



What's New

CY23 Targets and Mid-Year Reviews

By Dave Tovissi

Vice President and General Manager

HARMAN Luxury Audio



With half of the year already behind us, I wanted to share the progress that we have made thus far to accomplish our CY23 revenue and operational goals. In January, my article spoke about HARMAN Luxury Audio's Initiatives for the year. In full transparency, I will provide you with a report card on our goals.



Continue Double Digit Revenue Growth: Over the past 36 months, the HARMAN Luxury Audio Group has seen tremendous CAGR growth. Our revenues have almost tripled since CY2019. Of course, we benefited from the fact that people were spending more money on home entertainment during the COVID lockdowns. Heading into CY23, we remained bullish on the industry trends and forecasted our business to continue to grow by double digits. Through June 30th, we are tracking behind our revenue goals for the year, but we remain optimistic to grow our business over CY22.



The main reason for optimism is that our new products are getting glowing reviews from the industry, and we have several new products that will launch at CEDIA Expo this September that will drive incremental revenue throughout the fourth quarter of this year. The products that we announced at HARMAN EXPLORE are either in production or will be in production before the end of the third quarter. Those products include the award winning JBL 4329P Active Studio Monitor and the expansion of the JBL Classic Electronics - all in production now. The JBL Spinner BT, our

first Bluetooth turntable, is expected to be in production next month making it available for holiday gift-giving opportunities.



Strategically Improve Global Marketing and Awareness of Luxury Brands: In my January 2023 article I spoke about improving the global marketing efforts related to launching new products while also driving more awareness of our existing products. I am happy to share that this initiative is progressing to plan. We have contracted a new agency to maintain our social sites and our global marketing team has been focused on posting new and relevant content to our HARMAN Luxury Audio LinkedIn site. The content is a mixture of company and customer created assets. As a reminder, all customers that are spotlighted in the Dealer Profile will also be featured on our LinkedIn site as well.



Besides our focus on social sites, the global marketing team is working together with our product development teams to launch our new products within weeks of the products going into the start of production. During our Global Stakeholders Meeting in March, we agreed that we needed to be more disciplined in our launch strategy. We want our products to be launched with inventory in our warehouses. That initiative requires our regions to do a much better job of forecasting the demand for products at launch so we can make sure our suppliers have enough materials on hand as we begin production.



Continuous Improvement of Training: With thousands of new learners enrolling in the HARMAN Luxury Audio University annually, we are compelled to deliver the best training possible to our students. As a reminder, our product managers collaborate closely with the team at Cogent 360 to create e-Learning modules for all new products. They also work together to update any existing courses.



We have also hosted several distributors and dealers at our newly renovated facilities in Northridge for an abbreviated version of the HARMAN Luxury Audio Academy in the first six months of the year. To allow more customers to experience the benefits of attending a Luxury Audio Academy, our team is tasked to recreate the experiences in a virtual environment. We are prototyping and testing how customers can virtually walk through the various labs and learn about the Science of Sound.

I look forward to sharing the year-end results and more updates on our initiatives in a future newsletter article. Speaking of the newsletter, this month we are celebrating our fourth year of producing and sharing our monthly newsletter with you. Our goals for the newsletter that started production in June of 2019 were to improve communication between our business unit and our customers. To all those who have contributed to this newsletter I want to share my appreciation for your commitment to inform and educate our readers. It takes passion and discipline to deliver these articles on a consistent cadence.

To our readers, this newsletter was created for you. Please let us know how we can continue to improve our content by sending your suggestions to me at david.tovissi@harman.com



**Celebrating 4 Years
Informing & Educating**

HARMAN
LUXURY AUDIO GROUP



MEET THE TEAM

**Meet the HARMAN Luxury
Audio Team**

Name: **Dave Barber**

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

With HARMAN Since April 2023

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 Dave Barber, Principal Hardware Engineer.



ARCAM

JBL SYNTHESIS™

lexicon

**mark
levinson.**

REVEL®

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

I design the electronics for some of HARMAN's high-end audio brands, to take music in its stored format, deliver it to your loudspeakers and give you ultimate listening pleasure.

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?

