

## Review of the new RAAL REQUISITE CA1a on Musicalhead

Here I am again. And for the perfect start to the new year, I'm finally reviewing the brand new RAAL REQUISITE CA1a from the small Serbian high-end manufacturer for you today, which has already received numerous advance praises at various trade shows. Especially since already the first movement RAAL REQUISITE SR1a in the listening test on Musicalhead fully knew how to inspire.

With the CA1a, Danny McKinney and Aleksandar Radisavljevic present the second ear speaker with the innovative True Ribbon™ technology, which already helped the SR1a to sonic heights. The new interface TI1b, which by the way can be used with all headphones of the Serbian manufacture, now also allows the operation with standard headphone amplifiers, although the respective playing partner should not fall significantly below a power output of 2 watts per channel at 32 ohms.

At the High-End 2022 in Munich, I was also able to convince myself for the first time of the acoustic qualities of the new RAAL CA1a - and even the prototype at that time impressed with its balanced tonality and excellent dynamic qualities. Therefore, I was naturally more than curious about the finished production model, especially since Aleksander Radisavljevic held out the prospect of further tonal optimization of the experimental-looking foam pads.

### Lightweight construction

Current headphone design is naturally subject to some restrictions - besides the necessity to accept partly opulent dwellings on the ears, the grail knight of fine tones has to come to terms with often audacious headband constructions - far away from any design requirements. Particularly (ortho) dynamic ear loudspeakers often tend to be considerably overweight due to the meanwhile stately size of their drivers.

This aspect is by no means negligible, since despite the mostly sophisticated fits and optimized contact pressure, the weight of the respective headphones is of course subject to the physical laws of gravity. And if the new ear speaker wins the battle with the neck muscles after just a few hours, the listening pleasure is of course doomed.

The weight factor therefore marked a relevant point in the development of the RAAL CA1a. The headband and driver forks of the Serbian headphones, for example, consist of a single piece of bent metal, which accommodates both the driver housings and the headband made of noble animal skin. The processing of the stainless steel headband is not entirely unproblematic, since it not only has 4 torsional 90° bends, but also has to maintain a certain flexibility in the absence of any joints. As a result, the entire steel spring construction and leather strap weigh only 71 grams.

## Innovative design

The driver housings of the RAAL CA1a are reminiscent of faceted gemstone halves in terms of their optical design, whereby the interrupted surfaces of the outer sides excellently integrate the rectangular shape of the ribbon drivers in my opinion. The polycarbonate used here also contains glass fibers, which come to the surface during injection molding at 320° Celsius and give the gray-colored angular dwellings a slight pearlescent effect.

In addition, the virtually resonance-free material exhibits enormous resistance to compressive and tensile stresses and, according to its creators, would even withstand the malicious passage of a motor vehicle without damage.

Incidentally, the two-piece housing of the Interface TI1b is made of the same material, thus underlining the affiliation to the Serbian headphones in purely visual terms.

However, the ear pads of the CA1a, made of coarse-pored black foam, could cause a stir - because the split pad halves might leave an inferior impression due to their simple design and the rather fragile connection to the driver housings. However, Aleksandar Radisavljevic favored the acoustic superiority of sound-soft foam over a presumably higher-quality leather variant when choosing the ear pads.

## Outstanding wearing comfort

This is because, unlike (ortho) dynamic systems, RAAL REQUISITE's True Ribbon™ technology does not require pressure chamber effects to reproduce the low frequency range as it should, so the soft ear pads merely serve to optimally position the angled ribbon drivers. In addition, the carefully

determined shape of the "spacers" acts as perfect ventilation for the ears and consequently convinces with an excellent wearing comfort.

However, to accommodate the desire for increased bass volume if necessary, the Serbian developers include a second pair of fully enclosed pads with each set of headphones - changing them is child's play and can be done in just a few seconds. The foam is also easy to clean under water and a possible replacement costs only 35 Euros.

