

HARMAN Luxury Update - OCTOBER 2022

Saving the World from Bad Hi-Fi and Irresponsible Manufacturing and Packaging Practices

By David Tovissi

Vice President and General Manager
HARMAN Luxury Audio



Anyone who grew up on the sales floor at a specialty audio retailer remembers the mantra "We are saving the world from listening to bad hi-fi." We felt it was our obligation to the consumer to call out those manufacturers that invested more in marketing versus innovation. Today, the mantra is slightly modified but it should still be shared with our customers.

A growing number of companies, including HARMAN, are treating sustainability as an important objective in their strategy and operations to increase growth and global competitiveness. This trend has reached well beyond the small niche of those companies who traditionally positioned themselves as green.

Our CEO and President, Michael Mauser shared this statement to all HARMAN employees. "The world continues to change, and the cost of inaction is clear - As One HARMAN we are committed to ensuring we all thrive responsibly and sustainably - our actions today will echo into tomorrow."

Mark Levinson N05105

There are several reasons why companies, including HARMAN, are pursuing sustainability:

- Increase operational efficiency by reducing costs and waste
- Respond to and/or reach new customers and increase competitive advantage
- Protect and strengthen brand and reputation and build public trust
- Build long-term business viability and success

As a member of HARMAN's Sustainability Steering Committee, I have seen the results of our company's initiatives. Whilst our Business Unit may not be able to use all the learnings from the steering committee due to the sheer size of our products, the Luxury Audio product and engineering teams are looking for every opportunity to innovate our product design and packaging to be better stewards for the planet.

A perfect example of how our business unit is innovating for the planet is on full display with our latest New Product Introduction that has finally started shipping. The JBL XD (Extreme Durability) indoor/outdoor loudspeakers have several unique features that make them some of the most sustainable products of their type:



- Engineered to IP67 ingress protection level ensures that the product can repel and protect against the smallest amount of dust and a high volume of water. The IP67 rating allows for these products to be specified and installed in marine applications without the worry of rusting or damage from the harsh conditions of the sea. Another benefit of IP67 is the protection against wires or the smallest of tools contacting any electrical element of the speaker which could cause a short to the electronics or damage to the loudspeaker.
- This is the first-ever IP67 loudspeaker designed for repairability. Repairability is becoming more important than ever. Last year, France became the first country to require electronics manufacturers to state a repairability index of their products. The index is based on how easily a product can be repaired along with the availability of parts and technical documents needed by a consumer to perform their own repair of a device. Every part of the Stage XD loudspeaker can be repaired or replaced and when reassembled properly, as noted in the technical documents, it maintains the IP67 rating.
- Sustainable packaging was fully implemented on the Stage XD loudspeakers. From using biodegradable molds to house the products to the use of Soy Ink in the printing of the retail friendly boxes, our team was laser-focused on making this product and its packaging as eco-friendly as possible.

As stated earlier, we have a commitment to providing you and your customers with the most innovative products in the world. That commitment is just as important as providing you with products and packaging that will help make the world a better place to live. This commitment will deliver new customers to your stores and provide you with value propositions that elevate our products in the hearts and minds of your customers.

Later in this newsletter, you will hear from Lou Schreurs, Vice President of Commercialization, who will talk about the broader efforts that our company is pursuing to meet our sustainability goals. As our leader in sustainable causes, Lou pushes us to be better in our efforts to protect our planet.



Tech Talk

A Primer on Loudspeaker Impedance

By Mark Glazer



Throughout the history of loudspeakers, the impedance specification has always remained a vague stipulation. This tech talk goes into detail for understanding what it all means.

First, DC resistance is not the same as impedance!

Loudspeaker DC resistance is the measurement to the input of the loudspeaker using direct current. This is a fixed number expressed in ohms. The test can be done with a digital multimeter.

Loudspeaker impedance is the sum of DC resistance and the alternating current, which consists of capacitance and inductance values of the loudspeakers and crossover. This is a sum value and always higher than DC resistance



Loudspeaker impedance is not just one number.

