Analog vs. Digital Vinyl Shootout

Review by David Das

I had the pleasure of attending the Analog vs. Digital Vinyl Shootout event hosted by Club Secretary **David Snyder** on Thursday October 23rd at the Faith Lutheran Church.

The objective was to determine if one could hear the difference between the original Analog source from a Vinyl and a 24-bit/96kHz digitized signal converted from the source with and without Room Correction.

The turntable used was a Rega Planar 3 with a classic Denon DL-103 moving coil cartridge.

The speakers used were a pair of JBL 308P MkII active Studio Monitors.

These are powered 2-way speakers featuring an 8” woofer and a 1” soft dome tweeter. The internal Class D amp provides 56W to both drivers.

The High-Frequency and Low Frequency drivers are crossed over at 1800Hz using a 4th order Linkwitz-Riley crossover.

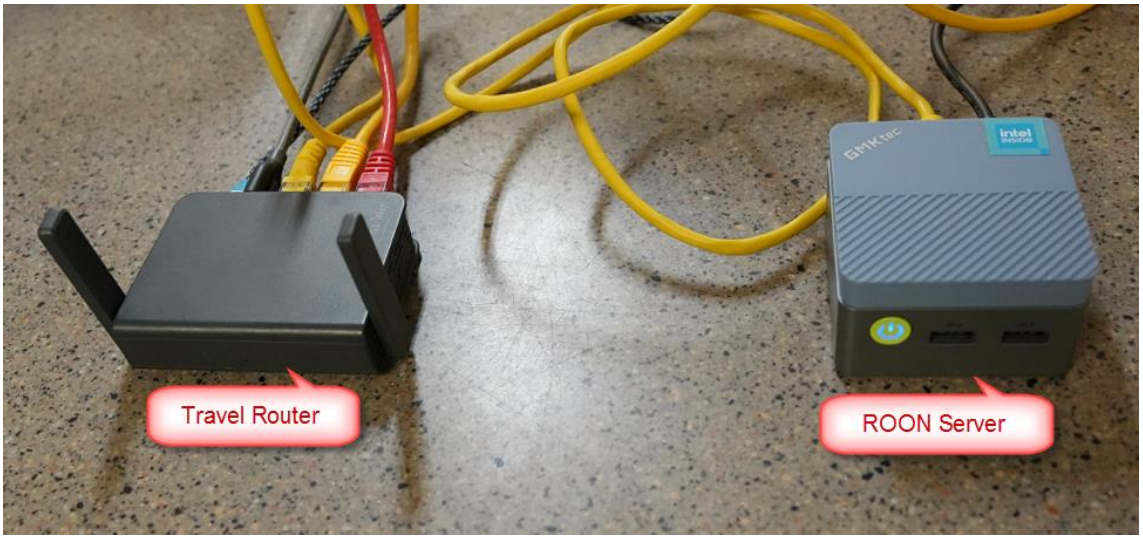
They accept balanced analog XLR Female and TRS Female inputs.

David Snyder came in early to set up all the equipment he needed for his mobile streaming network and generated the necessary Acourate Room Correction Filters for the JBL speakers at the sweet spot.

He used his Cell Phone for access to the internet.

The GL.iNet Slate GL-AR750S-Ext was used as a Travel Router.

Here you see the **Travel Router** on the left connected to the **ROON Server** on the right.