## Problematic load impedance

As with the SR1a, aluminum ribbon drivers operating in the full range take over the acoustic transducer work in the new RAAL CA1a. The Serbian manufacturer has been producing ribbon tweeters for world-renowned brands in the loudspeaker segment since 1993 and began developing the first ear speaker with the unusual operating principle over 10 years ago.

According to Aleksandar Radisavljevic, ribbon drivers enable unrivaled time-accurate impulse response and the most authentic reproduction of transients. The full-range ribbons developed by RAAL REQUISITE are easily capable of reproducing a frequency spectrum of 30 Hz - 30 kHz and do not require a closed cabinet construction for reproducing the lowest bass frequencies, which theoretically makes the use of ear pads obsolete (see above).

Are ribbon systems therefore the perfect sound transducers? Well, not necessarily, because these drivers also have a not inconsiderable drawback. The system impedance of the CA1a is an insane 0.18 ohms - which inevitably disqualifies all conventional headphone amplifiers on this planet for interaction close to the theoretical short circuit.

## New Interface TI1b

True Ribbon™ headphones have a factor of 10 lower ohmic resistance than a conventional interconnect cable and require very high currents in addition to low voltage. Since the total impedance of the ribbon driver and cable is well below 32 ohms, conventional headphone amplifiers are not capable of providing the required currents of 4-5 amps. For this reason, the new CA1a also relies on an appropriate interface in the form of the new TI1b.

In the new TI1b, the Serbian manufacturer uses specifically developed toroidal transformers that, among other things, ensure that the reactive loads do not generate overvoltage spikes that could damage the headphone amplifier. In this context, the transformers have a very weak leakage inductance so that the highs in the low-impedance system do not drop too early. At the same time, they have an extremely low capacitance to prevent ringing in the ultrasonic range.

In addition, the transformer-based RAAL interface impresses with the lowest possible distortion values of -100 dB and the possibility of acoustic processing of up to 6 watts of power - in short, a transformation (note the pun) of the headphone amplifier into a high-current monster with ribbon drive at the other end of the TI1b.

## Relevant cable connection

The standard cabling of the RAAL CA1a also has a significant influence on the sonic performance. The headphone cable primarily "loads" the impedance matching of the transformer - not the ribbon drivers of the ear speaker. Especially in low impedance circuits, the respective cable connection must not inherit excessive inductance in order to always ensure homogeneous and expansive treble reproduction.

In addition, the cable should have a certain resistance per unit length to perfectly correlate with the 16/ 32 ohms on the primary side. The SC2 standard cable included in the scope of delivery has a length of 1.80 m as a result. In the listening test, however, the brand-new Star-8 pure silver cable from RAAL REQUISITE will also be used acoustically - with an astounding sonic result - that much I can already anticipate at this point.

## Preparation

For the following listening test the RAAL CA1a contacts my FELIKS AUDIO ENVY via the TI1b interface described above, which I pair with the congenial combination of dCS LINA DAC and dCS LINA World Clock. But to do justice to the transistor faction as well, Michael Zähl's ZÄHL HM1 reference amplifier also gets some playtime on the Serbian ear speaker. The HM1 gets the preference over the dCS LINA amp due to its significantly higher power reserves, in order to utilize the RAAL system as fully as possible.

Here, as there, my AURALIC ARIES G1 is responsible for the transmission of the digital data, which the Chinese streamer receives either via an implemented SSD hard drive, or directly via QOBUZ. As usual, the test material is composed of well known musical samples from classical music, jazz, blues, rock and pop, mainly in HIGH-RES resolution.

For further information on the RAAL REQUISITE CA1a, please visit the manufacturer's website at: [raalrequisite.com](http://raalrequisite.com) or the website of the German importer in the shape of Thomas Halbgewachs, who provided me with today's test candidate in his typically unbureaucratic manner and quite early: [headphoneshop.com](http://headphoneshop.com).

