This review page is supported in part by the sponsor whose ad is displayed above

AUDIO REVIEWS

6moons.com

AWARDSIGHTING

JANUARY 2006

SOLID TECH RADIUS

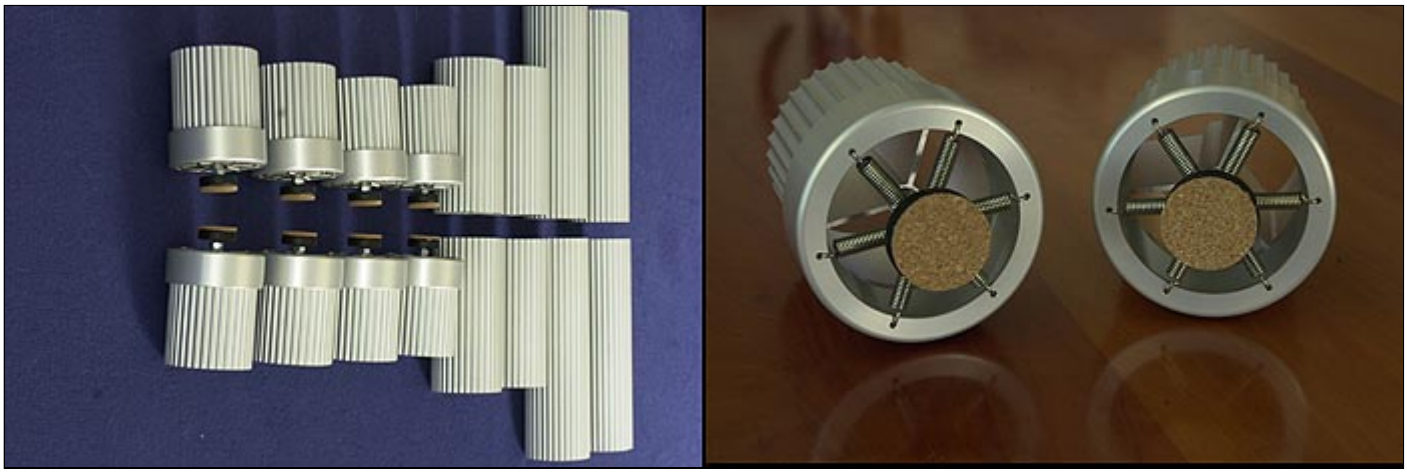
Reviewers: Marja Vanderloo & Henk Boot
Sources: *Acoustic Signature Mambo, Acoustic Signature Final Tool MkII, Kuzma Stogi, Benz Micro Glider* [all in for review], CEC TL5100, *Metronome Kalista* [in for review]. *Hifidelio Pro 160* (= Olive Symphony) music server [in for review], Philips DVP 5500S SACD/DVD player.
Preamp/integrated: *Acoustic Signature Tango phono stage* [in for review], *Greattech MuVac 1-watt integrated* [in for review], TacT RCS 2.0 room control system; Audio Note Meishu, modified, with AVVT, JJ or KR Audio 300B output tubes
Speakers: Avantgarde Acoustic Duo, internally wired with silver; Avantgarde Acoustic Solo; Audio Note AN/Jsp, silver wired;
Cables: Audio Note AN/Vx interconnects; Siltech Paris interconnects; Gizmo silver interconnect; Qunex 75 reference interconnect; Crystal Cable CrystalConnect Reference interconnect, CrystalDigit S/PDIF RCA/RCA and RCA/BNC, Y-cable, Crystal Cable Piccolo iPod to XLR, CrystalPower Reference AC-Eur/IEC; CrystalSpeak Reference, Audio Note AN-L, Gizmo silver LS cable.
Power line conditioning: Omtec PowerControllers, *PS Audio P1000* [in for review]
Sundry accessories: IAR carbon CD damper; Denson demagnetizer CD; Nespa #1; TacT RCS calibrated microphone and software; Exact Audio Copy software; Compaq server w/Windows Server 2003 and XP; wood, brass and aluminum cones and pyramids; Xitel surround processor; Manley Skipjack.
Room treatment: complete set of Acoustic System Resonators; Gizmo's Harley Davidson cap.
Review Component Retail: ca. $800 for 3-tier Radius, plus $300 for 3 Feet of Silence, $190 for 3 Discs of Silence

"... no isolation system in the world ever will be 100% effective."

