspeaker terminal and to your positive power amplifier terminal. If not connected in phase you will not experience the full potential of this loudspeaker.

In order to prevent damage to the loudspeaker resulting from input overload, please observe the following precautions:

- If you supply amplification power to the loudspeaker excessively, the speaker could be damaged, and overheating could cause a hazard.
- Only connect and disconnect cables and units after turning off the connected power amplifier.
- Do not try to force a low power amplifier to produce high sound pressure levels as the amplifier will start clipping and harmonic distortion will rise.

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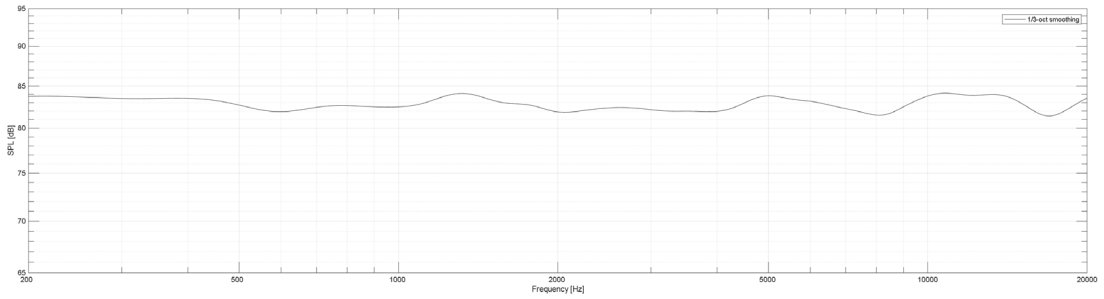
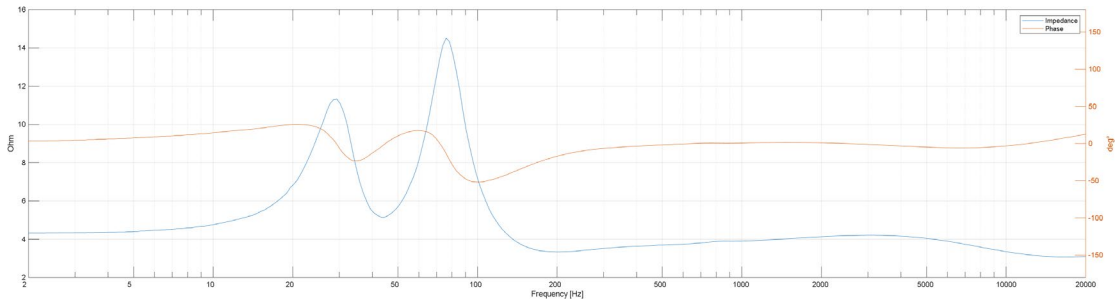
Specifications

Type	Broadband Monitor/Standmount Loudspeaker.
Model	3-way Closed Cabinet Utilizing Passive Radiator.
Occupied Bandwidth	40kHz.
Sensitivity 200Hz-20000Hz	83dB SPL@1m ref. 2.83Vrms
Sensitivity 300Hz-3000Hz	83dB SPL@1m ref. 2.83Vrms
Frequency Response ±1.5dB (1/3 Oct Smoothing)	43Hz(f3)-20kHz
Maximum Continuous Acoustical Output	105 dB SPL rms. (Half-Space).
Maximum Peak Acoustical Output	108 dB SPL Peak. (Half-Space).
Maximum Continuous Input Power	40 Watt.
Maximum Peak Input Power	80 Watt.
Nominal Impedance	4 Ohm.
Minimum Impedance	3.1 Ohm.
Maximum Impedance	14.5 Ohm.
Mean Impedance	4.9 Ohm.
Median Impedance	4.2 Ohm.
Tweeter	20mm Aluminium/Magnesium.
Midrange	4.5” Paper Fiber Cone.
Woofer	5” Paper Fiber Cone.
Passive Radiator	5” Paper Fiber Cone.
Connectors	JANTZEN AUDIO Sp. z o. o.
Enclosure	Braced Dense Fibreboard. Resonance Damped.
Int. Protection	Isothermal Damping.
Finishing	High Gloss Lacquer.
Dimension (H x W x D)	331mm x 181mm x 226mm.
Net Weight	8 kg
Isolation	Driver Decoupling. Antivibration Feet.
Crossover Topology	Minimum Phase/All Phase Decomposition.
Crossover Components	JANTZEN AUDIO Sp. z o. o.