## Sound test

So that the new RAAL CA1 can fully unfold its sonic potential on the previously described elite equipment, I concede the True Ribbon™ headphones first the not inconsiderable break-in time of 120 hours (60 hours on the SC2 standard cable; 60 hours on the Star-8 pure silver cable) in our long-standing storage room - otherwise the constant droning of my dear wife would probably not have been acceptable.

And no matter what personal conclusion one may come to with regard to the optical and physical design of the Serbian ear loudspeaker - in my opinion the team around Danny McKinney and Aleksandar Radisavljevic succeeded in a veritable bull's eye in terms of acoustics. Consequently, the RAAL CA1a leaves me already in the first minutes of listening in interaction with the FELIKS ENVY somewhat speechless because of its musical qualities.

## Unrestrained joy of playing

The new ribbon headphones do not define themselves at all over impressive individual sonic disciplines, but distinguish themselves primarily by an outstanding tonal balance, very natural reproduction characteristics and an unrestrained joy of playing. The CA1a demonstrates a particularly fine sense for the musical intention, which in my view is always hit on the spot. The RAAL also acts free of any colorations and devotes itself to even the finest dynamic shades in the music.

Especially in the frequency range, the CA1a surpasses the SR1a by far and impresses with a contoured and at the same time powerful bass reproduction

with excellent low frequency response. Thus, the new Circum-Aural headphones gain significantly in plasticity compared to the first work, without significantly losing its spatial qualities. Of course, the SR1a still has the more excessive stage and the airier presentation - but in terms of depth, the CA1a is in no way inferior to its older brother.

And like the SR1a, the CA1a excites with a highly authentic reproduction of transients - the impulse processing is simply outstanding, because incredibly fast and accurate. In my opinion, even electrostatic systems are left behind here. As a result, voices and instruments are reproduced ghostly real, which often not only conjures a satisfied smile on my face, but sometimes also provides a certain goosebump factor.

### Star-8 pure silver cable

However, in my opinion, the CA1a should be connected with the new Star-8 pure silver cable. Because the sonic difference to the series rib is absolutely striking and justifies in my opinion even the enormous surcharge of 1,350 euros. But also the combination with the older RAAL SR728 pure silver cable, which already delivered a terrific performance at the SR1a, reveals the amazing dependence of the low impedance working principle with regard to an optimal cabling.

Because while the CA1a in interaction with the standard copper cable SC2 - especially at higher listening levels - sometimes acts slightly brittle and sometimes also slightly sibilant, the ribbon headphones in conjunction with the new pure silver jewel of the Serbians performs in my view a musical quantum leap - and catapults the RAAL CA1a straight into the Olympus of the best ear speakers.

In particular in the bass range the Serbian headphones at the pure silver connection tighten again the acoustic reins, the point-stable localization of the tonal events increases in an almost dramatic measure, the now very silky and at the same time phenomenal detail resolution is in addition truly a poem - the Star-8 pure silver cable offered in the RAAL accessories is for the acoustically ambitious Grail knight in my opinion a veritabler obligation purchase.

## World class performance

The gala performance of the Serbian ear speaker naturally calls the assembled headphone elite to the scene. But even musical heavyweights like the HIFIMAN SUSVARA or the ABYSS AB1266 PHI TC have their difficulties to keep the cable-strong Serbian competition at a distance. While the CA1a can sometimes claim advantages in terms of speed, the two orthodynamic headphones control the frequency basement a bit better and also illuminate the very last corners very conscientiously.

The use of the closed ear pads from the RAAL's equipment package puts the Serbian headphones in the immediate vicinity of the two old masters in terms of low bass qualities, but the CA1a loses a lot of its outstanding spatial imaging. In addition, there are unattractive overlays into the fundamental sound - in my opinion, the pad change is therefore not a very good idea.