The above quote is from Björn Ohlsson, founder of the Solid Tech Company in Malmö, Sweden. As a music lover and toolmaker, he found out that most if not all available support systems for audio equipment altered the resultant sound of the music. Some systems emphasized particular frequency bands while others attenuated those frequencies. According to Ohlsson, no system enhanced the *full* audio spectrum. That realization compelled him to construct his own vibration control and isolation rack.

The result of his many years of trial and error became the Solid Tech line of support systems. In Solid Tech speak, there are two lines of products - extreme and high performance. An example of the extreme performance line is the Rack Of Silence above where the equipment isn't placed on shelves but cross members atop of which Discs Of Silence or Feet Of Silence become the actual component interfaces. In addition to those, the cross bars can be suspended from the uprights on springs. That's the magic word at Solid Tech - *spring*. The Feet of Silence are supports where a ball is suspended using elastic bands, then the equipment is placed atop the ball. The Discs of Silence use three to six springs (since suspension requires rate-matching to the load to avoid undamped oscillation) that support an adjustable bolt on which the CD player or other equipment is then placed.

To accommodate dealer/customer demands for a more flexible and adjustable rack, Solid Tech has launched the Radius series wherein more conventional shelves form the basis of the affair. The shelves are not old-fashioned rectangular wooden pieces but curved along three sides. Only one of the long sides of the shelf is straight. The shelves come in two sizes. The 68 x 50 cm is called Solo, the Duo doubles its width. All shelves are fitted with 5cm holes at the corners. These holes are filled with a nylon washer that leaves space for a tension wire. Any number of shelves can be fashioned into a rack using ribbed aluminum corner pillars that are available in four standard lengths. Internal wires connect everything firmly. Thus far the Radius is not much different from many other racks.



However, there are further options and those are unique. Instead of direct-coupling a shelf between two posts, the top shelf can be spring-mounted on the Solo version of the rack. A set of large washers closes off the top of the supporting pillars to which an aluminum extender and top plate get bolted. This extension is smaller in diameter than the hole in the shelf, leaving enough clearance to let the shelf float freely once sufficient springs have been attached between the top of the pillar and the bottom of the shelf. Every spring should be compressed by about 50% for best results. That determines the number of springs to use with a given component.

Beyond this spring-loaded shelf, the Radius has more to offer. The complete *rack* can be spring-loaded. Solid Tech offers two types of feet between floor and rack. One is a rigid spike, the other a Disc Of Silence. With the latter option, the whole rack and all the equipment loaded into it is then balanced on four discs whose exact number of springs, again, depends on the aggregate weight to be supported.

Before Solid Tech sent us a Radius rack for this review, we had an extensive e-mail exchange with Björn Ohlsson to make sure the configuration of the Radius to be dispatched would be the best configuration for our intended usage. Based on the size, weight and practical location of our CD transport, preamp, DAC and power amplifier, we received a big box and several smaller ones shortly thereafter.

The larger box contained card box tubes protecting the pillars, washers and wire ends. The other boxes held four shelves in a light oak finish. Once you've determined what the top of each shelf is, assembly is easy. An included instruction sheet might serve another Swedish manufacturer of furniture as example for how to describe things plainly and accurately.

Björn sent us one Solo rack with three shelves (top one suspended) and a separate rack with a single fixed shelf [above]. Both racks rest on Discs of Silence. Both racks were quickly readied for their task. The three-tier Radius, from bottom to top, held the DAC, the preamp and the CD transport. Despite all the equipment loaded, the six springs in each Disc of Silence still retained plenty of tension to keep the rack floating. Then it was time to place the springs under the top shelf to further isolate the CD transport. Two springs at each corner proved sufficient to give the correct pre-tension with the intended load. Installing the springs was child's play. Just lift the top shelf on one corner, suppress a spring between thumb and forefinger and pop the spring into place. After eight springs were inserted, the shelf required a little re-adjustment to float unhindered.

The power amplifier ended up on its own rack and its substantial weight was carried by the 4 x 6 springs without any problem. Turning the bolt in the middle of the Disc of Silence a few clicks can raise the rack a little. This should be done with caution. A bolt turned too far allows the rack to rock quite the distance. Just turn the bolt enough to clear the Discs' bottom edge from the floor.

Regarding the rocking, don't think that with all these springs in action, the racks would be bouncing liberally like a Jack in the Box. The 3-tier rack returns to stillness in less than a second after being activated, well before a CD even spins up to its required speed.