Specifications are subject to change without any prior notice.
Warranty voided if driving YCX45 over the stated OEM maximum power rating.

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Amplifier

Yggdrasil CX45 shall be driven with a power amplifier rated at load impedances that match the loudspeaker system. The amplifier should preferably be compliant with the loudspeaker maximum peak input power to avoid amplifier clipping and to get a sufficient amount of headroom.

Cabling

For loudspeaker cables it’ s recommended that the series resistance of your cable be less than one-hundredth of the nominal system impedance. Cross section must be made larger with higher power and greater length of the cable, but also with less impedance.

Speaker protection

Your Yggdrasil CX45 loudspeaker comes with an internal passive crossover, there is no overpower protection inside the loudspeaker. Do not supply amplification power to the loudspeaker excessively, the speaker could be damaged and overheating could cause a hazard. Warranty is voided if driving Yggdrasil CX45 over the stated OEM maximum power rating. Power handling also conforms to CEA-2031 industry standards. This means your speaker has the capacity to handle power under continuous demand, not instantaneous power handling that over time can damage voice coils. Yggdrasil CX45 has internal isothermal damping to protect drivers from overheating.

Cleaning

Do NOT use alcohol or any chemical, benzene or pesticide on any part of the loudspeaker. If doing so you will potentially damage the coating and drivers. Warrant will be voided if this is done. When cleaning of dust and fingerprints use the included cleaning cloth.

Connection

Yggdrasil CX45 is supplied with JANTZEN AUDIO Sp. z o. o. Banana/Spade gold connectors.

Mechanically

Yggdrasil CX45 complies with 2006/442/EC Machinery Directive.

Electrically

Yggdrasil CX45 complies with 2014/30/EU Electromagnetic Compatibility Directive.

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Environmentally

Yggdrasil CX45 are a closed box system with an outer lacer coating high gloss finish protection layer. Your loudspeaker is semi-rugged but it is not aqua thigh thus is not water resistant. When using air conditioners or heaters take precaution to avoid excessive dehumidification. Do not place the loudspeakers in draft where outside air would could cause condensation within the loudspeaker.

Ambient temperature during driving conditions:
15° C to 25° C

Relative Humidity:
Winter 35% to 65%
Summer 40% to 70%

Storage temperature:
+5° C to +50° C

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Loudspeaker placement

Your experience will be affected by your room dimensions, interior, furniture and your prefeed sound profile. If you follow these guidelines, you will have a good starting point to make your room acoustics work for you.

- Place your loudspeakers with the coaxial driver midpoint at approximately ear hight for your listing position. With this height your Yggdrasil loudspeaker will let you move around and still achieve good imaging.
- Start by pointing the loudspeaker straight and turn the speaker inwards to the listeners ears if lacking in imaging och soundstage.
- If distance **D** are less than 60cm turn the speaker inwards to the listeners ears.
- Depending on distance **A** you will have to adjust distance **C** to correct for comb-filtering. You can use the formula below to calculate the theoretical distance to which you should avoid. Place the loudspeaker further out in the room or closer to the wall depending on the desired low frequency gain produced by wall boundaries (see Radiation into space).
    - $\frac{343}{(343/A)}/4$
- Distance **A** should preferably be greater than distance **B**.
- Distance **B** should be approximately **0.85 x A**.
- Distance **C** should be adjusted to avoid comb-filtering.
- Distance **D** should preferably be greater than 60cm.

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These are merely guidelines and a starting point; your room may let you setup your system in an asymmetric way which can be beneficial regarding room acoustics relating to your psychoacoustical experience.

