RAIDHO MANUAL 2024

CONGRATULATION ON THE PURCHASE OF YOUR RAIDHO LOUDSPEAKER!

We thank you for the trust put in us and welcome you to the Raidho family.

However, the best HiFi setup is not worth its price if it does not get setup right. Therefore, please take some time and effort into placing your speakers right and balancing the peripherals so you can fully enjoy your new purchase.

If you are a novice in this field or even have some experience, it can be very helpful to get a professional to install your speakers correctly.

If you choose to install them on your own, the rules and guidelines here are based on a rectangular room. Every room is different! Some can even be very complex due to unusual layout of the room. Or in many cases you must place your HiFi system in a certain spot or position for your room to work for other purposes as well.

Please follow as many points in this guideline as you can to get the best result. And in the end, this is only a guideline. We highly recommend you experiment to find the setup that works best for you. There is no 100% correct way to setup the speaker, because it also is a matter of taste to a certain degree.

We hope you enjoy this process of bringing your loudspeakers to perform its best.

ENJOY!

1. LEVEL OF DIFFICULTY

The larger and complex the loudspeaker is, the more difficult it is setting up. It will also require more knowledge and experience to get them to perform right as everything matters in what you do.

2. FIRST THINGS ARE FIRST - UNPACKING.

Please unpack every loudspeaker according to this guide:

X1t

X1.6

X2t

TD1.2

TD2.2

TD3.2

TD3.8

TD4.2

TD6

3. CONNECTING YOUR LOUDSPEAKER

The Raidho connectors are a proprietary component and makes for a great connection between the loudspeaker and the cable connected.

This connector accepts banana plug and large spades.

4. BURN-IN

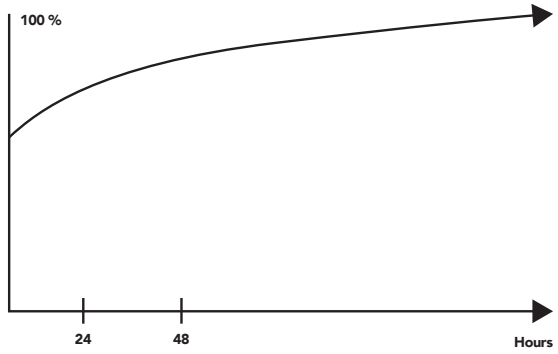
Remove the tweeter protection and save it for later use in case you need to pack them down again.

Before you start setting the system up you need to break-in the speaker. When the speakers are brand new all the moving parts in drivers are still a bit stiff. This will result in sound that is more mechanical and less engaging. Therefore, you need to burn-in / break-in the speaker.

This is best done by playing music at moderate level for at least 24-48 hours. This will improve the sound performance of the speaker enough so when you start setting up, you know you are hearing setup procedure and not the speaker breaking in with incremental improvements.

It can take 100 of hours until the speaker is fully broken-in, depending on what level of volume you play.

– see diagram



5. MUSIC FOR SETTING UP

When setting up your system, do use music you are familiar with and know the details of well. Preferable a couple of tracks that are different, but within your music library. One track with bass that has clear notes and go up and down in pitch. One track with complex music. One track with a singer that is clear in the middle. With this music you will be able to go through the following steps.

6. PLACING THE SPEAKERS IN THE ROOM

Consider the room's geometry and layout when placing speakers. Symmetrical rooms with minimal obstructions often provide better sound distribution and imaging. If your room has irregular shapes or obstacles, experiment with speaker placement to minimize acoustic issues.

Ideally the left and right wall should be symmetrical and made of the same material. This will give you even and coherent sound reproduction. All measurements will need to be done from the acoustical center of the loudspeaker, which basically means the tweeter (except if something else is specified).

Do not place anything between you and the listening position. You must be able to see all drive units from the listening position.

Place the speakers symmetrically relative to the listening position. This ensures balanced sound distribution and imaging. Avoid placing one speaker significantly closer to a wall or in a corner compared to the other.

The speakers and listening position should form a triangle when viewed from above.