With all cables connected and the tubes at working temperatures, the listening could commence. Before the rack arrived, all our equipment had sat on a massive cherry wood table that's as dead as possible when given the ol' knuckle rap. By sheer mass alone, airborne and floorborne resonances were sufficient banned from entering our musical chain. Or so we naïvely believed.

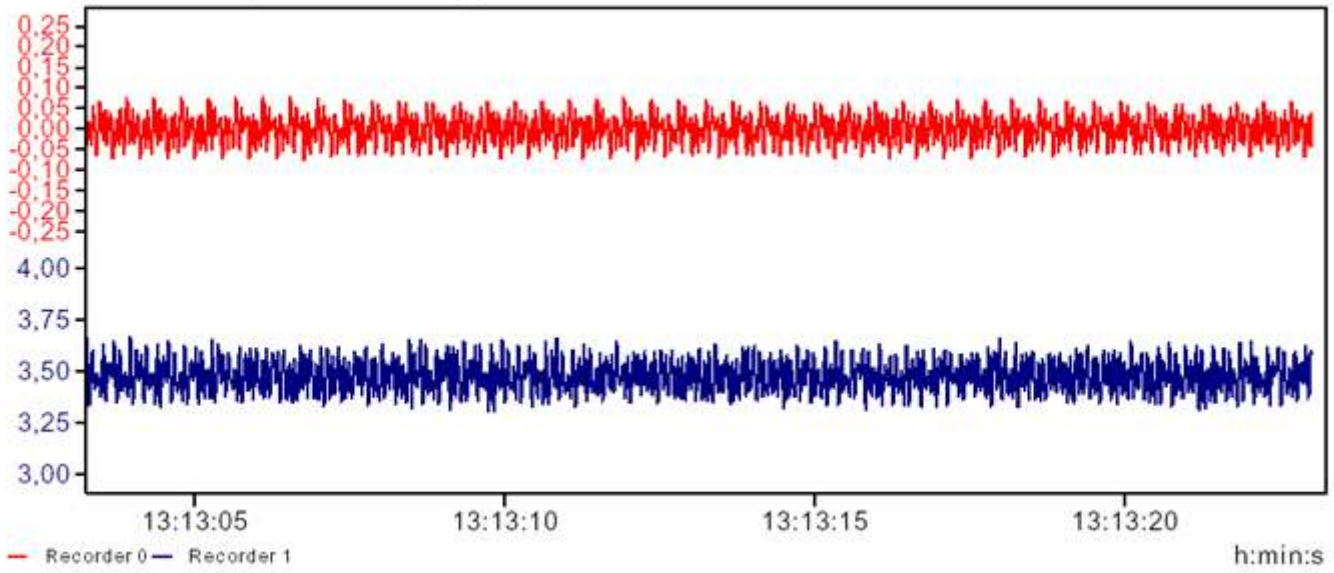
Alas, with the first tone already, we were proven wrong. The difference was substantial - more ease to the music. Dynamics became more natural and individual instruments were easier to follow, as they no longer blended into the background. The attenuator could now be opened farther without the music clogging up.

A few days later, we received an envelope. It contained four Solid Tech IsoClear footers. These footers consist of two pairs of 5cm clear acrylic discs. One disc is solid, the other has 7 holes and in-between sits a black, sticky substance. The holes are to be used for 1 to 7 springs. The sticky substance keeps them in place and insures that when the IsoClear discs are assembled, the top and bottom sandwiches remain together. Once again the weight of the device to be supported determines the amount and kind of springs used. Our envelope contained spare springs and we used them to form three footers of three springs each. The only machine in the system prone to resonance and not already individually spring-loaded was our Audio Note DAC with its tubes. We thus placed the IsoClears underneath the DAC. The following listening tests exhibited more subtle improvements that were nonetheless readily noticeable. Instrumental timbres gained just a bit more veracity and the lowest bass tightened up.