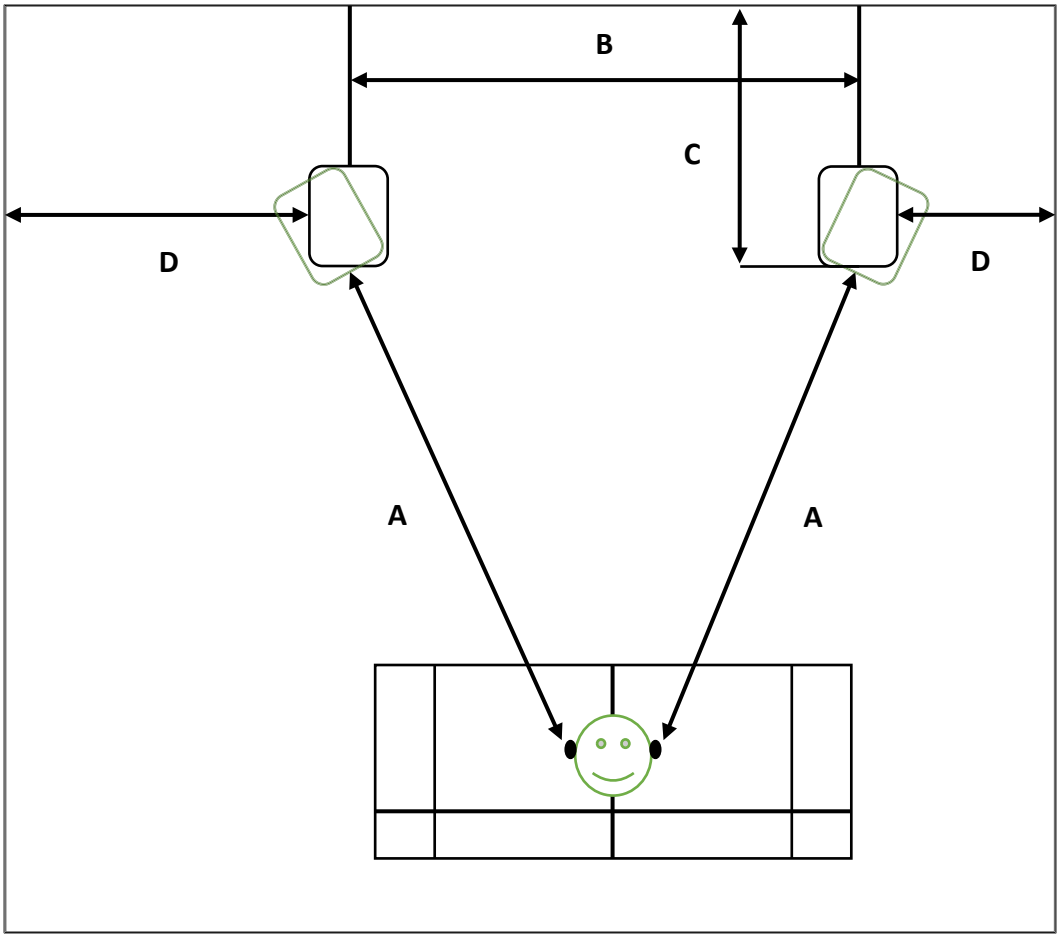

Figure 4. Loudspeaker placement

tip:

You can download an FFT analyser to your phone, play some gaussian noise on your new loudspeakers and walk around with your phone and see how this affects the room response. Not perfect but it will give you an indication on room modes and damping, and it can be rather fun.

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Radiation into space

A loudspeaker does not radiate into free space, thus in room it will gain in sound pressure level output. Most rooms have several wall boundaries. The following states how wall boundaries generally will affect your low frequency response.

- Half Space radiation (One boundary). 3 decibels increase in sound power level.
- Quarter Space radiation. (Dihedral boundary). 6 decibels increase in sound power level.
- One-Eighth Space radiation. (Trihedral boundary). 9 decibels increase in sound power level.

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Warranty

Green Acoustics offers the following warranty:

2 years limited warranty.

To make a warranty claim please contact your authorized dealer or get in contact with Green Acoustics at contact@greenacoustics.se.

Do not send any products before you have established contact with us and an agreement regarding your product, product sent to us without prior agreement will not be accepted.

All returns shall have RAN number accompanied by a copy of the original purchase receipt and certificate of ownership document, explanation of the warranty claim preferably including a photograph of the faulty part. All products shall be packed securely to handle the freight properly. If the product sent back is found not to be ineligible for warranty claim the cost will be forwarded to the owner and product returned after payment is received by Green Acoustics.

Contact information

If you have any questions regarding your new loudspeaker, please send us an email.

contact@greenacoustics.se

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