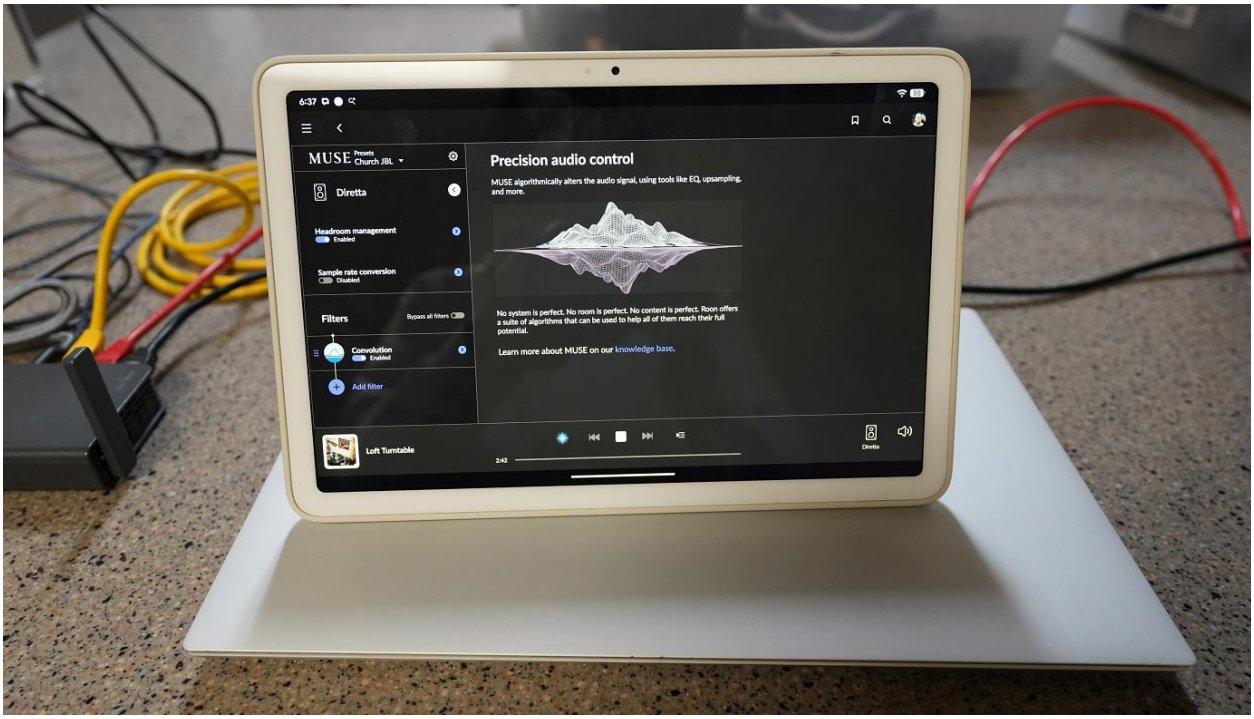
This was David’s Diretta Kit using the sleek ARGON cases.

This was the Diretta Host in the gray Argon Case.

This was the Diretta Target in the black Argon Case.

The Dell XPS 15 Windows Laptop was used to set up the network and run Acourate.

The Google Pixel Tablet was use to run the Roon Remote App.



The Topping E2X2 USB Audio Interface was used to measure the impulse responses of the JBL speakers using the iSEMcon EMX-7150 measurement microphone and Acourate.

Here you see the Topping Pre90/Ext90 Analog Preamp stacked on top of the Gustard X18 DAC.

This was the Parks Audio Puffin Phono Pre-amp.

This was the Chord HUEI Phono Pre-amp supplied by Club Member **Paul Zidel** sitting on top of the Cambridge Audio CP2 traditional analog Phono Pre-amp.

Round 1: The Phono Stage Face-Off

The first goal for this event was to conduct A/B comparisons between a traditional analog phono pre-amp (Cambridge Audio CP2) and a modern DSP based phono preamp (Parks Audio Puffin).

This gets to the heart of the classic debate. Which approach adds more undesirable character to the sound?

It is the subtle phase errors and distortion inherent in the analog RIAA equalization circuits or the act of analog-to-digital conversion itself?

Round 2: The Ultimate Question – Purity vs. Power

The second goal for this event was to compare an untouched analog signal path to a sophisticated digital chain featuring state-of-the-art digital room correction.

The plan was to use the digital output from the Puffin phono pre-amp, stream the digital signal into Roon, apply powerful 66,000 tap room correction filters generated by Acourate and play this back through the reference Gustard X18 DAC. During this process the signal would pass through a Raspberry Pi, a network, a Roon Server and the Diretta Transport Protocol before reaching the DAC.

Is the benefit of applying Digital Room Correction to speakers worth it even if it means converting the pristine analog signal first to digital and then back to analog?

Listening Tests

Club President John Harvell started off the event promptly at 7pm with a brief description of the setup, the equipment used and the goals for this shootout between Analog and Digital Vinyl.

Members were asked to bring their favorite Vinyl recordings to evaluate the differences and offer their personal opinions on which approach they preferred.

On some recordings with dense and complex instrumentation the differences were minimal. However on a few recordings where the vocals were the spotlight with minimal orchestration, the pure analog path sounded a shade sweeter, relaxed and more natural.

Here were some of the songs that were played from Albums brought in by club members.

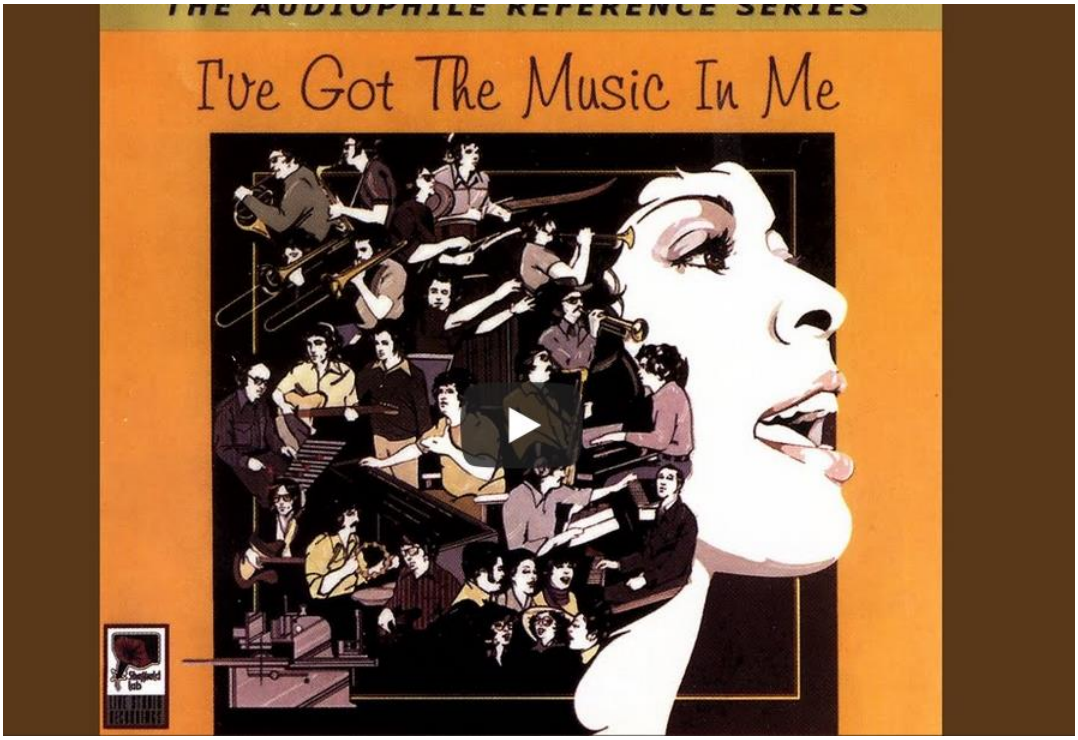
Take the Long Way Home – Supertramp

Ticket to the Stars – John Stewart

One Stage Before – Al Stewart

Power Wave – Dave Grusin

Raggae Tune – Thelma Houston



I sat in the sweet spot during several comparisons rounds trying to critically evaluate the differences between the pure analog and digitized signal paths.

The effect of Digital Room Correction was clearly audible at the sweet spot and even around the neighboring seats. With Digital Room Correction engaged I heard a flatter frequency response over the entire spectrum. The bass was leaner and tighter. This allowed the midrange to sound cleaner.

The benefits of DRC were instantly audible. This would make a big impact in rooms with poor acoustics.

If the digital stream was the only source I had access to, I would have been happy as a clam.

