

Chord Company ARAY product range

Chris Frankland

While we are getting used to having filters to deal with the noise generated by our streaming and network products, The Chord Company has been working over the past 13 years to develop a range of

affordable, easy-to-use plug-in products that systematically help to eliminate the high-frequency noise that finds its way onto the signal ground across your entire system.

This noise comes from many sources, including your wireless router, wi-fi network, streamer, LED lights, mobile phones, and digital processing circuits, microprocessors and digital displays in your hi-fi.

I decided to check out some of these ARAY products in my system, to see what difference they really make. That system comprises an Audio Note TT3/PSU3 turntable with Arm Two, Io1 cartridge and S9 step-up transformer, Audio Note CDT Five transport with DAC 5 Special and Audio Note Meishu Tonmeister integrated amp, all feeding a pair of Russell K Red 150Se speakers hooked up with QED Supremus Zr cable. On the mains, I use a MusicWorks Reflex Ultra Gen 5 AcouPlex mains block and leads.

To assess the effectiveness of each ARAY product, I added them singly into my system, and then at the end, put them all in place to assess their cumulative effect.

Ground ARAY

I decided to start by trying two GroundARAY XLR 'tubes' into two spare XLR balanced output connectors on the back of the DAC 5 Special. I played the 'Times Gettin' Tougher' track from Ben Sidran's latest CD, *Are We There Yet (Live at the Sundside)*. With the GroundARAYs in place, there was no doubt that Sidran's piano was more solid with more note detail, while his vocals were more open and expressive. Drums and percussion had more delicacy, attack and inner detail and the guitar solo was better defined with more shape to the notes. A worthwhile improvement.

Moving on to the title track from guitarist Peter White's *Groovin'* CD, I was again impressed with the effect of the ARAY. Percussion was better focused and snappier, timbales and congas were more solid and I could hear how

White shaped each note on his guitar. The bass line was also more solid and tuneful.

Sticking with the GroundARAYs, I then inserted the phono tubes into the AUX sockets on my Meishu. It is recommended to get them as close to the sockets in use as possible and to avoid letting the aluminium cans touch. Use a sliver of paper between them if you need to.

To assess their effect, I spun up Julian Lage's track 'Omission' from his latest *Speak to Me* double album. It took only seconds to realise that his guitar was now more open, had more body and that I could hear more clearly exactly what he was playing. Drums and percussion were cleaner and I could hear more of the intricacies of what was being played. The track too had a better rhythmic impetus to it. All in all, the track just made more sense musically.

I then switched to a CD source and the track 'All I See is You' from Dave Koz's *Saxophonic* album. Here, Koz's sax was more sharply etched, better voiced and you could follow what he was playing better. The synth bass line was also tighter and it was easier to separate and tell apart from the electric bass. I could also pick out the trumpet behind Koz's tenor sax better.

PhonoARAY

Although I had previously tried the GroundARAYs, this was my first time with the PhonoARAY. This connects easily in the ground lead from your turntable and should take no more than a minute to install. To assess its impact on the sound, I first listened to the track 'Sun Pillars' from pianist Fergus McCreadie's latest album *Stream*. This features some great play on acoustic bass from David Bowden and I immediately noticed that with the PhonoARAY in circuit, bass was tighter, more nimble with more fingering detail. McCreadie's piano had more body, his play was more fluid and you could hear more clearly how hard he struck each note or chord. The track also had a movement and swagger that diminished when I took the PhonoARAY out of circuit.

I couldn't resist trying my favourite track from guitarist Larry Carlton's amazing *Discovery* album, namely his cover of The Doobies' 'Minute by Minute'. This is a fantastic recording and has a sinuous, driving bass line that really lends the track momentum, and I could follow that more clearly when using



It's advised that for the best results you should plug the PowerARAY Professional into the adjacent socket on the same wall outlet you plug your system into.

the PhonoARAY. Carlton's acoustic guitar was also cleaner and clearer, allowing me to hear how he shaped each note. Backing vocals too were clearer and easier to follow. The sax solo had more bite and inner detail, and on the whole there was more life and energy to the music when using the PhonoARAY. I'm convinced!

PowerARAY

Up next was the PowerARAY UK mains plug. This contains some ARAY material and plugs straight into your mains socket. I found myself wondering whether – since I am using the excellent MusicWorks distribution block, which brings a substantial improvement to sound quality in its own right – plugging the PowerARAY plug into that would coax any more improvements?

I needn't have worried. When I played 'Don't Know Why' from Norah Jones's excellent *Come Away With Me* album, her voice clearly was more expressive and open and lost the slightly hard edge it had before when she pushed a note.

And when I tried 'Just Give It a Chance' from guitarist Peter White's *Good Day* CD, I could hear an improvement in the focus and phrasing of his guitar, with better leading-edge bite, while the percussion line was better focused and syncopated. The music also just moved better.

PowerARAY Professional

The PowerARAY Professional is a far larger box and allows Chord Company to incorporate some of the tricks you'll find in its PowerHAUS mains blocks.

It's advised that for the best results you should plug the PowerARAY Professional into the adjacent socket on the same wall outlet you plug your system into. So that's where I put it. As on the PhonoARAY, they also advise slackening off the bolts holding the feet in place to help isolate it from the surface it is placed on.

First I played an old favourite of mine, 'It Didn't All Come True' from Ben Sidran's superb *Bop City* album.

Straight away I could hear that his piano sounded more real, had more body and dynamics, while his nimble-fingered play was captured with greater detail and poise. Vocals were also more open and the bass line that really adds impetus to the track rhythmically was faster, tighter and more agile.

On the Fergus McCreadie track I mentioned earlier, again his piano was more solid, better voiced with a better sense of how he plays each note, while I could hear more note detail and fingerwork on that gorgeous double bass. Percussion too was

more delicate and detailed. No doubt at all, the PowerARAY Professional brought an improvement that was well worth having.

EE1 Plus

Chord recommends putting the EE1 Plus between the network switch and the streamer, which is what I did, using decent quality Chord cables of course. I compared it against the standard EE1.





Lage's guitar was much better voiced with the EE1 Plus and I could hear each note better and how he shaped it.



» I went into mConnect on my phone and on Qobuz found Julian Lage's *Squint* album. On the track 'Boo's Blues', Lage's guitar was much better voiced with the EE1 Plus and I could hear each note better and how he shaped it. Cymbals were more delicate and detailed and snare was sharper, better defined. The bass line too was tighter and more melodic.

Next I tried 'Human Nature' from Miles Davis's *You're Under Arrest* album. On the EE1 Plus, the strings, percussion and keyboard on the intro were better separated, while Davis's trumpet was somehow more real, more focused and let me hear the nuances and subtleties of his play that make him the legend he is. The staccato rhythm of the track also came over better, helping it all make more sense musically.

All together now

The interesting part of all these comparisons is that no matter which ARAY products I plugged into my system, the ways in which it improved sound quality were always the same – sharper, cleaner, better focused and easier to hear what each musician is playing and how.

At the very end of my listening, I took them all out and systematically put them back one by one. Was there as noticeable cumulative improvement as there had been when I inserted them just one at a time? Yes there was.

So in conclusion, I strongly recommend you give the ARAY products a try. They deliver worthwhile improvements without breaking the bank and they keep on delivering them as you add more. +

Prices and Contact Details

ChordOhmic Ground ARAY RCA: £620, \$850, €746

ChordOhmic Ground ARAY XLR: £620, \$850, €746

PhonoARAY: £1,030, €1,299, US price to be confirmed

Power ARAY UK mains plug: £620 (UK only)

PowerARAY Professional (Signature X): £4,120, €4,888 no US version

EE1 Plus: £620, €799, \$930

Manufacturer Chord Company

🌐 www.chord.co.uk ☎ +44(0)1980 625700



TECH TALK

Chord Company ARAY: The Inside Story

Back in 2012, Chord Company MD Alan Gibb asked a question: 'where do we go from here?' He heard a modification to the Sarum cable that the technical director had been tinkering with. Seconds later, the ARAY concept was born.

What was the first ARAY product that Chord Company made, and when was it launched?

AG: The first ARAY product was the Sarum TunedARAY cable, launched in 2012. Up until then, cables were all about mechanical engineering and getting the impedances right. The most expensive part of manufacturing is when you want a cable braided. If you want that to be effective against high frequencies, you have to pack it tightly. Square-section braiding maintains its shielding better, but it also requires special machines, which are significantly slower.

Sarum at that time was the best cable we knew how to make, so I started talking to [then technical director] Nigel Finn about what the next step could be. Nigel told me he'd been thinking about it, had done something to the cable, and asked me to have a listen. And it sounded excellent. That's when the ARAY concept was born.

As with the GroundARAY products, the TunedARAY material was designed to address high-frequency noise. The ARAY components of the Sarum TunedARAY sit between the plastic and the outer braiding. The first ones took a lot of time to fit the Sarum. We also offered to take old Sarum cables back and fit them with the TunedARAY and new plugs, which

was cheaper for customers than buying a new cable. We still do that.

The GroundARAY products came much later on.

Is the ARAY material the same in the cables as in the GroundARAYs?

AG: No. The material used in the TunedARAY cables differs significantly from that used in the GroundARAY products.

The problem we'd always had with the ARAY technology was that it had to fit on a piece of wire. >>



Alan Gibb, Managing Director of Chord Company



If you get high-frequency noise on the clock circuit ground in your CD player or DAC, jitter goes up. It's like driving a Ferrari over a ploughed field.

» What problems do GroundARAY products address?

AG: They are dealing with high-frequency noise. Between 2012 and the launch of GroundARAY in July 2021, the amount of high-frequency noise in the average house had skyrocketed – with LED lights, Wi-Fi, mobile phones – the list is endless.

And your hi-fi components can add to that, with RF noise coming from bridge rectifiers, digital processing circuits, switch-mode power supplies, microprocessors and some digital displays. If you get high-frequency noise on the clock circuit ground in your CD player or DAC, jitter goes up. It's like driving a Ferrari over a ploughed field.

If high-frequency noise were entering a hi-fi system, all our cables would be shunting it around the entire system with minimal attenuation. We could see this noise on the signal ground. Connecting the GroundARAY in parallel, any noise that enters it is converted into heat by creating an electrical potential gradient.

So I started looking around for a suitable material. After a couple of years, we discovered a range of military-oriented materials designed to prevent spying or RFI emissions, but they were costly.

There was an obvious winner when we used it in the aluminium tubes of our GroundARAYs. Although it is not similar to the material used in TunedARAY cables, it is much more effective at pulling noise off the signal ground.

How has the range of ARAY products progressed over the years?

AG: The materials used in the ARAY products have changed, and our assembly process has improved

as we've become more skilled. The GroundARAY products are quite microphonic, and so the tubes are all filled with resin. We only connect the earth; we don't connect the signal.

The EE1 network filter is the only serial product we have ever done, and we got a lot of help to do that. That is a common mode, and so it is like a balanced cable. The noise goes through galvanic isolation, which scrubs off DC and the lower-frequency stuff. Its insertion loss is around 0.2dB. On the EE1 Plus, it's always better if the filter has less work to do. The idea was to put two GroundARAYs into it, one at the front end and one at the back end, and that reduces a lot of the clutter before the signal gets to the filter. It is also in a much heavier case with much better shielding.

A network switch reduces some of the noise, but it never eliminates it. Therefore, we recommend placing an EE1 or EE1 Plus immediately before the streamer to reduce noise further.

Then we thought, what about the mains? We spent years trying to make distribution blocks, and with our PowerHAUS products, we have GroundARAYs inside. On the mains plug-style PowerARAYs, we don't have as much space as in the PowerHAUS blocks. Although it's not as good as using a PowerHAUS, it is still quite surprising and significantly better than not having it at all. It's all well and good making something that is the price of a small plane, so we make sure we have entry-level products that are as affordable as possible.

We then decided to create the best PowerARAY possible, which led us to develop the PowerARAY Professional. This is loosely based

on our work within the PowerHAUS M6 block. It simply plugs into the mains socket next to the outlet for your system.

And then I looked at my turntable and thought, 'What would happen if I put an ARAY on the turntable earth wire?' And it worked. We use a speaker terminal on each end of the PhonoARAY because they offer the best connections currently available. The tonearm earth cable goes on one side, and you run the cable provided from the other side to your amplifier earth. The PhonoARAY has a hand-wound device inside that cuts down very high-frequency noise. Again, it is passive, not active, but it makes a difference. Like every other ARAY product, it converts high frequencies into heat, creating a potential gradient that the noise follows as the path of least resistance.

How does ARAY tech manage to attack just the high-frequency noise you don't want while leaving the high frequencies you do want and their harmonics unaffected?

AG: Because it's way up there in MHz. And remember it's only on the earth, not the signal wire, and it's in parallel. So it doesn't touch the primary audio signal itself. And we always listen to things.

When you use an ARAY, it sounds like the guy has rehearsed the song, and you can hear the phrasing on the piano. Is that important to you? Of course it is. You want to play music.

Where's the best place to start with an ARAY product?

AG: If something is 'boisterous', that's the one you tackle first! Especially routers and digital products. Many people start at the network switch. +