## Hifiman Susvara

Furthermore, especially the HIFIMAN (with proven Cardas-Clear cabling) convinces with a generously dimensioned body in terms of a very natural representation of voices and acoustic instruments, without unduly drifting into the warm and consequently maintaining a neutral playing style. The RAAL counters with a fantastic airiness in the midrange in conjunction with the finest sensitive elaboration of the smallest musical nuances.

However, the SUSVARA knows how to shine with a wonderful richness of timbre, which the CA1a is not quite able to achieve in this form. And while the RAAL mainly flirts with electrostatic virtues in the entire frequency spectrum, the HIFIMAN rather relies on substantial talents in the sound-relevant midrange and nevertheless inspires with an exorbitant resolving power in the high frequency range.

The CA1a primarily favors the tube-based interaction with the FELIKS ENVY - the SUSVARA, however, is not particularly picky and impresses musically equally with the ZÄHL HM1 transistor amplifier. Especially since both headphone amplifiers provide more than enough power reserves for the designated diva. From my point of view, the HIFIMAN can successfully defend its sonic throne on Musicalhead.

## Abyss AB1266 PHI TC

The AB1266 PHI TC fascinates with its well-known excessive spatial imaging, especially with regard to the stage base width, which not infrequently gives the impression of the true-ear-speaker. In return, the RAAL staggers a bit more expansively into the depth, but without achieving the amazing live atmosphere of the ABYSS. Both have in common a slightly superficial play in the presence range, which the headphones know how to conceal perfectly via their congenial cable partners.

Whereby the optional super conductor cable of the ABYSS in the meantime with enormous 2,990, - euro for an identical length of 1.80 m to beech - against it the selling price for the Star 8 pure silver cable seems almost already as special offer. Nevertheless, the noble strings clearly improve the musical performance of both opponents, but the CA1a benefits in my opinion to a greater extent from the productive upgrade.

Due to the slightly analytical approach of the AB1266 PHI TC, the two sparring partners can also be compared better from my point of view - the CA1a scores, for example, over the somewhat more precise focusing with regard to the spatial imaging sharpness, the ear speaker from New York returns the acoustic plus point of the RAAL with a more plastic staging of the musical events in the spatial context.

In my opinion, the higher macrodynamic reserves of the ABYSS finally tip the scales in favor of the American behemoth - the reproduction of live events or large orchestral events close to the original volumes simply do not mark the primary field of application of the Serbian headphones. Rather, the RAAL Ca1a prefers more moderate listening levels, where Danny McKinney and Aleksandar Radisavljevic's new acoustic miracle child can display its excellent fine dynamic qualities.

## My conclusion

The new RAAL REQUISITE CA1a knows how to impress in the listening test. Although for the congenial 3er team - consisting of the first-mentioned, the interface TI1b and the Star-8 pure silver cable, which is indispensable in my opinion - in sum a stately Obolus at a value of 4,349, - euro is to be paid, the new Circum-Aural headphones enters quite unabashedly the tonal Olympus in

the TOP10 on Musicalhead and positions itself quite scarcely behind the ABYSS AB1266 PHI TC.

However, the grail knight of fine tones should always grant the RAAL CA1a an adequate front end. The Serbian ear speaker repays this with a musical gala performance on a world class level at a quite fair price in direct comparison to the competition. The optical and physical design of the RAAL may be a cause for criticism for some interested parties - but those who primarily rely on the acoustic capabilities of the Serbian gem will, in my opinion, acquire one of the best ear loudspeakers ever with the new CA1a.

Consequently, the RAAL REQUISITE CA1a naturally receives my unqualified recommendation. And congratulations to Danny McKinney and Aleksandar Radisavljevic - these headphones are real awesome!

Yours Fidelio

[www.musicalhead.de](http://www.musicalhead.de)

## **My rating**

Sound quality (60%) : 5 out of 5 ears

Comfort (20%) : 5 out of 5 ears

Workmanship (20%) : 4 out of 5 ears