A loudspeaker is voltage driven, meaning that the power amplifier acts as a voltage source for the applied signal without any regard to the current through the load. Figure 1 is the anechoic on-axis response of the JBL XD5 at 2.83 volts, reference 1 meter

Figure 1, On-Axis response of the JBL XD5 loudspeaker.
A loudspeaker's impedance varies substantially with frequency.

Figure 2 is the impedance of the same JBL XD5 loudspeaker from 20-20,000 Hz. Although the input resistance measures 4.1 ohms, the impedance peaks to approximately 20 ohms at 100 Hz and 2.4 kHz, and to a minimum of 4.5 ohms at 200 Hz. With ohms law, this means that maximum current is required at 200 Hz.

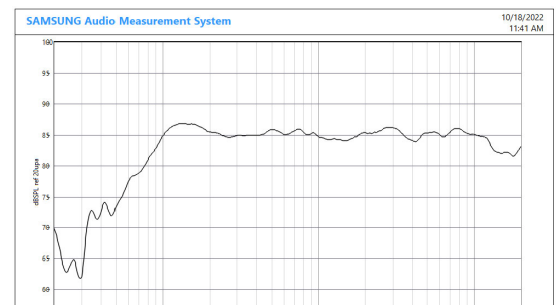
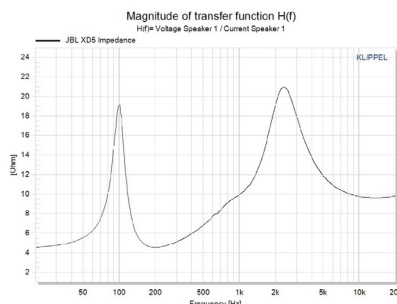


Figure2. Impedance curve of the JBL XD5 loudspeaker
What does this all mean to the end user.



It is difficult to specify a single value for loudspeaker impedance. The trend of loudspeaker manufactures is to use a one number spec for loudspeaker impedance. IEC Standard 268-5 states that the minimum impedance shall not fall below 80% of rated (also called nominal) impedance. Therefore, the JBL XD5 nominal impedance would fall in the 6-ohm range according to this IEC spec.

Conclusion:

We can conclude that due to the substantial impedance variations throughout the operating range, it is difficult to specify the impedance as just one number. Too low a minimum impedance number means the amplifier can run out of current capabilities, depending on how robust and expensive it is, and with too high a minimum impedance number the system could require a lot of gain, and even possibly run out of voltage.

The impedance range of the JBL XD series was designed to be ideal for lower-priced competently engineered amplifiers such as the ARCAM Solo Uno.

What's New

CEDIA Expo 2022 Recap

By Jim Garrett

Senior Director, Product Strategy and Planning
HARMAN Luxury Audio



CEDIA Expo was a return-to-form this year in almost every sense of the phrase. Held at the end of September in Dallas, Texas at the Kay Bailey Hutchison Convention Center, this year's show felt a lot like 2019 when we last had a full-strength event prior to the global pandemic. According to show host Emerald Exhibitions, there were 11,946 industry professionals and 317 exhibitors on hand to see and hear the latest and greatest products in the custom installation space. Attendance spread beyond just the U.S. with attendees coming from Canada, Central America, South America, Europe, Middle East, Korea and even as far away as Australia!

Our Luxury Audio 3,600 square foot exhibit was located at the crossroads of the two main aisles diagonally across from our partners at Samsung, with Crestron and LG occupying the other two corners. Our high-profile location helped ensure strong traffic from start to finish all three days of the show. We curated a collection of our most-exciting home theater and custom installation products from our



industry-leading brands including JBL, JBL Synthesis, ARCAM and Revel. We specifically focused on our award-winning immersive audio products and our formidable portfolio of architectural loudspeaker solutions including the newly expanded JBL collection. The line for our JBL Synthesis theater demo stretched through the booth and out to the aisle from the moment the show opened on Thursday morning to when it closed on Saturday afternoon with some people waiting up to an hour to get a chance to listen to our system.

We had more than 15 press appointments during the show, and I did more than 10 video interviews in the

booth with key media outlets. We were also a stop on the CEDIA Design + Connection Tour where members of the architecture and interior design community visited key manufacturers on the show floor to learn about how technologies are being integrated seamlessly into the home. Coverage was extensive from these appointments and interviews and helped to spread the word about our products. Additionally, we were featured in the VIP Edition and all three days of the CEDIA Expo daily magazine that is distributed throughout the show.