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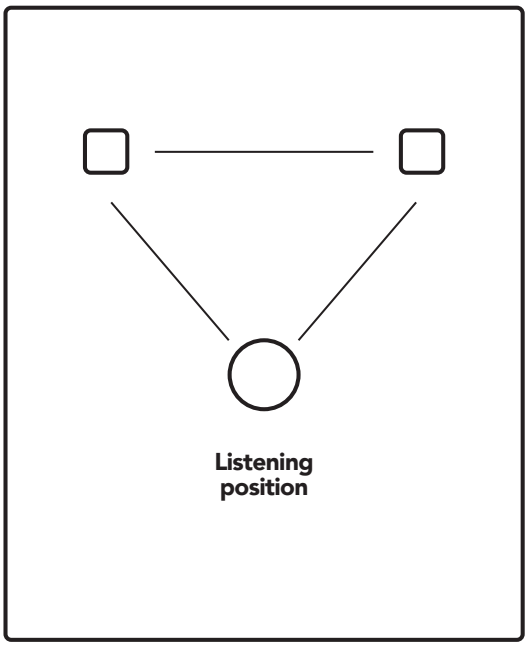

7. DISTANCE FROM FRONT WALL

Adjust the distance between the speakers and the rear wall to optimize bass response and imaging. Placing speakers too close to the rear wall can exaggerate bass frequencies and flatten the sound stage. Pulling the speaker out further from the rear wall helps creating a better depth in the sound stage presentation. But will sacrifice room gain in the bass, thus making the sound have less reinforcement in the bass region. Experiment with speaker placement to find the optimal distance.

If you have you speaker right up against the front wall, you can invest as much money in electronics or any things else, but you will never release the full potential of them. The recommended minimum distance is not only the minimum, it is highly recommended to move the speakers out further from the back wall in order to achieve audio nirvana. From the bass port on the speaker to the front wall there should be no less than 30 cm. Please aim for more.

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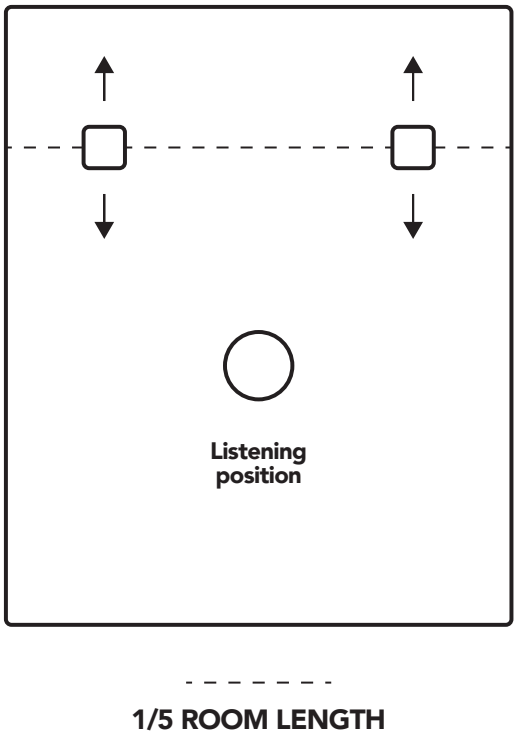

7.1 SMALL ROOMS (BELOW 15 M2)

Placing a speaker approximately 1/3 of the room length into the room can help minimize the effects of room modes and standing waves, particularly in smaller rooms.

This placement can help reduce bass buildup and improve bass response by positioning the speaker away from room boundaries (walls, corners).

It can also provide a balanced listening experience with good sound distribution throughout the room.

7.2 MEDIUM TO LARGE ROOMS

Placing a speaker approximately 1/5 of the room length into the room can further optimize speaker placement, particularly in larger rooms.

This placement allows for greater distance between the speaker and room boundaries, reducing the impact of room modes and reflections.

It can help achieve a more spacious soundstage and minimize the influence of room acoustics on the speaker's performance.

Ideally, speakers should be placed at least several feet away from walls to allow sound to propagate freely and reduce reflections. Never place your speaker directly in a corner.

7.3 BASS PORTS

All Raidho loudspeakers have a bass reflex loading. These can be tuned to less output (except the X1t), if you experience boomy bass in your room. This can be done in steps by putting a foam plug into one port at both loudspeakers. If it is not enough, proceed to closing off two ports on each speaker (if available) and so on. This will give a more correct bass response in your room. The result is also a matter of personal taste. So trust your ears and chose the configuration that sounds best to you.

8. DISTANCE FROM SIDE WALLS AND TOE-IN

This part is key to achieving the holographic sound that Raidho is known for. This may mean setting the speakers up in a wider position then you would normally do.

As a starting point use 1/5 of the room width but go up 1/8 to see if this work better creating the holographic sound. The Raidho tweeter offers a unique ability to have a very wide speaker setup without sacrificing the phantom center image.