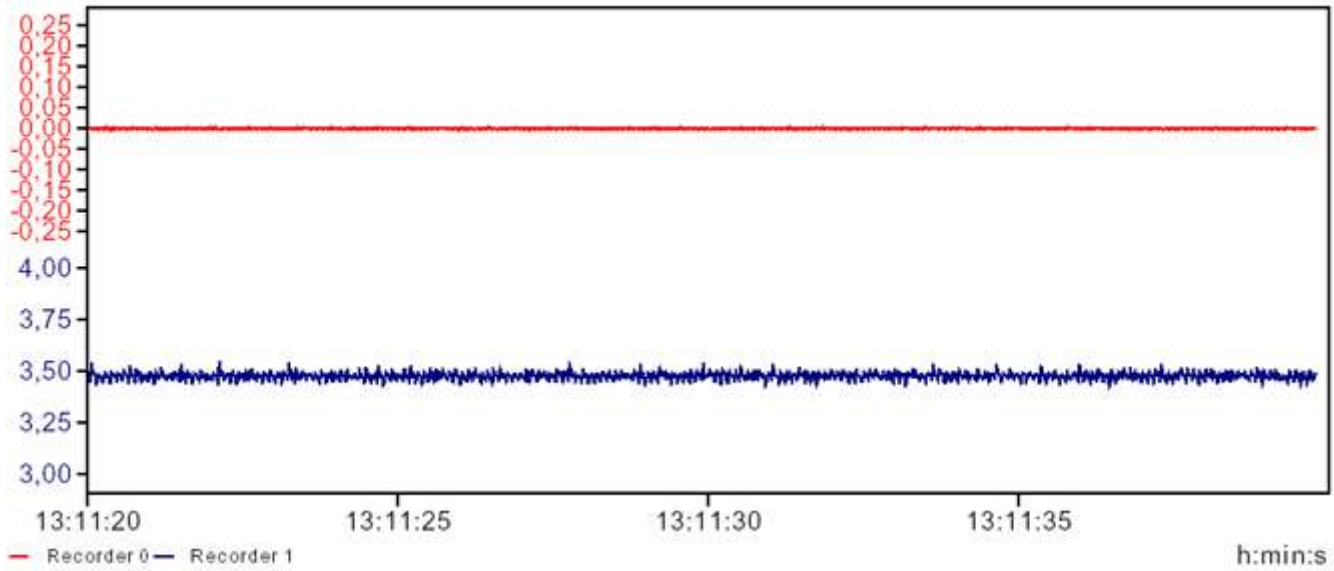
For context, we live in a concrete high-rise in the center of a busy city. Two elevators rush up and down for the greater part of the day, their giant motors more or less on our roof. At street level, trams come and go with their many tons on steel wheels that pound the welds and switches in the rails. Underground, the metro rumbles. On top of all this, the wind often rattles the walls and windows of our building as it is one of its first barriers against moving further inlands from the nearby sea. While experimenting with the various vibration damping options, we put our ears to the walls, floors, to the window sill and tables. Later we picked up a stethoscope and tested with this hearing aid as well. The conclusion became that we are lucky indeed that what was heard in this stethoscopic fashion is not normally perceived. A whole extra-dimensional world of low-frequency contact noises is constantly churning away inside the noise floor. Especially 'listening' to a table just like the one previously used as an equipment rack, became revealing. The table with its large mass is firmly connected to the floor. Vibrations in the building -- from the subterranean foundation via the many concrete pilings that keep the 300 feet of building erect and prevent it from sinking into the subsoil, onward via the walls and then floors -- are all transmitted to the table. The same vibrations attack our sensitive audio machinery and create a constant background din. And not just tubes are susceptible to these vibrations. All equipment is.

With these experiences in mind, the effects of spring suspension are easier to grasp. By preventing such external vibrations from entering the musical chain to a goodly extent, not only is the perceived sound enhanced but our brain is released from unnecessary strain as well. Even though we do not consciously hear the background rumble, it is always present and our mental filter is working 24/7 to cut it out. That is tiring. With the amount of extraneous noise reduced, listening becomes more enjoyable and relaxed.

20Hz, The Sensor (accelerometer) placed on the floor.