On the awards front, our ARCAM AV41 was a winner in the Residential Tech Today Innovation Awards, and it was a finalist for Best New Hardware in the 2022 CEDIA Awards.

Mark Levinson ML-50Ecovadis RaitingImage

For a detailed look at some of the highlights of our new ARCAM, JBL, and JBL Synthesis products, check out this extensive YouTube interview and product walk-thru I gave with Michael Stevens from Youthman – a video that already has more than 70K views as of this writing: [CLICK HERE](#)



All said and done, CEDIA Expo 2022 was a very successful event for us. The demand that had built up for new products and in-person interaction and demonstrations made for an exciting and engaging event. We met new friends and new customers and got reacquainted with old friends and existing customers. The response to our products was extremely positive with passion around our expanded JBL Synthesis portfolio, our new JBL architectural speakers including Stage 2, Stage XD and Conceal - our industry leading AVR selection from ARCAM - and our forward-looking streaming audio solutions from JBL.



Our flagship JBL Synthesis SCL-1 and SSW-1 loudspeakers and the limited-run JBL Classic Black Edition loudspeakers – products both highlighted on prominent displays at the front of our booth – generated significant buzz on the show floor, literally stopping people in their tracks as they walked by our booth.

Thanks to the entire Luxury Audio team and to every one of our partners who helped to make this year's CEDIA Expo such a success.

From the Audio Files

What HiFi India and Stuff website review of ARCAM AVR30

The ARCAM AVR30 was featured on the cover of What HiFi India with the caption; 'Arcam AVR30 could be the best AVR EVER!'. The StuffIndia website also featured a 5-Star Review of the product with glowing comments including:

'The AVR30 excelled at transients and imaging, qualities that help elevate a movie-watching experience from great to truly immersive.'

'The Arcam AVR30 is peerless when it comes to a truly dynamic, clean and articulate home-theatre experience.'

'If you value your time in your home-theatre, do yourself a favor and listen to the Arcam AVR30 before any other AVR.'

See the full review [here](#).





Training Tips

Training Module Updates October 2022

By Kevin Kent, Global Product Line Manager

High Frequency Technology – Direct Radiators – Coming Early November 2022

The second of a two-part series, this training describes another method of reproducing high frequencies in loudspeaker systems. Direct radiating devices, such as dome tweeters, offer a range of benefits but also inherent challenges. HARMAN has refined this technology over decades, resulting in tried-and-true designs loaded with innovative technology both inside and out allowing them to be economical to produce, while delivering a smooth response with reliable dispersion. In this lesson, you will learn about the pros and cons of different diaphragm and motor materials, and how acoustic lenses and waveguides can even dispersion of high frequencies, increase dynamics, and reduce diffraction and distortion.

“High Frequency Technology – Direct Radiators” will be released in early November 2022.

Multiple Subwoofers – Maximizing Low Frequency Response - Coming November 2022

While everyone’s preferences in genres, volume and even timbre of sound can differ, there is a common aspect of sound that we ALL universally tend to desire, the presence of distinct and noticeable bass. In fact, studies show that appreciation of adequate bass performance is held by nearly all listeners (regardless of being an industry expert or not). However, one of the most problematic areas is how to deliver similarly good bass to all listeners. So, why is obtaining satisfactory bass performance such a daunting task? In this lesson, we address the challenges and, most importantly, a solution. We hope the concepts and measures we’ve introduced throughout this lesson will aid you in providing your clients the best audio experience possible from their system.



“Multiple Subwoofers – Maximizing Low Frequency Response” will be released in November 2022.

As always you may access all the training courses by clicking [here](#).

Once you sign in, if these courses are not populated on your home page, click “Go to Courses” to sign up. Stay tuned next month as more training becomes available.

Meet The Team

Meet the HARMAN Luxury Audio Team

Name: **Doug Bell**

Position/Job Title: **Principal Software Engineer**

With HARMAN Since February 2022



With Meet The HARMAN Luxury Team, our goal is for you to get to know us better. In each edition we feature a different member of the team, and this month it's Sam Burkin, Product Test Engineer.