When I was young, we had a hire TV which would occasionally stop working and the TV engineer would come out to repair it. I watched them with keen interest and recall saying, "when I grow up, I want to do that". Well... hire TV's don't exist anymore and neither do TV repair engineers visit our homes. But it was from then I knew that I wanted to get into Electronics. I studied Electronic Engineering part time, over the course of six years, to gain my qualification.

How did your career path lead you to HARMAN?

I've worked in the high-end audio business for many years, developing world class audio products. HARMAN Luxury Audio brands share my passion for delivering fantastic musical performances. So it's my love of the products and my skills and experience that have brought us together.

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

Work smarter, not harder. We're always told we need to work hard, but making things hard for oneself is futile. Challenge is good, but I try find ways to work effectively, whether it's physical tools to make a job easier, or "tools of the mind" to improve productivity.

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

Don't be afraid to ask questions. When you're starting out in a career you are often surrounded by people with vast experience and it's not uncommon to feel that you should know more than you do. That's totally normal, and those experienced people around you should be willing to share their knowledge with you. Ask questions and don't be afraid to ask for a deeper explanation if you don't fully understand. It's our job as experienced professionals to nurture talent and to pass on our knowledge.

What are you most proud of in your life?

I'm proud of everything that I've achieved so far. Life has presented many challenges, struggles and successes, but most importantly I'm grateful for everything and everyone I have in my life.

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?

My parents always had the radio on when I was growing up, so pop music of the time was the backdrop to my childhood. I also bought some turntables in my teens and DJ'd in my bedroom and at friends' parties. I don't think I go a single day without listening to music.

What current technology impresses you the most?

Artificial Intelligence. I think it has many possibilities in my field of work, from helping with new product concepts to analysing product performance and so much more.

Favorite music genre?

I like such a variety! I would have to say Alternative Rock as that encompasses many of the bands and much of the music I like to listen to regularly. I also have a love of uplifting trance, it's great for focus and when driving.

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

Killers – Hot Fuss

Fleetwood Mac – Rumours

Dave Pearce – Trance Anthems 2008

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

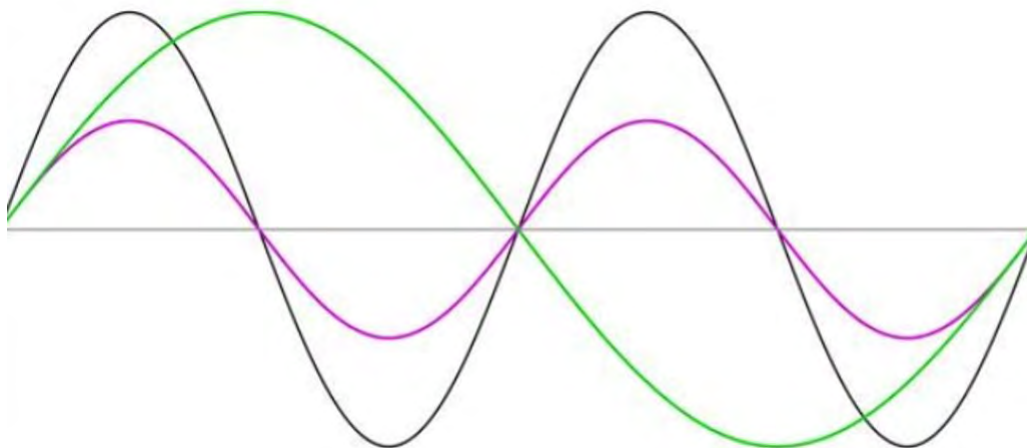
I love adventure and trying new things. I've traveled many countries of the world and currently have a little camper van, so spend many of my holidays and weekends exploring the British countryside.



Tech Talk

Listening & Impressions of Phase in Loudspeaker Systems

By Armando Martinez



Active listening is one of the critical phases during loudspeaker development. It is the connection between the objective and

subjective measurements.

System Engineers carefully consider the science behind loudspeaker design and follow well accepted industry standards. They also listen to the final product with diverse music material.

Our sense of hearing is very sophisticated. Hearing is based on the amplitude of the frequencies. Our ears may be *insensitive* to phase. While we may not be able to detect phase, it doesn't mean that we don't deal with phase. System Engineers have determined that phase differences induced in the processing side, includes mixing, EQ and or listening environment, could have an influence in the magnitude response and become detectable. Humans can hear 0.3dB changes in frequency response and as a result we can determine subtle differences in system designs.