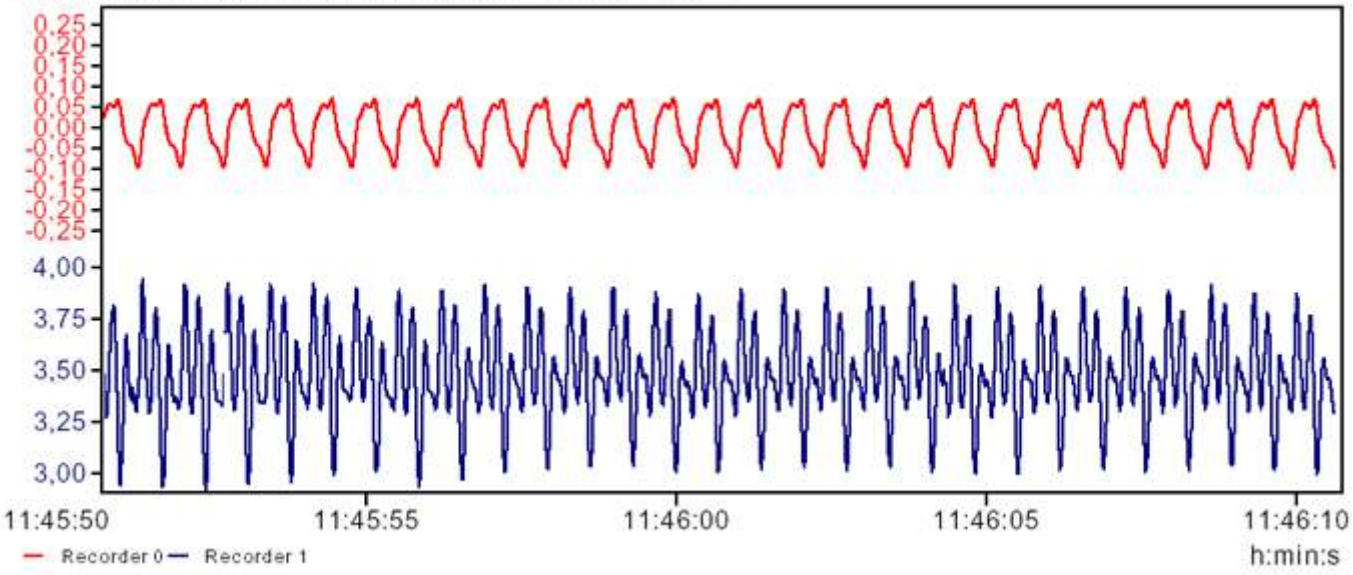


20Hz, DISC of Silence, placed on the floor, sensors placed on the hi-fi rack shelves.

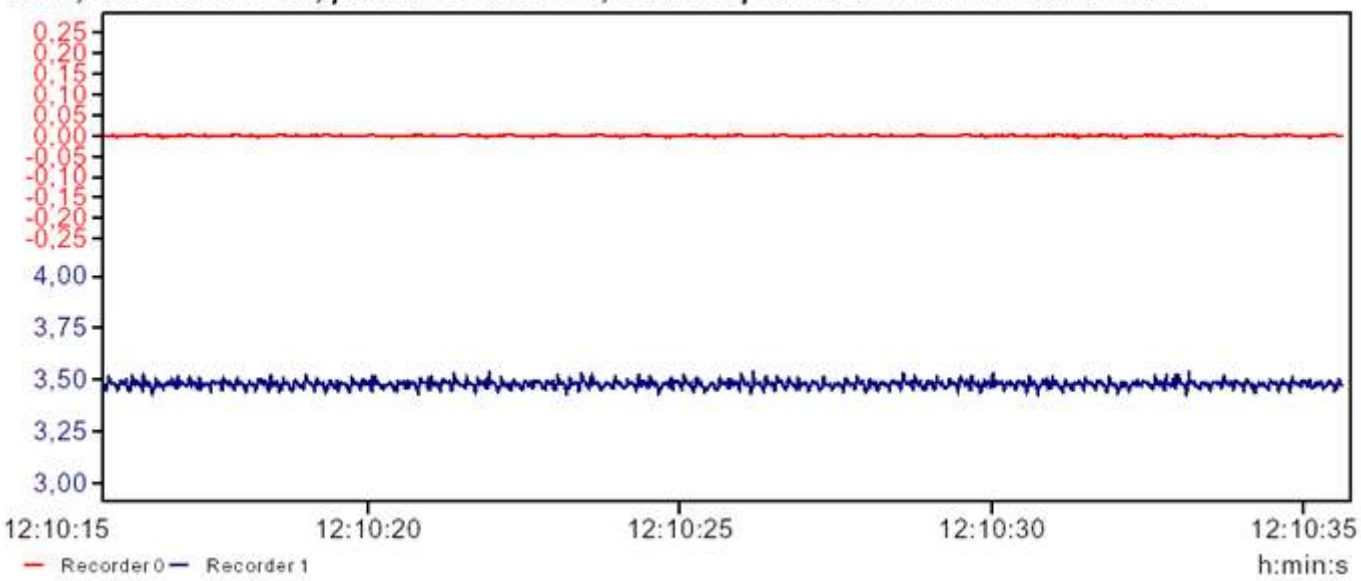


Björn Ohlsson has published measurements on his website that illuminate the effects of his spring-loaded Discs. These graphs tell a clear story of attenuated vibrations. Just like many bright ideas, the back story is simple. The energy that propagates as vibration is converted into deliberate counter motion and heat (the springs can move but if they do, they do so essentially invisibly). Robert Hooke developed the formula F=kx where F is the force needed to expand or compress a spring by x meter when the spring has a typical constant of k. From this simple formula, it is easy to understand that as x increases, the force F needs to be bigger as well.