How would you describe what you do in your current role?

In theory my job is Embedded Software: designing, implementing and debugging code for new products. In practice my role involves much more. One aspect is coordination with outside vendors – for example co-designing with Stream Unlimited. There's also interfacing with colleagues in other HARMAN groups like ARCAM. I also navigate the processes in a large corporation, e.g. documentation for gate processes and working with the IT Help Desk. Much of my work involves investigating and updating code written for existing products by others. On top of this there's a bit of investigation of new products and technologies.

What did you study in school? Did you always imagine yourself doing something like what you're doing now or did the fates just take you in that direction?

I wanted to do electronics since eighth grade. I worked at a stereo repair center during high school. I considered architecture but the five year college idea was unappealing. Going into college for Electrical Engineering I wanted to build stereos; I didn't have that much interest in digital electronics much less computers. Upon graduation I didn't want to build missiles and didn't understand electronics industries. I thought I'd be optimizing some tiny circuit on a chip as an EE. So I targeted control systems work in order to stay hands-on; my first job out of college was for a firm that sent me to a nuclear plant in New Jersey and a Nabisco factory near Chicago in the winter.

How did your career path lead you to HARMAN?

I got a job at IBM – in part so I could live in New Paltz, New York for rock climbing. After five years at IBM, I joined Madrigal Audio Labs – which at the time was the manufacturer of Mark Levinson products. It was great to learn about state-of-the-art high-end audio while gaining proficiency in micro-controller code. Also, many afternoons were spent tweaking designs in the listening room, doing blind tests swapping capacitors, etc. Since then, I worked at several audio companies including Apogee Electronics, Theta Digital and DTS. My skills evolved by being involved in more and more complex software, Linux, MPEG, set-top boxes and general video. I then did some work for a digital cinema company now owned by Dolby, as well as embedded systems work on video scaling switchers for Extron. I then finally came full circle to work in the Levinson group at HARMAN. Who would have known?

What is the most important thing you have learned over your career?

One should do a favor for oneself, colleagues, and future generations by keeping notes and/or documenting one's work.

Code is not design – it is the end result of a process in which choices were made.

Any other advice you would share with people just starting out in this industry?

Sure. Save up some money then take a half-year off sometime.

What are you most proud of in your life?

Well not sure about proud but grateful to have had and to have survived all kinds of adventures, from crazy teenage antics to various climbing trips. Among these is summitting all the 14,000 foot peaks in the Sierra except Starlight Peak (Spring 2023?).

When did you realize you had a passion for music or audio? Was there any one band, song, or movie that did it for you?

Well, it seems most high schoolers want to rock out to something. Back in those days generic classic rock was popular; Rolling Stones, The Who, Zeppelin, etc. Southern rock and progressive rock also got some traction. I was a big fan of Yes, and recently was privileged to talk with vocalist Jon Anderson. A key moment around college was being introduced to Pat Metheny and other ECM music – opening a whole new world. In the Jazz world, more so than rock, there is a lot of cross pollination – this guitarist plays in some other group, that group's drummer has their own band, etc. I used to explore by spending hours examining (and sometimes buying) CDs at Tower records in Greenwich Village. I enjoyed seeing jazz in New York City back then at the Knitting Factory. Most music I like is instrumental.

What current technology impresses you the most?

Whatever went into the Webb telescope. I casually read some of the steps involved in calibration – so much to it. So amazing that all the complex hardware, software and processes were planned, designed and executed without issue. Also amazing are the images we get back.

Favorite music genre?

A lot of music gets lumped under Jazz if it is instrumental, so I suppose it's Jazz. I'd say I lean toward Jazz/Rock/Fusion/Progressive/Out There.

The desert island question, of course. If you were marooned for eternity & could listen to only three albums, what would they be?

Yes – Close to the Edge

Nels Cline and Greg Bendian – Interstellar Space Revisited: The Music of John Coltrane

Franklin Kiermyer – Closer to the Sun (F.K. is an amazing drummer -if you like Coltrane check out his music)

You have the floor. In closing, tell us anything else you want us to know about yourself.

I love the outdoors.

Dealer Profile

Nodaya

with Mr. Reo Noda

CEO, Nodaya

How long have you been in business?