However, for this special demo event, we all had the privilege to listen to the original analog signal in its pristine glory. Almost every time I came out liking the pure analog signal path over the digital path. The presentation sounded sweeter, more relaxed with an added level of realism even while suffering from uneven frequency responses due to the room.

I think the moment you convert a pure analog signal into a digital signal and proceed to apply all these fancy digital filters and convert that signal back to analog, something gets lost in the translation. This process is not 100% transparent. Maybe converting the original analog signal to

DSD rather than 24/96 would get you far closer to the original recording but in this specific analog vs. digital vinyl shootout the pure analog path was my personal choice.

If you have a top quality turntable and cartridge and have invested $1,800 on a Chord HUEI phono stage preamp like Paul Zidel, it is best to keep your signal path in the analog domain and enjoy the delicacies of the original recording in its purest form. You should try to smoothen out your room response by acoustically treating your room with panels, absorbers and bass traps.

The magic is lost the moment you tinker with the original analog source. Yes, you can get a perfectly flat frequency response curve on the converted digital signal but at the cost of the sweetness and liquidity of the original analog signal.

Digital Room Correction along with Diretta Transport Protocol makes 100% sense on streaming sources because your source digital to begin with.

This was a remarkably educational event for all of us who attended. I would like to thank David Snyder for taking all the trouble to haul over all his equipment, set up all the wiring for the analog vs. digital comparisons and generate the necessary Room Correction Filters using Acourate. It was a lot of work!

I would like to thank every Club Member who allowed us to listen to selections from their favorite albums.

This was an enjoyable community event showcasing what is possible with state-of-the-art components.

Equipment List

Loudspeakers

- JBL 308P II Monitors
- Sanus Speaker Stands

Amplification

- Two 25' power cables
- Two 15’ Mogami Gold XLR cables
- New Topping Pre90/Ext90 Analog Preamp + Remote and Batteries
- Straight Wire Grey Lightning Power Cable (from X16)
- Two .5M Straight Wire Virtuoso 2 balanced interconnects

Source

- Parks Audio Puffin (and Waxwing)
- 12V iPower Elite for Puffin
- 5V iPower Elite + barrel to USB B adapter for Waxwing
- rooPlay RPi 4 with 5V power supply, optical cable and hifime optical to USB adapter
- Gustard X18 DAC + Remote
- Straight Wire Black Thunder II Power Cable
- XLO UltraPLUS USB Cable
- Diretta Host + Target Demo Kit with BJC 7 ft Ethernet
- Allo Shanti 5V//3A LPS for Diretta Host
- iFi iPower Elite 5V with USB C adapter for Diretta Target
- iFi Audio PowerStation
- Emotiva Power Cord
- Emotiva XLR interconnects for the Chord Huei phono stage
- Straight Wire Virtuoso II RCA interconnects for the Cambridge Audio CP2

Music Server

- GL.iNet Slate GL-AR750S-Ext travel router
- Micro USB to USB A cable + 5V power adapter for the travel router
- GMKTec NucBox G5 (N97) Roon Server with 512 GB microSD card
- 12V power supply for Roon Server
- CAT6 Ethernet cables for Roon Server, Endpoint, and rooPlay RPi4
- USB C to A cable for USB tethering from my phone (for Roon Server)
- Google Pixel Tablet for Roon Remote app
- Cable Matters 4 Outlet Power Splitter Cord (for all of the wall wart power supplies)
- Dell XPS15 laptop (just for setting up the network and checking on things)
- Dell Laptop Power Adapter

Room Correction Kit

- Topping Pro Interface with Topping USB C Cable
- Two 25’ TRS to Male XLR Cables
- German Mic with clip
- 15’ Mogami Gold XLR cable (included above)
- Mic Stand
- SPL Meter
- Laser Distance Measure

Misc

- UMIK-2 mic for system tuning if needed
- For Matt:
    - Orchard Audio locking banana speaker cables, 12 inches
    - Orchard Audio monoblock amps and external power supplies
    - microSD cards with latest Diretta images