50Hz, Sensors (accelerometers) placed on the floor.

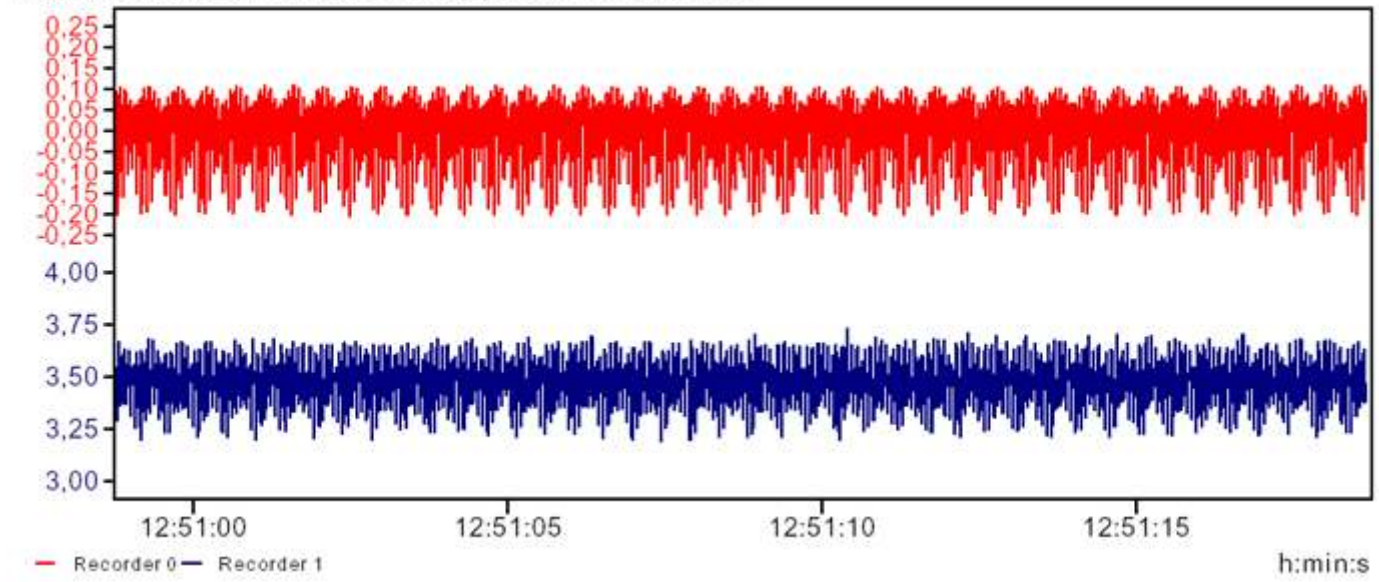


50Hz, DISC of Silence, placed on the floor, sensors placed on the hi-fi rack shelves.