Founded in 1957, this year marks the 65th anniversary. The founder is Denkichi, the second is Kazuo, and I am the third generation.

How many locations do you have?

We have now four stores in the Northern area of Japan, including Sendai, Fukushima, Utsunomiya and our flagship shop in Koriyama.



How did Nodaya get its start?

In the old days, it had started as a rice wholesaler in Koriyama. Founded as just a tiny store at that time, then started a wholesale business of bicycle and a consumer electronics business afterwards.

At last, the founder Denkichi decided to start a high-end audio business when he went on a trip to the United States and experienced a lot of legendary audio products, especially JBL's Hartsfield.

How many people are on the Nodaya team?

Today, Nodaya operates with 23 staff. As well as 2 channel high-end audio and entry audio, we also focus on custom installation business now. We work very closely with local housebuilders and conduct a comprehensive installation project using Crestron.

Thoughts on the importance of training?

We believe that it is very important to learn through actual practices rather than the information from books or manuals. So, time-served staff give lectures to new staff with actual products, how to set them up properly, or how to make them sound better in listening rooms. In addition, we are going to visit Munich Audio Show with ALL employees every year, to learn the pinnacle of the sound by real experience. We also visit a lot of manufacturers' factories to learn more about products.

What do you like most about HARMAN Luxury Audio products and which lines do you feature?

I have to say DD67000 for sure. That is the flagship,



they are not only amazing sounding but also make iconic sound realized by dual 15-inch woofers and other unique components.

How do you think the luxury audio industry is currently doing?

Due to the current economic situation, the price of audio is soaring here in Japan and listening style of music has been changed in a decade. It is becoming more difficult and complex for everyone to enjoy it year by year. However, I still believe in the power of music, where you can listen to old artists in the home just like a time machine. We would like to offer the best audio systems to our customers based on their lifestyle and preference.

What is Nodaya's mission?

We provide delight and enjoyment of life to our customers through audio and home theater equipment.

You have the floor. Anything else you want to share with us about Stereotypes that you would like the world to know?

We "create" rooms and set them up so that the potential of the audio equipment can be maximized. We shuffle the equipment in the exhibition space of four stores on a monthly basis, so that customers can enjoy new sound every month with fresh combinations.

What's New

Sustainability of HARMAN

By Lou Schruers

HARMAN Luxury Audio



Sustainability has become the seventh strategic pillar for HARMAN International. Let me share our sustainability journey to date with you.

The Climate Pledge

An Environmental Social and Governance Committee has been created to drive this important subject forward. As a company we became a member of The Climate Pledge Organization where we committed to be Carbon Neutral by 2040, 10 years ahead of the Paris agreement.

Impressive steps have been taken to achieve that goal. To name a few, we are actively reporting into the Carbon Disclosure Project (CDP) and are a member of RE100 (RE100 is a global initiative bringing together the world's most influential businesses committed to 100% renewable electricity), where we publicly committed to only use renewable energy for all our operations and factories. 200 of our suppliers have committed to support us with the transition towards renewable energy.

Science Based Targets Initiatives will help to underpin actions towards Carbon Neutrality. Additionally, we became members of the Responsible Business Alliance. Ecovadis audited us and rated us SILVER for 2022.



Life Cycle Assessment

A lot of initiatives have been started throughout the company to reduce our Carbon Emissions towards our 2040 goal.

One element is our Life Cycle Assessment of products which helps to understand our Cradle-to-Grave Carbon emissions. Understanding the drivers is guiding the teams to work on reductions. In Consumer Audio we launched this year four products built from Post-Consumer Recycled (PCR) plastics.

11 speaker products will use PCR fabric. And almost all new product introductions are using recycled paper and printing is done with more environmentally friendly Soy Ink. Plastic has been banned!



Power Efficiency has also gotten a lot of attention. This year 13 products have already been certified with an EPA Energy Star Label.

In order to step up on Circularity we are also addressing things like reparability, longevity and facilitation of easy disassembly/recycling. A lot is ongoing, and we are moving the organization towards greater environmental awareness across all divisions.

Great steps are being taken on our journey towards 2040 Carbon Neutrality. Here is a visual summary of 2022 achievements:

