



## Loudspeakers

### Raidho S2

Manufacturer: **Raidho Acoustics**  
Price (in Poland): **34 900 PLN/pair**

Contact:  
**co/Dantax Radio A/S**  
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MADE IN DENMARK

Product delivered for test by: **Chillout Studio**



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## REVIEW

Text: Marek Dyba

Photos: Marek Dyba | Raidho  
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## Raidho acoustics

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One could say that last year, the A.D. 2013 was a year of Raidho's D1 loudspeakers. These were highly acclaimed during CES in Las Vegas, High-End in Munich, and finally they made a memorable appearance during Warsaw Audio Show. I personally didn't go to CES, but was amazed in Munich listening to what these small stand-mount speakers delivered in relatively large room. It was not just about spacing and imaging that are usual assets of any good monitor, but about how detailed, coherent, balanced across the band sound they presented including impressive (for the size of speakers) bass performance. A session

For the past months I've been using Ardeno's loudspeakers a lot and they used Fountek ribbon tweeter so I got used to "ribbon" sort of sound – it takes some effort to find optimal placement of the speakers but that always pays off with wonderful, spacial sound. With MusicBook the advantages of ribbon tweeter were not that obvious, I mean it sounded very good but it still wasn't top performance. But Crossfire III delivered, it proved that S2 were capable of presenting amazing, huge soundstage if only paired with proper amp. As I already mentioned ideally I would still combine midrange and treble of Ayon with bass of MusicBook, as

during AudioShow only confirmed previous observations even though this time the same speakers performed in much smaller room. One very good performance in Munich – this could be some sort of coincident, but the second one in a different room – that indicated, or rather confirmed that these were damn good speakers. Wojtek was the lucky one who got to review them (see [HERE](#)) and obviously enjoyed and appreciated them a lot. Malcontents will surely say that speakers that cost THAT much (the cheaper version costs 60 kPLN and with more exclusive finish even 70 kPLN) don't really have a choice and must perform like a dream. I don't know about the „must“ part, as there any many speaker costing even more that don't perform at all, but in this particular case yes, their performance puts them on my private podium of the best monitors I've ever heard. Large chunk of credit for such performance must go to special drivers – not only have they ceramic-aluminum sandwich diaphragm but it is additionally covered with a diamond dust (on both sides), plus there is quite a sophisticated motor system with neodymium magnets (see the picture taken during AudioShow 2013 with Raidho's owner, Lars Kristensen presenting magnetic systems and two types of diaphragms: ceramic-aluminum, and ceramic-aluminum covered with diamond).



This year in Munich Raidho presented new, huge floor-standing speakers – D-5. These could overwhelm with their size but again amazed many visitors to Raidho's room with top-shelf performance. This was one of my personal top-five systems of this year's High End Show (and I know that many other people felt the same). That brought me to a conclusion – guys from Raidho simply knew what they were doing and were able to deliver really good performance even from ceramic drivers (although D series sport ceramic drivers covered with diamond). OK, OK – no need to get excited. I'm not saying that ceramic drivers are not good, I'm simply declaring that they are not my cup of tea. Most of them perform quite well, in my opinion of course, but I wouldn't be happy with them. I know that many people feel differently and love „ceramic sound“ and that's OK, it's their right, but I usually prefer to appreciate them but rather from a distance. or over

now I lacked a bit this outstanding control and definition that German amplifier had delivered. Crossfire was able to deliver 30W per channel and it seemed that it wasn't enough to fully control S2 speakers. The extension of low end was quite good, but there was no such kick as with Lindemann, and bass wasn't so taut, so well differentiated. Long story short – this setup was surely different, had a lot of advantages but it still wasn't „perfect“. Those who prefer acoustic music would surely like this setup better, on the other hand rock, metal fan would surely choose S2 with Lindemann.

Last but not least I hooked S2 up to my Modwright pre-amp combo (solid-state KWA100SE power amp and tube preamplifier LS100). Considering above described experience there was a good chance that this setup could be IT (yes, I realize that it is not some top-high-end amplification but it proved many times that it performed much better than price suggested, and it was a damn good fit for many speakers from similar, as S2, price range). And yes, I did combine many of the best features of both previously used amps – very good bass performance of Lindemann with sweet, rich midrange and sparking treble of Ayon's SET. I hope you noticed „many“, which means „not all of them“. When comparing two amplifiers both having their advantages one might dream about combining best features of both of them into one amp. But that is simply not possible – combining these features always means some compromises if one wants to achieve a coherent presentation. So yeah, bass performance was very good but control and definition weren't that good as in case of Lindemann. Midrange was smooth and palpable but not as magical, as provided by Ayon's SET. But what I got was a coherent, impressive performance across the whole band, with no emphasis on any part of the range, which ultimately meant that it was better overall than any other before, even if it didn't offer such impressive single features.