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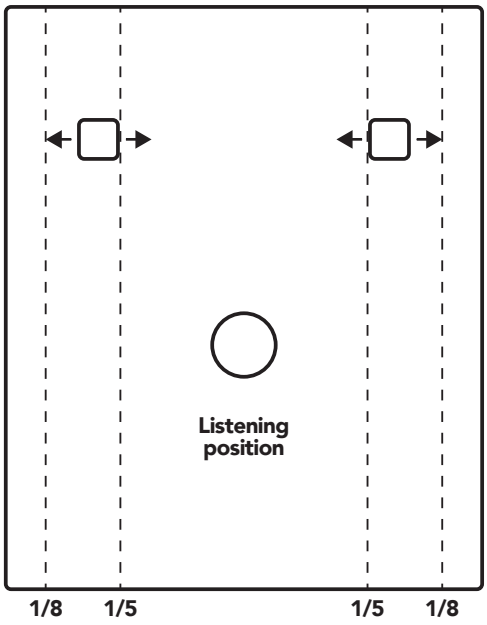

You need to experiment with the toe-in as well. This is very important for tonal balance (in the high frequency) and for creating the immersive sound. As a starting point, please aim the tweeter so it hits your shoulder on either side. Left speaker aims at your left shoulder and the right speaker aims at your right shoulder. Then try to aim the speakers directly at you and toe them out again. See where you hit the right spot between, stable and precise center image, immersive sound and tonal balance.

Please be aware that the tweeter has a relatively narrow dispersion in the vertical plane. That means if you sit low, you may need to tilt the speaker so the dispersion reaches your position adequately.

Make sure you do not have the same distance to the side walls as the back wall, as this will reinforce some of the same frequences. Avoid placing speakers too close to side walls, as this can result in uneven frequency response and imaging. Minimum distance to wall from the speaker's acoustic center is around 50 cm.

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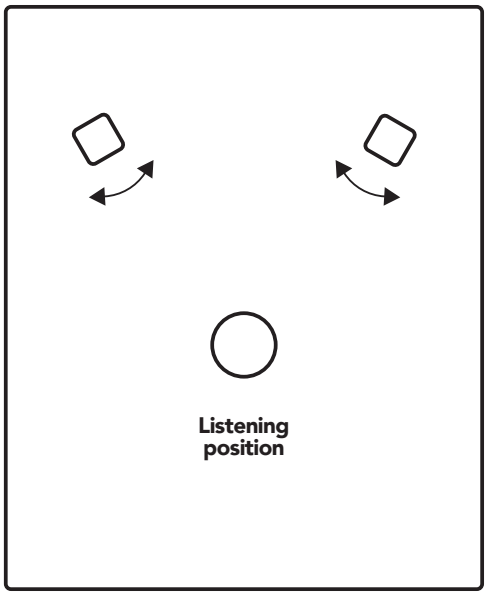

9. LISTENING POSITION

75% - 100% of the distance between the speaker should be the distance between the speaker and listener. The distance from the listener to each speaker, must be the same. The tweeter must be around ear level. Try moving yourself up and down to see if there is any change in level. It should be correct when you sit in the sweet spot.

Do not sit directly up against the back wall. Within 30-50 cm of the wall behind you will be bass buildup, therefor this is not ideal as listening position.

The room will have different room modes or standing waves. Theses are unique to every room. This means that you may experience more or less bass wherever you are placed in the room. Try different positions to get the right spot. Even 50 cm can make a big change in level of bass output.

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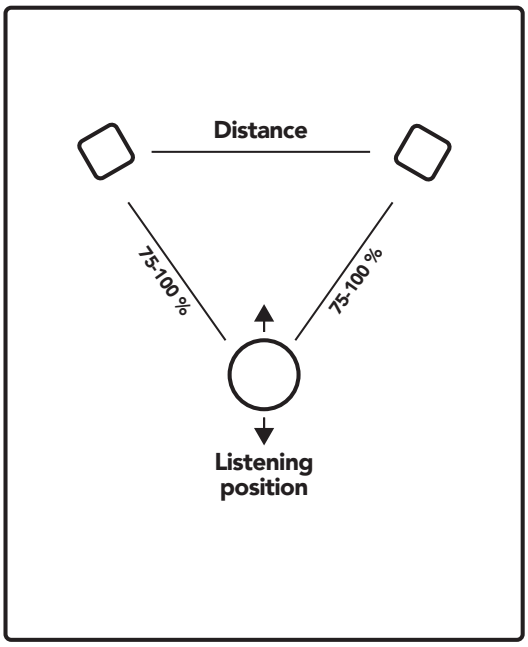

10. THE BALANCING ACT

While there's no one-size-fits-all answer to the optimal length into a room for speaker placement, following these guidelines and experimenting with different positions can help you find the best setup for your specific listening environment. Changing one parameter in the guideline may result in the need to change another one. This takes patience and skill.

Trusting your ears and making incremental adjustments based on sound quality and imaging can ultimately lead to a satisfying listening experience. While balancing every single aspect everything will suddenly fall into place. This is when you have reached your end destination: HiFi nirvana.

11. ROOM ACOUSTICS

Your rooms dimensions, shape, and construction materials can significantly affect sound quality. Hard surfaces like bare walls, floors, ceilings and glass can cause sound reflections and echo. To many of these elements will give a very diffuse, incoherent and sharp sounding performance. Soft furnishings like carpets, curtains, and upholstery can absorb sound.

To determine if you have a problem with your room acoustics try clapping loud. If you hear echo or a hall like sound, you need to act. When you speak at normal levels, do your voice sound natural and uncolored? If not, you have room for improvement.

Consider adding acoustic treatments like diffusers, absorbers, and bass traps to optimize the room's acoustics. It is important to reach a sensible balance between a lively and a well damped room. This will give you the most natural music reproduction.

This is a complex topic and may require help from your dealer where you bought the speakers.

12. A MATCHING AMPLIFIER FOR YOUR LOUDSPEAKER

Your Raidho loudspeaker has been made to fit many different types of amplifiers, as long as it is a high-quality one. Make sure your amp is good at delivering current. If you you want to play loud, the Raidho speakers can be quite power-hungry and take up a lot of power. Make sure not to push your amplifier to deliver more power than it can. This will cause distortion / clipping and will damage the loudspeaker (usually the tweeter) and warranty does not cover this, as it is considered misuse. This happens more easily with a small amplifier than a very powerful one, as the small amplifier reaches its limits much earlier. There is no warning before this happens. You need to know your electronics and the limits of it.

You can hardly have too much power, although there is a limit to how much power your loudspeaker can handle. In practice this is very much depending on the type of music you are playing. If you hear the woofers give hard and quick crashing sound, turn the volume down immediately as this means the woofers has reached their limits.

There are so many good amplifiers on the market today, so we cannot recommend a specific brand or model, because it is also a very subjective decision.

Here are some basic guidelines for choosing a good amplifier for your particular speaker. Remember these are only guidelines and if your knowledge level is strong, you can bend them and achieve excellent results with an unusual amplifier pairing. For everybody else these are the recommended amplifier output levels for your particular speaker:

X1t	Minimum: 50 watts	Recommended: 100+ watts into 8 ohms
X1.6	Minimum: 50 watts	Recommended: 100+ watts into 8 ohms
X2t	Minimum: 50 watts	Recommended: 200+ watts into 8 ohms
X2.6	Minimum: 100 watts	Recommended: 200+ watts into 8 ohms
TD1.2	Minimum: 50 watts	Recommended: 100+ watts into 8 ohms
TD2.2	Minimum: 100 watts	Recommended: 200+ watts into 8 ohms
TD3.2	Minimum: 100 watts	Recommended: 200+ watts into 8 ohms
TD3.8	Minimum: 100 watts	Recommended: 300+ watts into 8 ohms
TD4.2	Minimum: 100 watts	Recommended: 300+ watts into 8 ohms
TD4.8	Minimum: 200 watts	Recommended: 300+ watts into 8 ohms
TD6	Minimum: 250 watts	Recommended: 500+ watts into 8 ohms

13. QUALITY PERIPHERALS

Invest in high-quality cables and power conditioning equipment to ensure optimal signal transmission and clean power supply to the speakers. Well-insulated cables and proper grounding can minimize interference and noise, resulting in clearer audio reproduction. Since Raidho are highly resolving loudspeakers, this will help for best performance. We do not recommend any specific brand for the peripherals as this is subject to personal preference and your particular setup. A trusted local dealer can help you in the right direction.

14. SUPPORT

If you are still not happy with the results of the sound, try placing your loudspeakers in another direction / wall and start all over again.

Not getting the results you were hoping for? Make sure to contact us or your dealer immediately. There is nothing worse than being dissatisfied with your new purchase. So please let us know if we can further assist you. If you have any questions, please contact us as well. **Thank you**.

Support e-mail address for Raidho owners: VIPsupport@dantaxradio.dk

15. TAKING CARE OF YOUR SPEAKER

Cabinet

Update is coming ...

Scratches

Update is coming ...

Woofers

Please do not touch the membrane! Do not use any liquid materials to try and remove any stains from the membrane. If you do need to remove a stain, please contact our support team and they will give you advice if possible.

However, you can remove dust from the woofer / membrane with a dry cotton or microfiber cloth. But do not touch the membrane directly with your fingers as this may leave stains.