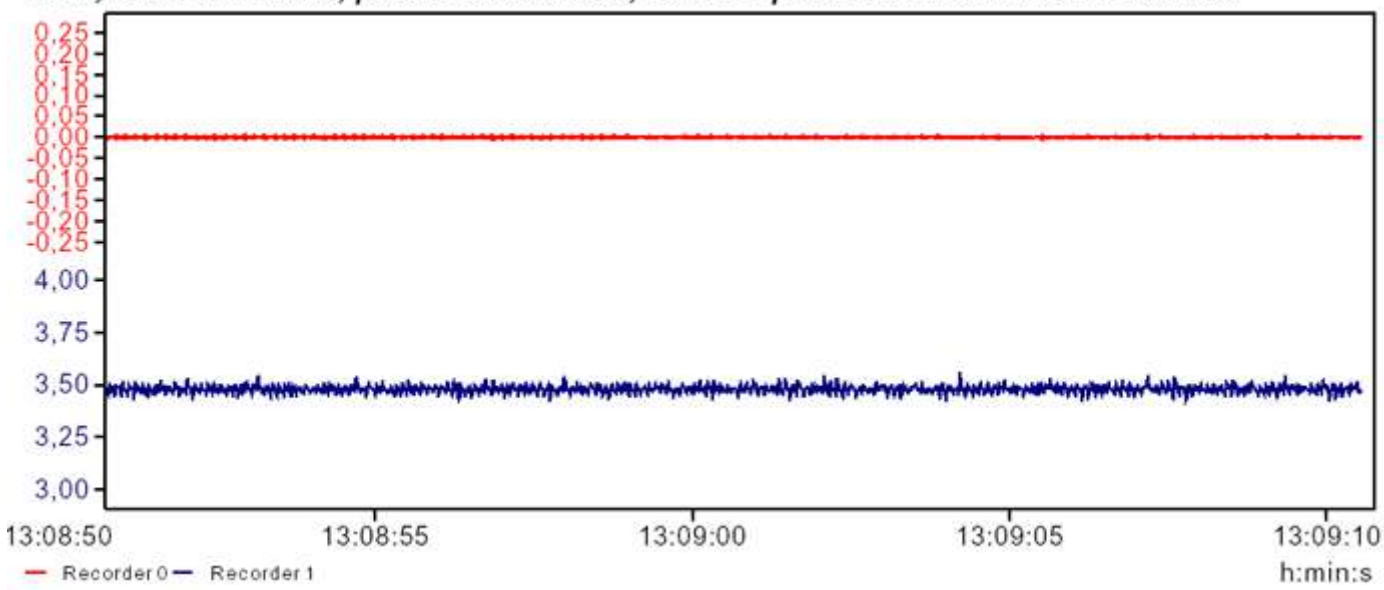


The Solid Tech springs all are exposed to a specific F generated from the combined weight of shelf and component. When all springs are equally spread over all corners, they will equally counter F. If a component -- due to transformers for example -- exerts lopsided weight distribution, the springs at that end will push back harder as Hooke's law instructs. Next to damping, this results in something else very welcome: the shelf will be level! No more fooling around with pieces of whatever to act as jams, slivers or props. When properly set up, the Radius is self-leveling.

70Hz, Sensors (accelerometers) placed on the floor.

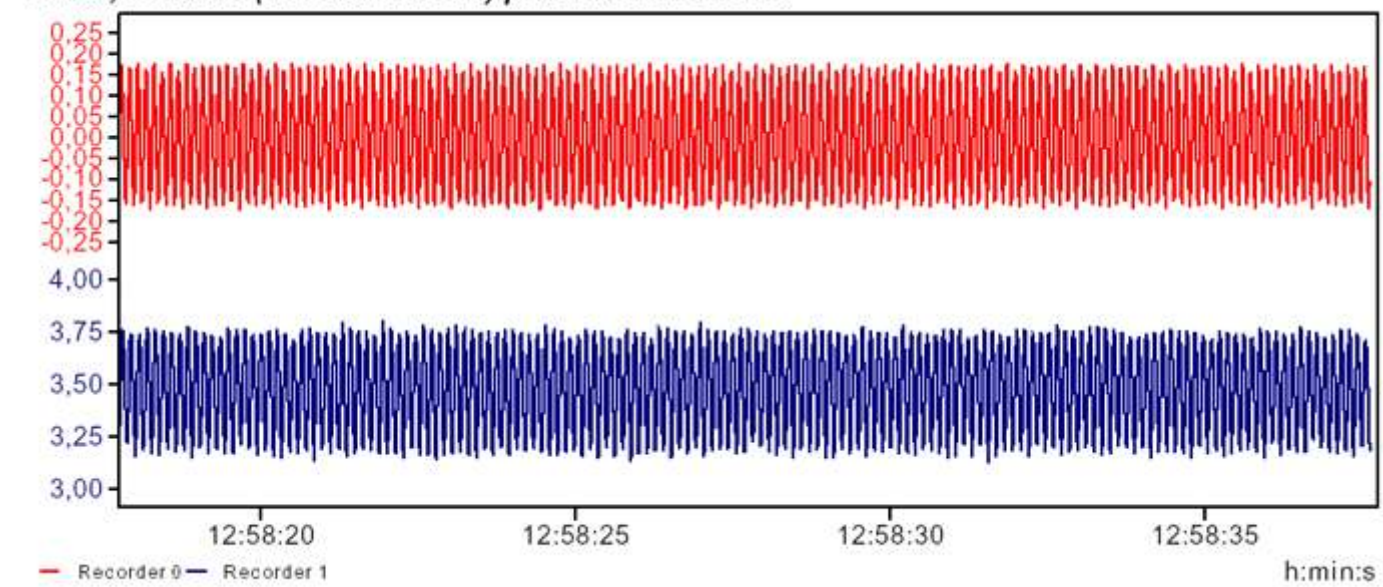


70Hz, DISC of Silence, placed on the floor, sensors placed on the hi-fi rack shelves.

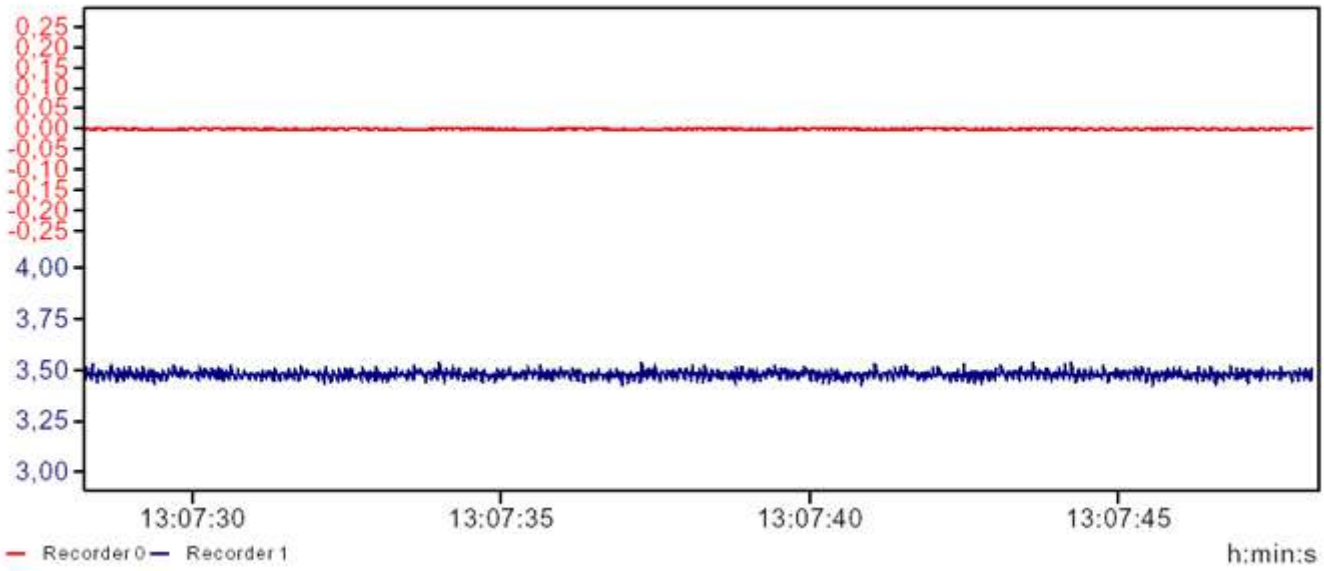


We spent a long time with the Radius and the racks had various guests to support. Just to name a few, they encountered a heavy KR Audio Kronzilla, a flee-weight Greattech µVAC sub-miniature amplifier, a Metronome Kalista transport and a number of Acoustic Signature turntables. When necessary, weight changes were readily accommodated by adding or removing springs.

150Hz, Sensors (accelerometers) placed on the floor.



150Hz, DISC of Silence, placed on the floor, sensors placed on the hi-fi rack shelves.



In conclusion, we have to confess that we really like the simplicity and flexibility offered by this Solid Tech Radius design and the sonic qualities introduced by it are outstanding. Many far more expensive racks look more impressive perhaps but cannot meet its sonic improvements. In combination with some of the ingenious IsoClear footers, the Radius seems damn hard to beat at its price. Hence we nominate it for a Blue Moon Award for *Applied Right of Springs.*

FOR:

FLEXIBILITY, PERFORMANCE & APPEARANCE

• IN THE EQUIPMENT SUPPORT CATEGORY •

Manufacturer's website
US distributor's website

ALL CONTENT AND GRAPHICS ON THIS SITE ARE PROTECTED BY COPYRIGHT AND MAY NOT BE USED WITHOUT PRIOR PERMISSION

SITE CONCEPT & DESIGN BY NOBUKO NAGAOKA OF KUMADESIGN.COM

JAVASCRIPT CODING BY ANNEKE AUER OF CUCKOO@XS4ALL.NL