Music is not about showing off. Wait, no, that's not true. Reproduction of music by audio system should not be about emphasizing some elements of sound. The sound system should, in my opinion of course, connect listener to the reproduced music, should allow performing musicians to impress listener with their mastery, listener should be provided with experience as close to the one he gets when attending concert as possible. At least that's what I expect from any audio system. The loudspeakers with ceramic drivers, usually are bass-reflex designs and usually don't sound like that in my ears. Sound is highly detailed, analytic, but it lacks the essence of music – emotions. Guys from Raidho keep reminding me that in audio it is not about particular element (like ceramic driver in this case) but about its application. I don't know how they did it, as Raidho is not a company that shares too many details about their designs, but they managed to create speakers with ceramic drivers that I actually liked. Part of the credit should probably go to the design – that's not a bass-reflex but a transmission line, but I'm sure that this one element alone wouldn't be enough to convince me. Anyway S2 are speakers that with support of proper system created performance that even such a „ceramic skeptic“ like me actually appreciated and liked. With Modwright's amplification S2 delivered rich, involving presentation (which does not mean perfect). Same as with Lindmann I enjoyed

prefer to appreciate them not rather from a distance, or over short periods of time.

Back to the point – Raidho is (again – in my opinion) one of very few manufacturers who apply ceramic drivers (even these in D series are in fact ceramic-aluminum sandwiches covered with diamond) in a way that allows their loudspeakers to produce a sound I might live with and that's from my perspective, quite an achievement. Well, an exception that confirms the rule..., OK, I'm teasing with you. Anyway, since all the shows experiences were so good all I could do was to contact Polish distributor and ask him to deliver one of the models for review. Together with [Chillout Studio](#), we chose a mid-size floor-stander named S2. It's quite a tall (115 cm), slim loudspeaker with a transmission line with a port at the bottom. The letter „S” marks a separate line, even though S2 is the only representative as for today.

The above mentioned base of the speaker was given sort of arch shape so that the transmission line port stays in some minimal distance from the ground. There are some adjustable feet there that allow to change that distance within very limited range. Just a word of advice for potential users – it does matter what you place these speakers on – I definitely preferred them placed on granite plinth rather than directly on wooden floor. Whole speaker is gently tilted back for time and phase coherence of the drivers. The cabinets narrows down towards the back and ends with a rounded edge. The black, high-gloss finish makes S2 look very attractive. Speakers sport a sealed ribbon tweeter, and two 115mm ceramic mid- low-range woofers. The fit and finish is of very high standard and the speakers, although quite tall, seem very sleek.



### Recordings used during test (a selection)

- AC/DC, *Back in black*, SONY B000089RV6, CD/FLAC.
- Aerosmith, *Pump*, Geffen Records, FLAC.
- Guns N' Roses, *Use your illusion 2*, Geffen Records B000000OSG, CD/FLAC.
- Cassandra Wilson, *New moon daughter*, Blue Note CDP 7243 8 37183 2 0, CD/FLAC.
- Patricia Barber, *Companion*, Blue Note/Premonition 724 3 5 22963 2 3, CD/FLAC.
- Al di Meola, John McLaughlin, Paco de Lucia, *Friday night in San Francisco*, Philips 800 047-2, CD/FLAC.
- Arne Domnerus, *Jazz at the Pawnshop*, FIM XRCD 012-013, XRCD/FLAC.
- Eva Cassidy, *Eva by heart*, Blix Street 410047, CD/FLAC.
- Dyjak, *Publicznie*, UBFC Cd0111, CD.
- Isao Suzuki, *Blow up*, Three Blind Mice B000682FAE, CD/FLAC.
- Kermit Ruffins, *Livin' a Treme life*, Basin Street B001T46TVU, CD/FLAC.
- Frank Sinatra, *Live in Paris*, Mobile Fidelity MFSL 2-312, LP.
- Lee Ritenour, *Rhythm sessions*, Concord Records CRE 33709-02, CD/FLAC.
- Renaud Garcia-Fons, *Oriental bass*, Enja B000005CD8, CD/FLAC.
- The Ray Brown Trio, *Summer Wind*, Concord Jazz CCD-4426, CD/FLAC.
- V.A. Mozart, *Le Nozze di Figaro*, Harmonia Mundi HMC 901818.20, CD/FLAC.
- Georges Bizet, *Carmen*, RCA Red Seal 74321 39495 2, CD/FLAC.

Japanese issues available at [cdjapan.co.jp](http://cdjapan.co.jp)

(which does not mean perfect), same as with Lindemann I enjoyed AC/DC music a lot – very lively, unforced performance with deep, powerful, punctual bass, clean (I mean as much as recording allowed), rich midrange and resolving, open, vibrant treble combined together to create easily involving, very energetic musical event.

I love recordings of Isao Suzuki and Ray Brown for their amazing skills of double bass player, not to mention very good quality of these recording. System with S2 delivered nicely differentiated, clean, powerful bass, with a beautiful, long decay without artificial prolonging (which is often an issue with bass-reflex designs). Clearly presented, very fast attack phase allowed me to appreciate mastery of these fantastic musicians and the above mentioned long decay showed the great role of large soundboard. I also enjoyed a lot wind instruments performances. Not only did I listened to my collection of New Orleans music, but also to classics like Miles Davis and John Coltrane. Raidho excelled in presentation of crisp, vibrant, clean performances of trumpet, saxophone or trombone. These instruments sounded, if needed, very crisp but never too bright or too harsh. That was not achieved via rounding of upper midrange and treble but due to very natural sounding presentation. Just like during live performance when, for example, trumpet can sound quite harsh but even than it doesn't sound unpleasant to our ears. Danish speakers offered similar effect. S2 created also a soundstage that was impressive in every aspect, depending of course on the way it was recorded. Listening to many of such pieces that I knew captured spacing in extremely good way I could tell, that Raidho's performance in this aspect was simply astonishing. It was not only about the size of the stage, right to left and front to back, but also about layering, about precise positioning of each instrument of the stage, and about three-dimensional imaging of each of them.



Until now I thought that ceramic speakers were created mostly for rock and electronic music. They came handy when a powerful, kicking bass was required and midrange was not that important. S2 combined with Modwright amplification proved that also acoustic music, vocals, classical music could sound very well delivered with ceramic drivers. One needs electronics with rich, colorful midrange that will takes care of proper expression and palpability level of performance. These combined with “natural” feature of ceramics – clean, fast, precise, highly detailed, resolving sound supported with taut, very clean, and well defined bass will create a very interesting, involving presentation. When playing acoustic music you'll get the feeling of close contact with performing musicians and vocalists, there will be proper pace&rhythm, and the whole performance will be very precise, clean, and shown on a huge, nicely layered soundstage. Such a system is fully capable of delivering high performance with any music genre, what more could one expect from high quality speakers? Their performance should satisfy those who find timbre, richness of sound most important, but also those who prefer highly resolving, analytic sound. I would simply say that Raidho S2

are impressive all-rounders. An important, or even key issue, will be system matching though.

## Summary

Those, who count on getting the level of D-1 performance at half the price will not be fully satisfied – there are no miracles in audio world. But if you give S2 a chance, pair them with carefully selected electronics and compare them with competitors at their price range you will start to appreciate what they bring to the table. These are beautifully made and finished, not too big floor-standing speakers, that are able to contradict a common (among ceramic-skeptics like myself) opinion about ceramic drivers, that inclines a dry, lacking emotional aspect of music performance. Yes, they need a support of a system delivering full, rich midrange, but that's exactly what building an audio system is about – finding elements that support each other, that together create an expected final sound. In my system, with Modwright amplification, Raidho S2 delivered rich, even across the band, and what's most important from my point of view involving sound. These are ones of very few ceramic speakers I could live with.

## DESIGN

S2 might be called a Raidho's entry level speaker. There is one - X-Monitor LE – that costs less, but that's a small stand-mount speaker, not a floor-stander like S2. The design is a transmission line with the port at the bottom of a speaker. Each speaker sports an arch shaped plinth, which leave some room underneath between TL port and the floor. Plinth is equipped with adjustable feet that allow to change, within limited range, the distance between port on the floor. After my experience I recommend placing speakers on a hard floor (or additional plinth/base) rather than on a carpet. The sleek, tall cabinet is made of (I think – no confirmation on manufacturer's webpage) of MDF. Cabinet is gently tilted backwards to assure proper time and phase coherence of all drivers. The front panel is quite narrow and than the side walls are getting closer to each other towards the back and finally cabinets end with a rounded edge. Single speakers posts are placed on the plinth. A sealed ribbon speaker is a previous version of the one used now in D and C series. These woofers are aluminum-ceramic sandwiches with same ceramic diaphragm as used in C series, but with much simpler driver's motor system. Instead of complex neodymium magnets array used in C and D series, here manufacturer used ferrite magnets. The diaphragm consist of an aluminum frame covered on both sides with ceramic layers. Drivers in D series sport additional layers of diamond and these layers are created with a long process of "shooting" carbon particles at huge speed that makes them crystallize on the surface of the diaphragm Since that's a much

less expensive series and creating this diamond layer in very expensive, manufacturer decided not to use it. Speakers are delivered inside huge carton boxes that could accommodate much larger speakers.

### Technical parameters (according to manufacturer)

Frequency range: 27 Hz – 50 kHz  
Impedance: > 6 Ω

Crossover: 2nd order with crossover points at 150 Hz and 3 kHz

Enclosure: transmission line with port at the bottom

Drivers: ribbon tweeter, 2 x 115 mm ceramic woofers

Dimensions: 177(S) x 1140(W) x 370(G) mm

Weight: 24 kg/pc

It so happened that I had Raidho speakers at my disposal much longer than most of reviewed items. That gave me a chance to experiment a bit using items I had on loan at the same time. I started with an interesting setup with very nice Italian wires from HighDiamond and German electronics – Lindemann MusicBooks. The latter are a pair of quite small, though high quality devices. MusicBook 25 is a preamplifier, D/A Converter, CD Player, streamer (also wireless) and headphone amp in one small enclosure. MusicBook50 is a class D power amplifier. This setup look quite inconspicuous but it is used together with outstanding Manger speakers during many presentation (for example during High End in Munich, and I also received the same system for a review), which speaks for itself. Also Chillout is a distributor not only of Raidho but also of Jeff Rowland electronics, that included class D amplifiers, so such a setup – S2 + class D amp is quite likely to happen.

My first note from first listening session was: amazing control and definition. Lindemann does not offer some crazy high output power (2 x 100 W at 8 Ω) but it was enough to keep S2 in almost perfect grip. Powerful, taut, kicking bass, very clean, vibrant treble, and smooth although not rich enough (for my taste) midrange. To be honest that's exactly what I usually hold against ceramic drivers – midrange is very clean, transparent, but (at least for me) too lean, bit dry too. So when it comes to my favorite acoustic music, or vocals such a presentation lacks palpability, and naturalness and as such simply isn't involving, doesn't give me an impression of close contact with music. As I mentioned I had a chance to listen to Lindemann system with fabulous Manger speakers and I definitely liked what I heard, so it seemed that simply combination of MusicBooks and S2 wasn't the ideal one. Although it was hard not to appreciate outstanding control and definition of bass, clarity of the sound and abundance of details this setup reproduced. Would it sound the same with any class D amplifier? I wouldn't really dare to claim that even though the conclusion seemed to confirm my general experience with this type of amplification. Excellent bass performance – great definition, bass is taut, kicking, deeply extended, but midrange lacks some richness which makes them not my cup of tea.



The next step was pairing S2 with tube amplifier – such setup should result in a rich, smooth midrange, right? Even guys from Raidho declared on their webpage that they achieved very nice sonic results when driving S2 with low-power tube amplifiers. As I'd just received Ayon Crossfire III for review, which was the newest version of one of my favorite SET amps, I had to try how would it sound with Raidho speakers. This system sounded very different. It

sound with kaido speakers. This system sounded very different. If I could combine the amazing Lindemann's bass with Ayon's midrange and treble that would be perfect (maybe Raidho should think about double speaker posts that would make bi-amping possible?). Now the sound became much richer, smoother and more palpable – that was exactly what I expected. Impressive richness and differentiation of midband resulted in wonderful vocal and acoustic instruments presentation. This sound finally became involving. The treble, although already smooth, detailed and vibrant with Musicbook now became even more resolving, with more air, sounding more natural. There was more reverberation audible, longer sustain and decay, better presentation of room ambiance, and larger, especially in terms of depth, soundstage. Now I could finally hear what this ribbon tweeter of S2 was capable of.



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## Reference system

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- CD player [CEC 51XR](#)
- Integrated amplifier [ArtAudio Symphony II](#)
- Turntable [Michell Gyro SE](#)
- Tonearm [Technoarm](#)
- Cartridge [AT33PTG](#)
- RIAA preamplifier [ESELabs Nibiru](#)
- Loudspeakers – modified project Jerycho with [FSAC-2B](#)
- Interconnects – Gabriel Gold Extreme mk2, Binaural focus monolith Ag
- Loudspeaker cable – Gabriel Gold Revelation mk 1
- Power cabling – DIY Acrolink 6N-PC4300