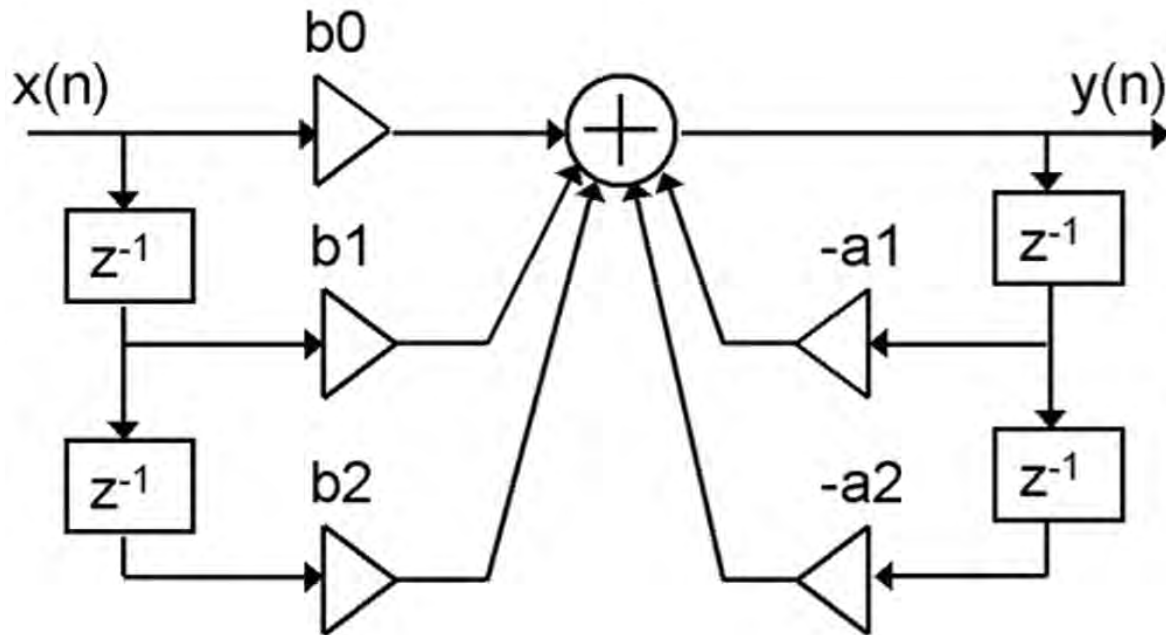
IIR (Infinite Impulse Response) and FIR (Finite Impulse Response) Filters

IIR's

As mentioned in one of our previous Tech Talk articles [Tech Talk - Harman Luxury Audio News Tech Talk](#), IIR filters mimic the exact behavior of analog filters used in crossovers. If used in the processing side, they present a similar magnitude and phase behavior as their passive counterparts. So, in theory we should not expect a deviation in

that regard. Digital implementation filters are far more practical to implement and thus expand the potential level of correction applied.

IIR's are generally more computationally efficient than FIRs. This makes them the first choice especially when processing power is a limitation at the DSP side.

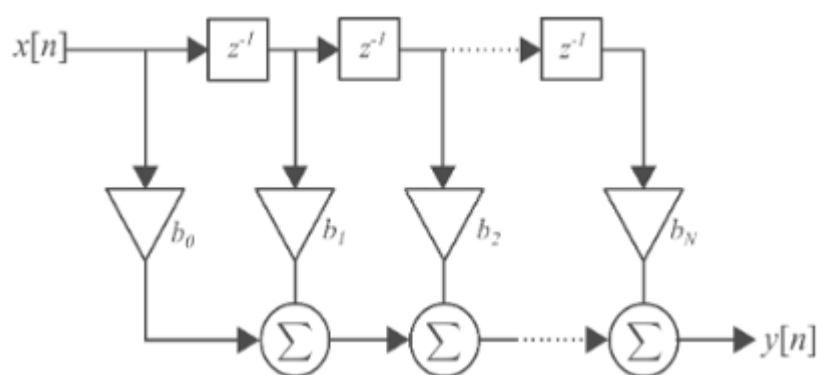


IIR Diagram

FIR's

Finite Impulse Response filters have several favorable characteristics. Systems Engineers often use them during system tuning. One of their main characteristics, which is contrary to IIR filters, is that they have linear phase behavior. That means that they preserve the phase relationships between the different frequencies in the signal.

For a loudspeaker system where there is a need to induce phase changes due to the different acoustic components in the system and or with the crossover design, FIR filters become more relevant. They can be used to obtain the desired transfer function and correct phase-related issues. They can be implemented with surgical precision at any specific frequency.



FIR filters offer other advantages in comparison with IIR filters including zero phase, inherent stability, and often are easier to implement.

$$y[k] = \sum_{k=0}^M b_k \cdot x[n - k]$$

One of the potential limitations derived from the use of FIR filters is latency. The serialized process that depends on several taps can add to the overall system latency. To eliminate latency issues, System Engineers use DSP and accelerators, tailored to specific filters. That allows them to be more efficient to implement.

Use Case

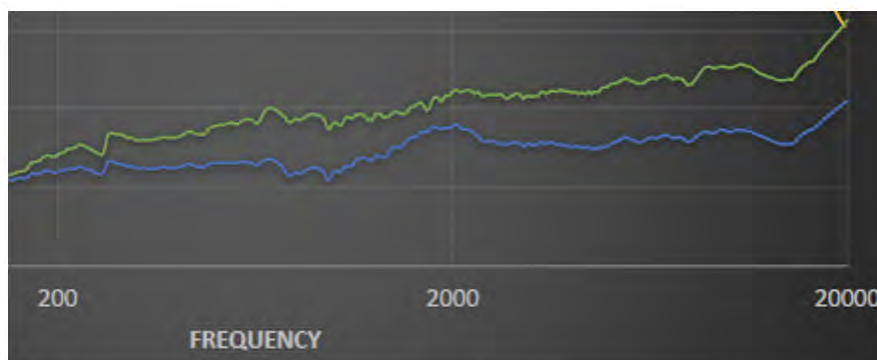
Dealing with phase, one of the key methodologies in system design one must account for is the transition between the different transducers in the loudspeaker defined by the crossover. System Engineers often face challenges where phase changes are reflected in the overall system response.

Several years ago, I conducted my first experiment comparing IIR and FIR filter implementations that had identical frequency response and magnitude. My testing revealed that the On-Axis response was identical. However, the linear phase behavior derived from FIR implementation had a smoother transition at the crossover region. FIR filters translated more accurately. Many industry experts concur with my early findings.

IIR Original Implementation



FIR Implementation



— First-Ref-DI — Total Sound-Power-DI

Regardless of which type of filters a Systems Engineer chooses to employ in the digital domain, having both types at their disposal allows them to design a system that can outperform typical passive loudspeaker designs. We can use these filters to either correct the phase shift introduced by passive crossovers or generate linear phase at any frequency over the audible spectrum.

System Engineers can employ a hybrid approach for applying filters to correct specific anomalies during system tuning. Independent of what approach we use, the goal is to make the loudspeaker as transparent as possible. Besides filters, we can also employ DSP to influence our designs. We can utilize DSP for more than loudspeaker tuning. We need a different mindset for designing our loudspeaker systems.

As stated earlier, active listening is an important step to loudspeaker design. HARMAN offers our employees, regardless of role within the company, the chance to be certified as a Golden Ear listener. Our engineers will always seek feedback from our Golden Ears to determine if our designs are performing the way we intended.



Dealer Profile

Thanh Tung Audio

Ho Chi Minh City, Vietnam

President

Nguyen Thanh Tung

Key Statistics & Information

Opened	1992
--------	------

HARMAN Brands Supported	Arcam, JBL Synthesis, Mark Levinson, Lexicon and Revel
-------------------------	--

The HARMAN Luxury Audio Group is proud to have some of the best high-end consumer electronics partners across the globe. Each month, we have the pleasure of learning a little bit more about one of our dealers or distributors. This time we spoke with Nguyen Thanh Tung, President of Thanh Tung Audio in Vietnam. We did a profile of this dealer back in January of 2021, but they have some updated news and showrooms that they would like to share.

How long have you been in business?

We've been in business since 1992 and have two locations in Vietnam. Both are located in Ho Chi Minh City – one focuses on Home Audio and the other on Car Audio.

How many people are on the Thanh Tung Audio team?

We have a total of 30 people on staff with Thanh Tung Audio. Half of them with Home Audio and the other half with Car Audio.

What is Thanh Tung Audio's mission?

Our mission is to highlight the product for customers so that they can quickly see the outstanding strengths compared to other competitors. In addition, we also want to share detailed user manuals that highlight the superiority and wisdom of the product so our customers can get quick and easy support.



Thoughts on the importance of training?

Training is very important to us. We want our team to understand every detail with each product. We have them conducting detailed product demos and checking each feature of the product to ensure that they understand the important points when talking to our customers.

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

We really like JBL High End Audio and JBL Synthesis. Through time, we have enjoyed the products and the next generation of those products always gets better and better. With Mark Levinson, the beautiful style and the sound is always natural. There is a sound difference with Mark Levinson products than with other brands. ARCAM has very good products and we have had nearly zero service issues with those products. We think the design and sound with the top-of-the-line Revel products like Salon 2 and the PerformaBe Series is very good now. For Lexicon, we would like to see similar products as the JBL SDP 58, SDA 2200, and SDA 7120, but with the brand's silver finish.

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

We think that luxury products will continue to sell well, and that cost will not be an issue. However, the design and sound of the products need to be perfect. Or products that have a

good value and where the function is the focus to give the customer exactly what they want will also perform well.



What is Thanh Tung Audio's mission?

We are committed to offering the finest home and car audio products and we are optimistic about our industry and our valued business partners.

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

We would like to remind all Audiophiles as well as music lovers, please pay attention to the Home High End Cinema System. When you use the best quality products, you can hear the difference.

Treat your accessories as equals to the components and speakers by using the same class of wiring and anti-vibration as for hi-end stereo and you'll see a truly superb performance.

With an abundance of sources and unlimited



HDR images, Atmos, DTS, etc., you should create the best high-end movie watching experience.

If you don't believe us, come see us for a demo!

And check out the website:

ThanhTungAudio.com

the absolute sound

From the Audio Files

The Absolute Sound 2023 Editor's Choice Awards: Best Loudspeakers

The HARMAN Luxury Audio Group continues to reap accolades from the press. Reviews are one of the key elements in the decision-making process when consumers decide to invest in luxury entertainment products. Here's another positive take on our efforts by none other than *The Absolute Sound*.

The Absolute Sound 2023 Editors' Choice Awards tipped their hat to two of our Revel loudspeaker designs, the Performa3 F206 and the M126Be. Here is what they had to say about the floor-standing F206's:

This three-way, bass-reflex floorstander has charisma pure and simple. With its enthusiastic musicality, dynamic energy, and imaging precision, the F206 simply commands its audience's attention. Offering strong low-frequency dynamics, excellent upper-bass slam, lifelike midrange presence, and a treble range that is eloquent yet mercifully without the needle of tweeter localization, the F206 exceeds all expectations of performance in its price class, and well beyond.



Here's what they had to say about the Performa M126Be:

Describing the M126Be as a hot-rodded version of the two-way Performa M106 does not give it its sonic due. Fireworks and butt-kicking dynamics? Those Revel trademarks are still in place. But there's a new degree of silken, shimmering refinement that's rare in this segment. Thanks to a new 1" beryllium-dome tweeter, paired with a ceramic-coated, cast-aluminum, acoustic-lens waveguide, and a 6.5" ceramic composite aluminum mid/bass, low-level resolution, timbral realism, and top-end air and speed have improved across the board. Perhaps the most impressive aspect of this excellent compact is its eerie soundstage continuity. Relatively easy to drive, the M126Be still craves good amplification—the more watts the merrier.





Training Tips

Training Module Updates July 2023

By Kevin Kent, Sr. Global Product Line Manager



Harman University Insights

The HARMAN University user base continues to grow. So far, we've seen 336 new learners in 2023 and the number of course completions continue to grow. Here are a few all-time highlights of HARMAN University as of July 2023:

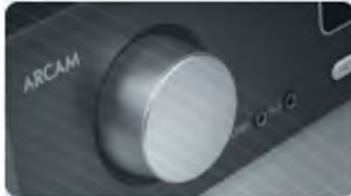


Top three courses:



HDA

ARCAM HDA Series Multi-channel



ARCAM Introduction



ARCAM HDA Series 2-channel

The HARMAN University team would like to thank you for your participation, the impact we can make together and look forward to the progress ahead.

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.